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ENCYCLOPEDIA BRITANNICA



ENCYCLOPÆDIA BRITANNICA.

POETRY, PART II. Sect. 2. continued.

Of Lyric Poetry.
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The song.

THE variety of subjects, which are allowed the *lyric* poet, makes it necessary to consider this species of poetry under the following heads, viz. the *sublime* ode, the *lesser* ode, and the *song*. We shall begin with the lowest, and proceed to that which is more eminent.

I. *Songs* are little poetical compositions, usually set to a tune, and frequently sung in company by way of entertainment and diversion. Of these we have in our language a great number; but, considering that number, not many which are excellent; for, as the duke of Buckingham observes,

Though nothing seems more easy, yet no part
Of poetry requires a nicer part.

The song admits of almost any subject; but the greatest part of them turn either upon *love*, *contentment*, or the *pleasures* of a *country life*, and *drinking*. Be the subject, however, what it will, the verses should be easy, natural, and flowing, and contain a certain harmony, so that poetry and music may be agreeably united. In these compositions, as in all others, obscene and profane expressions should be carefully avoided, and indeed every thing that tends to take off that respect which is due to religion and virtue, and to encourage vice and immorality. As the best songs in our language are already in every hand, it would seem superfluous to insert examples. For further precepts, however, as well as select examples, in this species of composition, we may refer the reader to the elegant *Essay on Song Writing*, by Mr Aikin.

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The distinguishing character of the lesser ode.

II. The *lesser ode*. The distinguishing character of this is sweetness; and as the pleasure we receive from this sort of poem arises principally from its soothing and affecting the passions, great regard should be paid to the language as well as to the thoughts and numbers.

Th' expression should be easy, fancy high;
Yet that not seem to creep, nor this to fly:
No words transpos'd, but in such order all,
As, though hard wrought, may seem by chance to fall.

D. BUCKINGHAM'S *Essay*.

The style, indeed, should be easy: but it may be also florid and figurative. It solicits delicacy, but disdains affectation. The thoughts should be natural, chaste, and elegant; and the numbers various, smooth, and harmonious. A few examples will sufficiently explain what we mean.

VOL. XVII. Part I.

Longinus has preserved a fragment of Sappho, an ancient Greek poetess, which is in great reputation amongst the critics, and has been so happily translated by Mr Philips as to give the English reader a just idea of the spirit, ease, and elegance of that admired author; and show how exactly she copied nature. To enter into the beauties of this ode, we must suppose a lover sitting by his mistress, and thus expressing his passion:

Of Lyric Poetry.
122
The Sapphic ode.

Blest as th' immortal gods is he,
The youth who fondly sits by thee,
And sees and hears thee all the while
Softly speak, and sweetly smile.
'Twas this depriv'd my soul of rest,
And rais'd such tumults in my breast;
For while I gaz'd, in transport tost,
My breath was gone, my voice was lost.
My bosom glow'd, the subtle flame
Ran quick through all my vital frame:
O'er my dim eyes a darkness hung;
My ears with hollow murmurs rung.
In dewy damps my limbs were chill'd
My blood with gentle horrors thrill'd;
My feeble pulse forgot to play;
I fainted, sunk, and dy'd away.

After this instance of the Sapphic ode, it may not be improper to speak of that sort of ode which is called *Anacreontic*; being written in the manner and taste of Anacreon, a Greek poet, famous for the delicacy of his wit, and the exquisite, yet easy and natural, turn of his poetry. We have several of his odes still extant, and many modern ones in imitation of him, which are mostly composed in verses of seven syllables, or three feet and a half.

We shall give the young student one or two examples of his manner from Mr Fawkes's excellent translation.

The following ode on the power of gold, which had been often attempted but with little success, this gentleman has translated very happily.

Love's a pain that works our wo;
Not to love is painful too:
But, alas! the greatest pain
Waits the love that meets disdain.

What avails ingenuous worth,
Sprightly wit, or noble birth?
All these virtues useles prove;
Gold alone engages love.

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May he be completely curst,
Who the sleeping mischief first
Wak'd to life, and, vile before,
Stamp'd with worth the fordid ore.
Gold creates in brethren strife;
Gold destroys the parent's life;
Gold produces civil jars,
Murders, massacres, and wars;
But the worst effect of gold,
Love, alas! is bought and sold.

His ode on the vanity of riches is of a piece with the above, and conveys a good lesson to those who are over anxious for wealth.

If the treasure'd gold could give
Man a longer term to live,
I'd employ my utmost care
Still to keep, and still to spare;
And, when death approach'd, would say,
'Take thy fee, and walk away.'

But since riches cannot save,
Mortals from the gloomy grave,
Why should I myself deceive,
Vainly sigh, and vainly grieve?
Death will surely be my lot,
Whether I am rich or not.

Give me freely while I live
Generous wines, in plenty give
Soothing joys my life to cheer,
Beauty kind, and friends sincere;
Happy! could I ever find
Friends sincere, and beauty kind.

But two of the most admired, and perhaps the most imitated, of Anacreon's odes, are that of *Mais* wounded by one of the darts of Love, and Cupid stung by a Bee; both which are wrought up with fancy and delicacy, and are translated with elegance and spirit.—Take that of Cupid stung by a bee.

Once as Cupid, tir'd with play,
On a bed of roses lay,
A rude bee, that slept unseen,
The sweet breathing buds between,
Stung his finger, cruel chance!
With its little pointed lance.
Straight he fills the air with cries,
Weeps, and sobs, and runs, and flies;
'Till the god to Venus came,
Lovely, laughter-loving dame:
Then he thus began to plain;
"Oh! undone—I die with pain—
"Dear mamma, a serpent small,
"Which a bee the ploughmen call,
"Imp'd with wings, and arm'd with dart,
"Oh!—has stung me to the heart."
Venus thus reply'd, and smil'd:
'Dry those tears for shame! my child;
'If a bee can wound so deep,
'Causing Cupid thus to weep,

'Think, O think! what cruel pains
'He that's stung by thee sustains.'

Of Lyric
Poetry.

Among the most successful of this poet's English imitators may be reckoned Dr Johnson and Mr Prior. The following ode on *Evening* by the former of these writers has, if we mistake not, the very spirit and air of Anacreon.

Evening now from purple wings
Sheds the grateful gifts she brings;
Brilliant drops bedeck the mead;
Cooling breezes shake the reed;
Shake the reed and curl the stream
Silver'd o'er with Cynthia's beam;
Near the chequer'd lonely grove
Hears, and keeps thy secrets, Love.
Stella, thither let us stray!
Lightly o'er the dewy way.
Phœbus drives his burning car
Hence, my lovely Stella, far:
In his stead the queen of night
Round us pours a lambent light;
Light that seems but just to show
Breasts that beat, and cheeks that glow:
Let us now, in whisper'd joy,
Evening's silent hours employ;
Silence best, and conscious shades,
Please the hearts that love invades:
Other pleasures give them pain;
Lovers all but love disdain.

But of all the imitations of the playful bard of Greece that we have ever met with, the most perfect is the following Anacreontic by the regent Duke of Orleans.

I.

Je suis né pour les plaisirs;
Bien fou qui s'en passe:
Je ne veux pas les choisir;
Souvent le choix m'embarasse:
Aime t'on? J'aime soudain;
Bois t'on? J'ai la verre à la main;
Je tiens par tout ma place.

II.

Dormir est un temps perdu;
Faut il qu'on s'y livre?
Sommeil, prends ce qui t'est du;
Mais attends que je fois yvre:
Saisis moi dans cet instant;
Fais moi dormir promptement;
Je suis pressé de vivre.

III.

Mais si quelque objet charmant,
Dans un songe aimable,
Vient d'un plaisir séduisant
M'offrir l'image agréable;
Sommeil, allons doucement;
L'erreur est en ce moment
Un bonheur véritable.

Translation of the Regent's Anacreontic (E).

Frolic and free, for pleasure born,
The self-denying fool I scorn:

The

(E) We give this translation, both because of its excellence and because it is said to have been the production of no less a man than the late Lord Chatham.

Part II.

Of Lyric Poetry.

The proffer'd joy I ne'er refuse ;
'Tis oft-times troublesome to chuse.
Lov'st thou, my friend ? I love at sight :
Drink'st thou ? this bumper does thee right.
At random with the stream I flow,
And play my part where'er I go.

Great God of Sleep, since we must be
Oblig'd to give some hours to thee,
Invade me not till the full bowl
Glow in my cheek, and warms my soul.
Be *that* the only time to snore,
When I can love and drink no more :
Short, very short, then be thy reign ;
For I'm in haste to live again.

But O ! if melting in my arms,
In some soft dream, with all her charms,
The nymph belov'd should then surprise,
And grant what waking she denies ;
Then prithee, gentle Slumber, stay ;
Slowly ; ah slowly, bring the day :
Let no rude noise my bliss destroy ;
Such sweet delusion's real joy.

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Sappho.

We have mentioned Prior as an imitator of Anacreon ; but the reader has by this time had a sufficient specimen of Anacreontics. The following *Answer to Cloe jealous*, which was written when Prior was sick, has much of the elegant tenderness of Sappho.

Yes, fairest proof of beauty's pow'r,
Dear idol of my panting heart,
Nature points this my fatal hour :
And I have liv'd : and we must part.
While now I take my last adieu,
Heave thou no sigh, nor shed a tear ;
Left yet my half-clos'd eye may view
On earth an object worth its care.
From jealousy's tormenting strife
For ever be thy bosom freed ;
That nothing may disturb thy life,
Content I hasten to the dead.
Yet when some better-fated youth
Shall with his am'rous parly move thee,
Reflect one moment on his truth
Who, dying, thus persists to love thee.

There is much of the softness of Sappho, and the sweetness of Anacreon and Prior, in the following ode, which is ascribed to the unfortunate Dr Dodd ; and was written in compliment to a lady, who, being sick, had sent the author a moss rose-bud, instead of making his family a visit. This piece is particularly to be esteemed for the just and striking moral with which it is pointed.

The slightest of favours bestow'd by the fair,
With rapture we take, and with triumph we wear ;
But a moss-woven rose-bud, Eliza, from thee,
A well-pleasing gift to a monarch would be.
—Ah ! that illness, too cruel, forbidding should stand,
And refuse me the gift from thy own lovely hand !
With joy I receive it, with pleasure will view,
Reminded of thee, by its odour and hue :
“ Sweet rose, let me tell thee, tho' charming thy bloom,
Tho' thy fragrance excels Seba's richest perfume ;

Thy breath to Eliza's no fragrance hath in't,
And but dull is thy bloom to her cheek's blushing tint.
Yet, alas ! my fair flow'r, that bloom will decay,
And all thy lov'd beauties soon wither away ;
Tho' pluck'd by her hand, to whose touch, we must own,
Harsh and rough is the cygnet's most delicate down :”
Thou too, snowy hand ; nay, I mean not to preach ;
But the rose, lovely moralist, suffer to teach.
“ Extol not, fair maiden, thy beauties o'er mine ;
They too are short-liv'd, and they too must decline ;
And small, in conclusion, the diff'rence appears,
In the bloom of few days, or the bloom of few years !
But remember a virtue the rose hath to boast,
—Its fragrance remains when its beauties are lost !”

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We come now to those odes of the more florid and figurative kind, of which we have many in our language that deserve particular commendation. Mr Warton's Ode to Fancy has been justly admired by the best judges ; for though it has a distant resemblance of Milton's *l'Allegro* and *Il Penseroso*, yet the work is original ; the thoughts are mostly new and various, and the language and numbers elegant, expressive, and harmonious.

O parent of each lovely muse,
Thy spirit o'er my soul diffuse !
O'er all my artless songs preside,
My footsteps to thy temple guide !
To offer at thy turf-built shrine
In golden cups no costly wine,
No murder'd fattening of the flock,
But flow'r's and honey from the rock.
O nymph, with loosely flowing hair,
With buskin'd leg, and bosom bare ;
Thy waist with myrtle-girdle bound,
Thy brows with Indian feathers crown'd ;
Waving in thy snowy hand
An all-commanding magic wand,
Of pow'r to bid fresh gardens blow
'Mid cheerless Lapland's barren snow :
Whose rapid wings thy flight convey,
Through air, and over earth and sea ;
While the vast various landscape lies
Conspicuous to thy piercing eyes.
O lover of the desert, hail !
Say, in what deep and pathless vale,
Or on what hoary mountain's side,
'Midst falls of water, you reside ;
'Midst broken rocks, a rugged scene,
With green and grassy dales between ;
'Midst forests dark of aged oak,
Ne'er echoing with the woodman's stroke ;
Where never human art appear'd,
Nor ev'n one straw-roof'd cott was rear'd ;
Where Nature seems to sit alone,
Majestic on a craggy throne.
Tell me the path, sweet wand'rer ! tell,
To thy unknown sequester'd cell,
Where woodbines cluster round the door,
Where shells and moss o'erlay the floor,
And on whose top an hawthorn blows,
Amid whose thickly-woven boughs
Some nightingale still builds her nest,
Each ev'ning warbling thee to rest.
Then lay me by the haunted stream,
Wrapt in some wild poetic dream ;

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In converse while methinks I rove
 With Spenser through a fairy grove ;
 Till suddenly awak'd, I hear
 Strange whisper'd music in my ear ;
 And my glad soul in bliss is drown'd
 By the sweetly soothing sound !
 Me, goddess, by the right-hand lead,
 Sometimes through the yellow mead ;
 Where Joy and white-rob'd Peace resort,
 And Venus keeps her festive court ;
 Where Mirth and Youth each ev'ning meet,
 And lightly trip with nimble feet,
 Nodding their lily-crowned heads,
 Where Laughter rose-lip'd Hebe leads ;
 Where Echo walks steep hills among,
 List'ning to the shepherd's song.
 Yet not these flow'ry fields of joy
 Can long my pensive mind employ ;
 Haste, Fancy, from the scenes of Folly,
 To meet the matron Melancholy !
 Goddess of the tearful eye,
 That loves to fold her arms and sigh.
 Let us with silent footsteps go
 To charnels, and the house of wo ;
 To Gothic churches, vaults, and tombs,
 Where each sad night some virgin comes,
 With throbbing breast and faded cheek,
 Her promis'd bridegroom's urn to seek :
 Or to some abbey's mould'ring tow'rs,
 Where, to avoid cold wint'ry show'rs,
 The naked beggar shivering lies,
 While whistling tempests round her rise,
 And trembles lest the tott'ring wall
 Should on her sleeping infants fall.

Now let us louder strike the lyre,
 For my heart glows with martial fire ;
 I feel, I feel, with sudden heat,
 My big tumultuous bosom beat ;
 The trumpet's clangors pierce my ear,
 A thousand widows shrieks I hear :
 Give me another horse, I cry ;
 Lo, the base Gallic squadrons fly !
 Whence is this rage ?—what spirit, say,
 To battle hurries me away ?
 'Tis Fancy, in her fiery car,
 Transports me to the thickest war ;
 There whirls me o'er the hills of slain,
 Where tumult and destruction reign ;
 Where, mad with pain, the wounded steed,
 Tramples the dying and the dead ;
 Where giant Terror stalks around,
 With fullen joy surveys the ground,
 And, pointing to th' ensanguin'd field,
 Shakes his dreadful gorgon shield !
 O guide me from this horrid scene
 To high arch'd walks and alleys green,
 Which lovely Laura seeks, to shun
 The fervors of the mid-day sun.
 The pangs of absence, O remove,
 For thou can'st place me near my love ;
 Can'st fold in visionary bliss,
 And let me think I steal a kiss ;
 While her ruby lips dispense
 Luscious nectar's quintessence !

When young ey'd Spring profusely throws
 From her green lap the pink and rose ;
 When the soft turtle of the dale
 To Summer tells her tender tale ;
 When Autumn cooling caverns seeks,
 And stains with wine his jolly cheeks ;
 When Winter, like poor pilgrim old,
 Shakes his silver beard with cold ;
 At ev'ry season let my ear
 Thy solemn whispers, Fancy, hear.
 O warm enthusiastic maid !
 Without thy powerful, vital aid,
 That breathes an energy divine,
 That gives a soul to ev'ry line,
 Ne'er may I strive with lips profane,
 To utter an unhallow'd strain ;
 Nor dare to touch the sacred string,
 Save when with smiles thou bid'st me sing.
 O hear our pray'r, O hither come
 From thy lamented Shakespeare's tomb,
 On which thou lov'st to sit at eve,
 Musing o'er thy darling's grave.
 O queen of numbers, once again
 Animate some chosen swain,
 Who, fill'd with unexhausted fire,
 May boldly smite the sounding lyre ;
 Who with some new, unequal'd song,
 May rise above the rhyming throng ;
 O'er all our list'ning passions reign,
 O'erwhelm our souls with joy and pain ;
 With terror shake, with pity move,
 Rouze with revenge, or melt with love.
 O deign t'attend his evening walk,
 With him in groves and grottoes talk ;
 Teach him to scorn, with frigid art,
 Feebly to touch th' enraptur'd heart ;
 Like lightning, let his mighty verse
 The bosom's inmost foldings pierce ;
 With native beauties win applause,
 Beyond cold critics studied laws :
 O let each muse's fame increase !
 O bid Britannia rival Greece !

The following ode, written by Mr Smart on the 5th of December (being the birth-day of a beautiful young lady), is much to be admired for the variety and harmony of the numbers, as well as for the beauty of the thoughts, and the elegance and delicacy of the compliment. It has great fire, and yet great sweetness, and is the happy issue of genius and judgment united.

Hail eldest of the monthly train,
 Sire of the winter drear,
 December ! in whose iron reign
 Expires the chequer'd year.
 Hush all the blust'ring blasts that blow,
 And proudly plum'd in silver snow,
 Smile gladly on this blest of days ;
 The livery'd clouds shall on thee wait,
 And Phœbus shine in all his state
 With more than summer rays.
 Though jocund June may justly boast
 Long days and happy hours ;
 Though August be Pomona's host,
 And May be crown'd with flow'rs :

Of Lyric
Poetry.

Tell June his fire and crimson dies,
By Harriot's blush, and Harriot's eyes,
Eclips'd and vanquish'd, fade away ;
Tell August, thou canst let him see
A richer, riper fruit than he,
A sweeter flow'r than May.

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A pastoral
and elegiac
ode.

The ensuing ode, written by Mr Collins on the death of Mr Thomson, is of the pastoral and elegiac kind, and both picturesque and pathetic. To perceive all the beauties of this little piece, which are indeed many, we must suppose them to have been delivered on the river Thames near Richmond.

In yonder grave a Druid lies,
Where slowly winds the stealing wave ;
The year's best sweets shall duteous rise
To deck its poet's silvan grave !
In yon deep bed of whisp'ring reeds
His airy harp* shall now be laid,
That he, whose heart in sorrow bleeds,
May love through life the soothing shade.
Then maids and youths shall linger here,
And, while its sounds at distance swell,
Shall sadly seem in pity's ear
To hear the woodland pilgrim's knell.
Remembrance oft shall haunt the shore,
When Thames in summer wreaths is drest,
And oft suspend the dashing oar,
To bid his gentle spirit rest !
And oft as ease and health retire
To breezy lawn, or forest deep,
The friend shall view yon whitening spire †,
And 'mid the varied landscape weep.
But thou, who own'st that earthy bed,
Ah ! what will ev'ry dirge avail ?
Or tears, which love and pity shed,
That mourn beneath the gliding sail ?
Yet lives there one, whose heedless eye,
Shall scorn thy pale shrine glimm'ring near ?
With him, sweet bard, may fancy die,
And joy desert the blooming year.
But thou, lorn stream, whose fullen tide
No sedge-crown'd sisters now attend,
Now wast me from the green hill's side,
Whose cold turf hides the buried friend.
And see, the fairy valleys fade,
Dim night has veil'd the solemn view !
Yet once again, dear parted shade,
Meek nature's child, again adieu !
The genial meads, assign'd to blest
Thy life, shall mourn thy early doom ;
Their hinds, and shepherd girls, shall dress,
With simple hands, thy rural tomb.
Long, long, thy stone and pointed clay
Shall melt the musing Briton's eyes ;
O vales and wild woods, shall he say,
In yonder grave your Druid lies !

* The harp
of Æolus.† Rich-
mond-
church.128
The hymn.

Under this species of the ode, notice ought to be taken of those written on divine subjects, and which are usually called *hymns*. Of these we have many in our language, but none perhaps that are so much admired as Mr Addison's. The beauties of the following hymn are too well known, and too obvious, to need any commendation ; we shall only observe, therefore, that in this hymn (intended to display the power of the Almighty)

he seems to have had a psalm of David in his view, which says, that " the heavens declare the glory of God, and the firmament sheweth his handywork."

Of Lyric
Poetry.

The spacious firmament on high,
With all the blue ethereal sky,
And spangled heav'ns, a shining frame,
Their great original proclaim :
Th' unwearied sun, from day to day,
Does his Creator's pow'r display,
And publishes to ev'ry land
The work of an Almighty hand.

Soon as the ev'ning shades prevail,
The moon takes up the wond'rous tale,
And nightly to the list'ning earth
Repeats the story of her birth :
While all the stars that round her burn,
And all the planets in their turn,
Confirm the tidings as they roll,
And spread the truth from pole to pole.

What tho' in solemn silence all
Move round the dark terrestrial ball ?
What tho' nor real voice or sound
Amid their radiant orb be found ?
In reason's ear they all rejoice,
And utter forth a glorious voice,
For ever singing, as they shine,
" The hand that made us is divine."

The following pastoral hymn is a version of the 23d *Psalm* by Mr Addison ; the peculiar beauties of which have occasioned many translations ; but we have seen none that is so poetical and perfect as this. And in justice to Dr Boyce, we must observe, that the music he has adapted to it is so sweet and expressive, that we know not which is to be most admired, the poet or the musician.

The Lord my pasture shall prepare,
And feed me with a shepherd's care ;
His presence shall my wants supply,
And guard me with a watchful eye ;
My noon-day walks he shall attend,
And all my midnight hours defend.
When in the sultry glebe I faint,
Or on the thirsty mountain pant,
To fertile vales and dewy meads
My weary wand'ring steps he leads ;
Where peaceful rivers soft and slow
Amid the verdant landscape flow.
Tho' in the paths of death I tread,
With gloomy horrors overspread,
My steadfast heart shall fear no ill :
For thou, O Lord, art with me still ;
Thy friendly crook shall give me aid,
And guide me through the dreadful shade.
Tho' in a bare and rugged way,
Through devious lonely wilds I stray,
Thy bounty shall my pains beguile :
The barren wilderness shall smile,
With sudden greens and herbage crown'd ;
And streams shall murmur all around.

III. We are now to speak of those odes which are of the sublime and noble kind, and distinguished from the others by their elevation of thought and diction, as well as by the variety or irregularity of their numbers as the frequent

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The sub-

lime ode.

Of Lyric
Poetry.

frequent transitions and bold excursions with which they are enriched.

To give the young student an idea of the sudden and frequent transitions, digressions, and excursions, which are admitted into the odes of the ancients, we cannot do better than refer him to the celebrated song or ode of Moses; which is the oldest that we know of, and was penned by that divine author immediately after the children of Israel crossed the Red sea.

At the end of this song, we are told, that "Miriam the prophetess, the sister of Aaron, took a timbrel in her hand, and all the women went out after her with timbrels and with dances. And Miriam answered them, Sing ye to the Lord, for he hath triumphed gloriously; the horse and his rider hath he thrown into the sea."

From this last passage it is plain, that the ancients very early called in music to the aid of poetry; and that their odes were usually sung, and accompanied with their lutes, harps, lyres, timbrels, and other instruments: nay, so essential, and in such reputation, was music held by the ancients, that we often find in their lyric poets, addressees or invocations to the harp, the lute, or the lyre; and it was probably owing to the frequent use made of the last-mentioned instrument with the ode, that this species of writing obtained the name of *Lyric poetry*.

This ode, or hymn, which some believe was composed by Moses in Hebrew verse, is incomparably better than any thing the heathen poets have produced of the kind, and is by all good judges considered as a master-piece of ancient eloquence. The thoughts are noble and sublime: the style is magnificent and expressive: the figures are bold and animated: the transitions and excursions are sudden and frequent: but they are short, and the poet, having digressed for a moment, returns immediately to the great object that excited his wonder, and elevated his soul with joy and gratitude. The images fill the mind with their greatness, and strike the imagination in a manner not to be expressed.

If there be any thing that in sublimity approaches to it, we must look for it in the east, where perhaps we shall find nothing superior to the following Hindoo hymn to *Narayana*, or "the spirit of God," taken, as Sir William Jones informs us, from the writings of the ancient Bramins.

Spirit of spirits, who, through every part
Of space expanded, and of endless time,
Beyond the reach of lab'ring thought sublime,
Bad'st uproar into beauteous order start;
Before heav'n was, thou art.
Ere spheres beneath us roll'd, or spheres above,
Ere earth in firmamental æther hung,
Thou sat'st alone, till, through thy mystic love,
Things unexisting to existence sprung,
And grateful descant sung.
Omniscient Spirit, whose all-ruling pow'r
Bids from each sense bright emanations beam;
Glows in the rainbow, sparkles in the stream,

Of Lyric
Poetry.

Smiles in the bud, and glistens in the flow'r
That crowns each vernal bow'r;

Sighs in the gale, and warbles in the throat
Of every bird that hails the bloomy spring,
Or tells his love in many a liquid note,
Whilst envious artists touch the rive string,
Till rocks and forests ring;

Breathes in rich fragrance from the sandal grove,
Or where the precious musk-deer playful rove;
In dulcet juice, from clust'ring fruit distills,
And burns salubrious in the tasteful clove:

Safe banks and verd'rous hills
Thy present influence fills;
In air, in floods, in caverns, woods, and plains,
Thy will inspires all, thy sovereign Maya reigns.

Blue crystal vault, and elemental fires,
That in th' ethereal fluid blaze and breathe;
Thou, tossing main, whose snaky branches wreath
This pensile orb with interwisting gyres;

Mountains, whose lofty spires,
Presumptuous, rear their summits to the skies,
And blend their em'rald hue with sapphire light;
Smooth meads and lawns, that glow with varying dyes
Of dew-bespangled leaves and blossoms bright,
Hence! vanish from my sight

Delusive pictures! unsubstantial shows!
My soul absorb'd one only Being knows,
Of all perceptions one abundant source,
Whence ev'ry object, ev'ry moment flows:
Suns hence derive their force,
Hence planets learn their course;
But suns and fading worlds I view no more;
God only I perceive; God only I adore (F).

We come now to the *Pindaric ode*, which (if we except the hymns in the Old Testament, the psalms of King David, and such hymns of the Hindoos as that just quoted) is the most exalted part of lyric poetry; and was so called from *Pindar*, an ancient Greek poet, who is celebrated for the boldness of his flights, the impetuosity of his style, and the seeming wildness and irregularity that runs through his compositions, and which are said to be the effect of the greatest art. See *PINDAR*.

The odes of Pindar were held in such high estimation by the ancients, that it was fabled, in honour of their sweetness, that the bees, while he was in the cradle, brought honey to his lips: nor did the victors at the Olympic and other games think the crown a sufficient reward for their merit, unless their achievements were celebrated in Pindar's songs; most wisely presaging, that the first would decay, but the other would endure for ever.

This poet did not always write his odes in the same measure, or with the same intention with regard to their being sung. For the ode inscribed to Diogenes (the concluding stanza of which we inserted at the beginning of this section) is in heroic measure, and all the stanzas are equal: there are others also, as Mr West observes, made

(F) For the philosophy of this ode, which represents the Deity as the soul of the world, or rather as the only Being (the *το εν* of the Greeks), see *METAPHYSICS*, N^o 269. and *PHILOSOPHY*, N^o 6.

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made up of *strophes* and *antistrophes*, without any *epode*; and some composed of *strophes* only, of different lengths and measures: but the greatest part of his odes are divided into *strophe*, *antistrophe*, and *epode*; in order, as Mr Congreve conjectures, to their being sung, and addressed by the performers to different parts of the audience. "They were sung (says he) by a chorus, and adapted to the lyre, and sometimes to the lyre and pipe. They consisted oftentimes of three stanzas. The first was called the *strophe*, from the version or circular motion of the fingers in that stanza from the right hand to the left. The second stanza was called the *antistrophe*, from the contraversion of the chorus; the fingers in performing that, turning from the left hand to the right, contrary always to their motion in the *strophe*. The third stanza was called the *epode* (it may be as being the after-song), which they sung in the middle, neither turning to one hand nor the other. But Dr West's * friend is of opinion, that the performers also danced one way while they were singing the *strophe*, and danced back as they sung the *antistrophe*, till they came to the same place again, and then standing still they sung the *epode*. He has translated a passage from the *Scholia* on *Hephæstion*, in proof of his opinion; and observes, that the dancing the *strophe* and *antistrophe* in the same space of ground, and we may suppose the same space of time also, shows why those two parts consisted of the same length and measure.

* Vid. Pref. to West's Pindar.

As the various measures of Pindar's odes have been the means of so far misleading some of our modern poets, as to induce them to call compositions Pindaric odes, that were not written in the method of Pindar, it is necessary to be a little more particular on this head, and to give an example from that poet, the more effectually to explain his manner; which we shall take from the translation of Dr West.

The eleventh NEMEAN ODE.

This ode is inscribed to Aristagoras, upon occasion of his entering on his office of president or governor of the island of Tenedos: so that, although it is placed among the Nemean odes, it has no sort of relation to those games, and is indeed properly an inauguration ode, composed to be sung by a chorus at the sacrifices and the feasts made by Aristagoras and his colleagues, in the town-hall, at the time of their being invested with the magistracy, as is evident from many expressions in the first *strophe* and *antistrophe*.

ARGUMENT.

Pindar opens this ode with an invocation to Vesta (the goddess who presided over the courts of justice, and whose statue and altar were for that reason placed in the town-halls, or *Prytaneums*, as the Greeks called them), beseeching her to receive favourably Aristagoras and his colleagues, who were then coming to offer sacrifices to her, upon their entering on their office of Prytans or magistrates of Tenedos; which office continuing for a year, he begs the goddess to take Aristagoras under her protection during that time, and to conduct him to the end of it without trouble or disgrace. From Aristagoras, Pindar turns himself in the next place to his father Arcefilas, whom he pronounces happy, as well upon account of his son's merit and honour, as upon his own great endowments and good fortune: such as

beauty, strength, courage, riches, and glory, resulting from his many victories in the games. But lest he should be too much puffed up with these praises, he reminds him at the same time of his mortality, and tells him that his clothing of flesh is perishable, that he must e'er long be clothed with earth, the *end of all things*; and yet, continues he, it is but justice to praise and celebrate the worthy and deserving, who from good citizens ought to receive all kinds of honour and commendation; as Aristagoras, for instance, who hath rendered both himself and his country illustrious by the many victories he hath obtained, to the number of sixteen, over the neighbouring youth, in the games exhibited in and about his own country. From whence, says the poet, I conclude he would have come off victorious even in the Pythian and Olympic games, had he not been restrained from engaging in those famous lists by the too timid and cautious love of his parents. Upon which he falls into a moral reflection upon the vanity of man's hopes and fears; by the former of which they are oftentimes excited to attempts beyond their strength, which accordingly issue in their disgrace; as, on the other hand, they are frequently restrained, by unreasonable and ill grounded fears, from enterprises, in which they would in all probability have come off with honour. This reflection he applies to Aristagoras, by saying it was very easy to foresee what success he was like to meet with, who both by father and mother was descended from a long train of great and valiant men. But here again, with a very artful turn of flattery to his father Arcefilas, whom he had before represented as strong and valiant, and famous for his victories in the games, he observes that every generation, even of a great and glorious family, is not equally illustrious any more than the fields and trees are every year equally fruitful; that the gods had not given mortals any certain tokens by which they might foreknow when the *rich years of virtue should succeed*; whence it comes to pass, that men, out of self-conceit and presumption, are perpetually laying schemes, and forming enterprises, without previously consulting prudence or wisdom, whose *streams*, says he, lie remote and out of the common road. From all which he infers, that it is better to moderate our desires, and set bounds to our avarice and ambition; with which moral precept he concludes the ode.

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STROPHE I.

Daughter of Rhea! thou, whose holy fire
Before the awful seat of justice flames!
Sister of heav'n's almighty fire!
Sister of Juno, who coequal claims
With Jove to share the empire of the gods!
O virgin Vesta! to thy dread abodes,
Lo! Aristagoras directs his pace!
Receive and near thy sacred sceptre place
Him, and his colleagues, who, with honest zeal,
O'er Tenedos preside, and guard the public weal.

ANTISTROPHE I.

And lo! with frequent off'rings, they adore
Thee*, first invok'd in ev'ry solemn pray'r!
To thee unmix'd libations pour,
And fill with od'rous fumes the fragrant air.

* It was usual in all solemn sacrifices and prayers to begin with invoking

Around Vesta.

Around in festive songs the hymning choir
Mix the melodious voice and sounding lyre,
While still, prolong'd with hospitable love,
Are solemniz'd the rites of genial Jove :
Then guard him, Vesta, through his long career,
And let him close in joy his ministerial year.

EPODE I.

But hail, Arcefilas ! all hail
To thee, blest father of a son so great !
Thou whom on fortune's highest scale
The favourable hand of heav'n hath set,
Thy manly form with beauty hath refin'd,
And match'd that beauty with a valiant mind.
Yet let not man too much presume,
Tho' grac'd with beauty's fairest bloom ;
Tho' for superior strength renown'd ;
Tho' with triumphal chaplets crown'd :
Let him remember, that, in flesh array'd,
Soon shall he see that mortal vestment fade ;
Till lost, imprison'd in the mould'ring urn,
To earth, the end of all things, he return.

STROPHE II.

Yet should the worthy from the public tongue
Receive their recompense of virtuous praise ;
By ev'ry zealous patriot sung,
And deck'd with ev'ry flow'r of heav'nly lays.
Such retribution in return for fame,
Such, Aristagoras, thy virtues claim,
Claim from thy country ; on whose glorious brows
The wrestler's chaplet still unfaded blows ;
Mix'd with the great Pancratiastic crown,
Which from the neighb'ring youth thy early valour won.

ANTISTROPHE II.

And (but his timid parents' cautious love,
Disturbing ever his too forward hands,
Forbade their tender son to prove
The toils of Pythia or Olympia's sands),
Now by the Gods I swear, his valorous might
Had 'scap'd victorious in each bloody fight ;
And from Castalia †, or where dark with shade
The mount of Saturn ‡ rears its olive head,
Great and illustrious home had he return'd ;
While, by his fame eclips'd, his vanquish'd foes had
[mourn'd.

EPODE II.

Then his triumphal tresses bound
With the dark verdure of th' Olympic grove,
With joyous banquets had he crown'd
The great quinquennial festival of Jove ;
And cheer'd the solemn pomp with choral lays,
Sweet tribute, which the muse to virtue pays.
But, such is man's prepost'rous fate !
Now, with o'er-weening pride elate,
Too far he aims his shaft to throw,
And straining bursts his feeble bow :
Now pusillanimous depress'd with fear,
He checks his virtue in the mid career ;
And of his strength distrustful, coward flies
The contest, tho' empow'rd to gain the prize.

STROPHE III.

But who could err in prophesying good
Of him, whose undegenerating breast
Swells with a tide of Spartan blood,
From fire to fire in long succession trac'd
Up to Pisander ; who in days of yore
From old Amyclæ to the Lesbian shore
And Tenedos, collegu'd in high command
With great Orestes, led th' Æolian band ?
Nor was his mother's race less strong and brave,
Sprung from a stock that grew on fair * Iſmenus' wave.

ANTISTROPHE III.

Tho' for long intervals obscur'd, again
Oft-times the seeds of lineal worth appear.
For neither can the furrow'd plain
Full harvests yield with each returning year ;
Nor in each period will the pregnant bloom
Invest the smiling tree with rich perfume.
So, barren often, and inglorious, pass
The generations of a noble race ;
While nature's vigour, working at the root,
In after-ages swells, and blossoms into fruit.

EPODE III.

Nor hath Jove giv'n us to foreknow
When the rich years of virtue shall succeed :
Yet bold and daring on we go,
Contriving schemes of many a mighty deed ;
While hope, fond inmate of the human mind,
And self-opinion, active, rash, and blind,
Hold up a false illusive ray,
That leads our dazzled feet astray
Far from the springs, where, calm and slow,
The secret streams of wisdom flow.
Hence should we learn our ardour to restrain,
And limit to due bounds the thirst of gain.
To rage and madness oft that passion turns,
Which with forbidden flames despairing burns.

From the above specimen, and from what we have ¹³¹ Distinguisht already said on this subject, the reader will perceive, ing charac- that odes of this sort are distinguished by the happy ters of it. transitions and digressions which they admit, and the surprising yet natural returns to the subject. This requires great judgement and genius ; and the poet who would excel in this kind of writing, should draw the plan of his poem, in manner of the argument we have above inserted, and mark out the places where those elegant and beautiful sallies and wanderings may be made, and where the returns will be easy and proper.

Pindar, it is universally allowed, had a poetical and fertile imagination, a warm and enthusiastic genius, a bold and figurative expression, and a concise and sententious style : but it is generally supposed that many of those pieces which procured him such extravagant praises and extraordinary testimonies of esteem from the ancients are lost ; and if they were not, it would be perhaps impossible to convey them into our language ; for beauties of this kind, like plants of an odoriferous and delicate nature, are not to be transplanted into another clime without losing much of their fragrance or essential quality.

With

† A river, upon whose banks the Pythian games were exhibited.
‡ A small hill planted with olives, that overlooked the stadium at Olympia.

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Modern
odes com-
monly cal-
led Pinda-
ric.

With regard to those compositions which are usually called *Pindaric odes*, (but which ought rather to be distinguished by the name of *irregular odes*), we have many in our language that deserve particular commendation: the criticism which Mr Congreve has given us on that subject, has too much asperity and too great latitude; for if other writers have, by mistaking Pindar's measures, given their odes an improper title, it is a crime, one would think, not so dangerous to the commonwealth of letters as to deserve such severe reproof. Beside which, we may suppose that some of these writers did not deviate from Pindar's method through ignorance, but by choice; and that as their odes were not to be performed with both singing and dancing, in the manner of Pindar's, it seemed unnecessary to confine the first and second stanzas to the same exact number as was done in his strophes and antistrophes. The poet therefore had a right to indulge himself with more liberty: and we cannot help thinking, that the ode which Mr Dryden has given us, entitled, *Alexander's Feast*, or *the Power of Music*, is altogether as valuable in loose and wild numbers, as it could have been if the stanzas were more regular, and written in the manner of Pindar. In this ode there is a wonderful sublimity of thought, a loftiness and sweetness of expression, and a most pleasing variety of numbers.

'Twas at the royal feast, for Persia won
By Philip's warlike son,
Alone, in awful state,
The god-like hero fate
On his imperial throne:
His valiant peers were plac'd around;
Their brows with roses and with myrtles bound,
(So should desert in arms be crown'd):
The lovely Thais by his side
Sat like a blooming eastern bride,
In flow'r of youth and beauty's pride.
Happy, happy, happy pair!
None but the brave,
None but the brave,
None but the brave deserve the fair.
Chor. *Happy, happy, &c.*

Timotheus, plac'd on high
Amid the tuneful quire,
With flying fingers touch'd the lyre:
The trembling notes ascend the sky,
And heav'nly joys inspire.
The song began from Jove,
Who left his blissful seats above,
(Such is the pow'r of mighty love!)
A dragon's fiery form bely'd the god:
Sublime on radiant spires he rode,
When he to fair Olympia press'd;
And while he sought her snowy breast:
Then round her slender waist he curl'd,
And stamp'd an image of himself, a sov'reign of the
world.
The list'ning crowd admire the lofty sound.
A present deity, they shout around;
A present deity, the vaulted roofs rebound:
With ravish'd ears
The monarch hears,
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Assumes the god,
Affects to nod,
And seems to shake the spheres.
Chor. *With ravish'd ears, &c.*

The praise of Bacchus then the sweet musician sung;
Of Bacchus ever fair and ever young:
The jolly god in triumph comes;
Sound the trumpets, beat the drums:
Flush'd with a purple grace,
He shows his honest face:
Now give the hautboys breath; he comes, he comes!
Bacchus, ever fair and young,
Drinking joys did first ordain:
Bacchus' blessings are a treasure,
Drinking is the soldier's pleasure:
Rich the treasure,
Sweet the pleasure:
Sweet the pleasure after pain.
Chor. *Bacchus' blessings, &c.*

Sooth'd with the sound, the king grew vain,
Fought all his battles o'er again;
And thrice he routed all his foes, and thrice he slew
the slain.
The master saw the madness rise;
His glowing cheeks, his ardent eyes;
And while he heav'n and earth defy'd,
Chang'd his hand, and check'd his pride.
He chose a mournful muse
Soft pity to infuse:
He sung Darius great and good,
By too severe a fate,
Fallen, fallen, fallen, fallen,
Fallen from his high estate,
And wett'ring in his blood;
Deserted at his utmost need,
By those his former bounty fed,
On the bare earth expos'd he lies,
With not a friend to close his eyes.
With downcast looks the joyless victor sat,
Revolving in his alter'd soul
The various turns of chance below;
And now and then a sigh he stole,
And tears began to flow.
Chor. *Revolving, &c.*

The mighty master smil'd to see
That love was in the next degree:
'Twas but a kindred sound to move;
For pity melts the mind to love,
Softly sweet, in Lydian measures:
Soon he sooth'd his soul to pleasures.
War, he sung, is toil and trouble;
Honour but an empty bubble,
Never ending, still beginning,
Fighting still, and still destroying.
If the world be worth thy winning,
Think, O think, it worth enjoying.
Lovely Thais sits beside thee,
Take the good the gods provide thee.
The many rend the skies with loud applause;
So love was crown'd, but music won the cause.
The prince, unable to conceal his pain,
Gaz'd on the fair,
Who caus'd his care,

B

And

And sigh'd and look'd, sigh'd and look'd,
Sigh'd and look'd, and sigh'd again :
At length with love and wine at once oppress'd,
The vanquish'd victor sunk upon her breast.

Chor. *The prince, &c.*

Now strike the golden lyre again ;
A louder yet, and yet a louder strain.
Break his bands of sleep afunder,
And rouse him, like a rattling peal of thunder.

Hark ! hark ! the horrid sound
Has rais'd up his head,
As awake from the dead,
And amaz'd he stares round.

Revenge, revenge, Timotheus cries,
See the furies arise :

See the snakes that they rear,
How they hiss in their hair,
And the sparkles that flash from their eyes !
Behold a ghastly band,
Each a torch in his hand !

Those are Grecian ghosts that in battle were slain,
And unbury'd remain,
Inglorious on the plain.
Give the vengeance due
To the valiant crew.

Behold how they toss their torches on high,
How they point to the Persian abodes,
And glitt'ring temples of their hostile gods.
The princes applaud with a furious joy ;
And the king seiz'd a flambeau, with zeal to destroy ;
Thais led the way

To light him to his prey,
And, like another Helen, she fir'd another Troy.

Chor. *And the king seiz'd, &c.*

Thus long ago,
Ere heaving bellows learnt to blow,
While organs yet were mute ;
Timotheus, to his breathing flute,
And sounding lyre,
Could swell the soul of rage, or kindle soft desire.
At last divine Cecilia came,
Inventress of the vocal frame ;
The sweet enthusiast, from her sacred store,
Enlarg'd the former narrow bounds,
And added length to solemn sounds,
With nature's mother-wit, and arts unknown before.
Let old Timotheus yield the prize,
Or both divide the crown :
He rais'd a mortal to the skies ;
She drew an angel down.

Grand chor. *At last, &c.*

There is another poem by Dryden, on the death of Mrs Anne Killegrew, a young lady eminent for her skill in poetry and painting, which a great critic* has pronounced to be "undoubtedly the noblest ode that our language has ever produced." He owns, that as a whole it may perhaps be inferior to *Alexander's Feast* ; but he affirms that the first stanza of it is superior to any single part of the other. This famous stanza, he says, flows with a torrent of enthusiasm : *Fervet immensusque ruit.* How far this criticism is just, the public must determine.

* Dr Johnson's son.

I.
Thou youngest virgin-daughter of the skies,
Made in the last promotion of the bless'd ;

Whose palms, new-pluck'd from Paradise,
In spreading branches more sublimely rise,
Rich with immortal green above the rest ;
Whether, adopted to some neighb'ring star,
Thou roll'st above us, in thy wand'ring race,
Or in procession fix'd and regular,
Mov'd with the heav'n's majestic pace ;
Or call'd to more superior bliss,
Thou tread'st with seraphims the vast abyss :
Whatever happy region is thy place,
Cease thy celestial song a little space ;
Thou wilt have time enough for hymns divine,
Since heaven's eternal year is thine.
Hear then a mortal muse thy praise rehearse
In no ignoble verse ;
But such as thy own voice did practise here,
When thy first fruits of poesy were giv'n
To make thyself a welcome inmate there ,
While yet a young probationer,
And candidate of heav'n.

II.

If by traduction came thy mind,
Our wonder is the less to find
A soul so charming from a stock so good ;
Thy father was transfus'd into thy blood,
So wert thou born into a tuneful strain,
An early, rich, and inexhausted vein.
But if thy pre-existing soul
Was form'd at first with myriads more,
It did through all the mighty poets roll,
Who Greek or Latin laurels wore,
And was that Sappho last which once it was before.
If so, then cease thy flight, O heaven-born mind !
Thou hast no dross to purge from thy rich ore,
Nor can thy soul a fairer mansion find,
Than was the beauteous frame she left behind :
Return to fill or mend the choir of thy celestial kind.

III.

May we presume to say, that, at thy birth,
New joy was sprung in heav'n, as well as here on earth ?
For sure the milder planets did combine
On thy auspicious horoscope to shine,
And e'en the most malicious were in trine.
Thy brother angels at thy birth
Strung each his lyre, and tun'd it high,
That all the people of the sky
Might know a poetess was born on earth.
And then, if ever, mortal ears
Had heard the music of the spheres.
And if no clust'ring swarm of bees
On thy sweet mouth distill'd their golden dew,
'Twas that such vulgar miracles
Heav'n had not leisure to renew :
For all thy bless'd fraternity of love
Solemniz'd there thy birth, and kept thy holy day above.

IV.

O gracious God ! how far have we
Profan'd thy heav'nly gift of poesy ?
Made prostitute and profligate the Muse,
Debas'd to each obscene and impious use,
Whose harmony was first ordain'd above
For tongues of angels, and for hymns of love ?
O wretched me ! why were we hurry'd down
This lubric and adult'rate age,

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(Nay added fat pollutions of our own)
 T'increase the streaming ordures of the stage!
 What can we say t'excuse our second fail?
 Let this thy vestal, Heav'n, atone for all:
 Her Arethusian stream remains unsoil'd,
 Unmix'd with foreign filth, and undefil'd;
 Her wit was more than man, her innocence a child.

V.

Art she had none, yet wanted none;
 For nature did that want supply:
 So rich in treasures of her own,
 She might our boasted stores defy:
 Such noble vigour did her verse adorn,
 That it seem'd borrow'd where 'twas only born.
 Her morals, too, were in her bosom bred,
 By great examples daily fed,
 What in the best of books, her father's life she read.
 And to be read herself, she need not fear;
 Each test, and every light, her Muse will bear,
 Tho' Epictetus with his lamp were there.
 E'en love (for love sometimes her Muse express'd)
 Was but a lambent flame which play'd about her breast,
 Light as the vapours of a morning dream,
 So cold herself, while she such warmth express'd,
 'Twas Cupid bathing in Diana's stream.

VI.

Born to the spacious empire of the Nine,
 One would have thought she should have been content
 To manage well that mighty government;
 But what can young ambitious souls confine?
 To the next realm she stretch'd her sway,
 For *Painture* near adjoining lay,
 A plenteous province and alluring prey.
 A *Chamber of Dependencies* was fram'd.
 (As conquerors will never want pretence,
 When arm'd, to justify th' offence)
 And the whole fief, in right of poetry, she claim'd.
 The country open lay without defence:
 For poets frequent inroads there had made,
 And perfectly could represent
 The shape, the face, with ev'ry lineament,
 And all the large domains which the *dumb sister* sway'd.
 All bow'd beneath her government,
 Receiv'd in triumph wheresoe'er she went.
 Her pencil drew whate'er her soul design'd,
 And oft the happy draught surpass'd the image in her mind.
 The sylvan scenes of herds and flocks,
 And fruitful plains and barren rocks,
 Of shallow brooks that flow'd so clear,
 The bottom did the top appear;
 Of deeper too, and ampler floods,
 Which, as in mirrors, show'd the woods:
 Of lofty trees, with sacred shades,
 And perspectives of pleasant glades,
 Where nymphs of brightest form appear,
 And shaggy satyrs standing near,
 Which them at once admire and fear.
 The ruins too of some majestic piece,
 Boasting the power of ancient Rome or Greece,
 Whose statues, freezes, columns, broken lie,
 And, though defac'd, the wonder of the eye;
 What nature, art, bold fiction, e'er durst frame,
 Her forming hand gave feature to the name.
 So strange a concurrence ne'er was seen before,
 But when the peopl'd ark the whole creation bore.

VII.

The scene then chang'd, with bold erected look
 Our martial king the fight with rev'rence struck:
 For not content t'express his outward part
 Her hand call'd out the image of his heart:
 His warlike mind, his soul devoid of fear,
 His high-defigning thoughts were figur'd there,
 As when, by magic, ghosts are made appear.
 Our phoenix queen was pourtray'd too so bright,
 Beauty alone could beauty take so right:
 Her dress, her shape, her matchless grace,
 Were all observ'd, as well as heav'nly face.
 With such a peerless majesty she stands,
 As in that day she took the crown from sacred hands;
 Before a train of heroines was seen,
 In beauty foremost, as in rank, the queen.
 Thus nothing to her genius was denied,
 But like a ball of fire the further thrown,
 Still with a greater blaze she shone,
 And her bright soul broke out on ev'ry side.
 What next she had design'd, Heav'n only knows:
 To such immod'rate growth her conquest rose,
 That fate alone its progress could oppose.

VIII.

Now all those charms, that blooming grace,
 The well proportion'd shape, and beauteous face,
 Shall never more be seen by mortal eyes;
 In earth the much lamented virgin lies.
 Nor wit nor piety could fate prevent;
 Nor was the cruel *Destiny* content
 To finish all the murder at a blow,
 To sweep at once her life and beauty too;
 But, like a harden'd felon, took a pride
 To work more mischievously slow
 And plunder'd first, and then destroy'd.
 O double sacrilege on things divine,
 To rob the relic, and deface the shrine!
 But thus Orinda died:
 Heav'n, by the same disease, did both translate;
 As equal were their souls, so equal was their fate.

IX.

Meantime her warlike brother on the seas
 His waving streamers to the winds displays,
 And vows for his return, with vain devotion, pays.
 Ah generous youth! that wish forbear,
 The winds too soon will waft thee here!
 Slack all thy sails, and fear to come,
 Alas, thou know'st not, thou art wreck'd at home!
 No more shalt thou behold thy sister's face,
 Thou hast already had her last embrace.
 But look aloft, and if thou kenn'st from far,
 Among the Pleiads a new kind'ed star,
 If any sparkles than the rest more bright,
 'Tis she that shines in that propitious light.

X.

When in mid-air the golden trump shall sound,
 To raise the nations under ground;
 When in the valley of Jehoshaphat,
 The judging God shall close the book of fate;
 And there the last *assises* keep
 For those who wake and those who sleep:
 When rattling bones together fly
 From the four corners of the sky;
 When sinews o'er the skeletons are spread,
 Those cloth'd with flesh, and life inspires the dead;

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The sacred poets first shall hear the sound,
 And foremost from the tomb shall bound;
 For they are cover'd with the lightest ground;
 And straight with in-born vigour, on the wing,
 Like mounting larks to the new morning sing.
 'There thou, sweet faint, before the quire shalt go
 As harbinger of heav'n, the way to show,
 The way which thou so well hast learnt below.

That this is a fine ode, and not unworthy of the genius of Dryden, must be acknowledged; but that it is the noblest which the English language has produced, or that any part of it runs with the torrent of enthusiasm which characterizes *Alexander's Feast*, are positions which we feel not ourselves inclined to admit. Had the critic by whom it is so highly praised, inspected it with the eye which scanned the odes of Gray, we cannot help thinking that he would have perceived some parts of it to be tediously minute in description, and others not very perspicuous at the first perusal. It may perhaps, upon the whole, rank as high as the following ode by Collins on the Popular Superstitions of the Highlands of Scotland; but to a higher place it has surely no claim.

I.

HOME, thou return'st from Thames, whose Naiads long
 Have seen thee ling'ring with a fond delay,
 Mid those soft friends, whose heart some future day,
 Shall melt, perhaps, to hear thy tragic song,
 Go, not unmindful of that cordial youth (G)

Whom, long endear'd, thou leav'st by Lavant's side;
 Together let us wish him lasting truth,
 And joy untainted with his destin'd bride.

Go! nor regardless, while these numbers boast
 My short-liv'd bliss, forget my social name;
 But think, far off, how, on the southern coast,
 I met thy friendship with an equal flame!

* whose.

Fresh to that soil thou turn'st, *where* * ev'ry vale
 Shall prompt the poet, and his song demand:
 To thee thy copious subjects ne'er shall fail;
 Thou need'st but take thy pencil to thy hand,
 And paint what all believe who own thy genial land.

II.

There must thou wake perforce thy Doric quill;
 'Tis fancy's land to which thou sett'st thy feet;
 Where still, 'tis said, the Fairy people meet,
 Beneath each birken shade, on mead or hill.

There, each trim lass, that skims the milky store,
 To the swart tribes their creamy bowl allots;
 By night they sip it round the cottage-door,
 While airy minstrels warble jocund notes.

Of Lyric
Poetry.

There, ev'ry herd, by sad experience, knows,
 How, wing'd with Fate, their elf-shot arrows fly,
 When the sick ewe her summer food foregoes,
 Or, stretch'd on earth, the heart-smit heifers lie.
 Such airy beings awe th' untutor'd swain:
 Nor thou, tho' learn'd, his homelier thoughts neglect:
 Let thy sweet Muse the rural faith sustain;
 These are the themes of simple, sure effect,
 That add new conquests to her boundless reign,
 And fill, with double force, her heart-commanding

III.

Ev'n yet preserv'd, how often may'st thou hear,
 Where to the pole the Boreal mountains run,
 Taught by the father to his list'ning son,
 Strange lays, whose pow'r had charm'd a Spenser's ear.
 At ev'ry pause, before thy mind possessest,
 Old Runic bards shall seem to rise around,
 With uncouth lyres in many-colour'd vest,
 Their matted hair with boughs fantastic crown'd:
 Whether thou bid'st the well-taught hind repeat
 The choral dirge that mourns some chieftain brave,
 When ev'ry shrieking maid her bosom beat,
 And strew'd with choicest herbs his scented grave;
 Or whether sitting in the shepherd's shiel (H),
 Thou hear'st some sounding tale of war's alarms,
 When, at the bugle's call, with fire and steel,
 The sturdy clans pour'd forth their *brawny* † swarms, † boay,
 And hostile brothers met to prove each other's arms.

IV.

'Tis thine to sing how framing hideous spells,
 In Sky's lone isle the gifted wizzard-seer §,
 Lodg'd in the wintry cave with Fate's fell spear (I), § fits.
 Or in the depth of Uist's dark forest dwells:
 How they whose sight such dreary dreams engross,
 With their own visions oft astonish'd droop,
 When, o'er the wat'ry strath, or quaggy moss,
 They see the gliding ghosts *unbodied* † troop. † embodied
 Or, if in sports, or on the festive green, † piercing!
 Their *deslin'd* † glance some fated youth descry,
 Who now, perhaps, in lusty vigour seen,
 And rosy health, shall soon lamented die.
 For them the viewless forms of air obey;
 Their bidding heed, and at their beck repair.
 They know what spirit brews the stormful day,
 And heartless, oft like moody madness, stare
 To see the phantom train their secret work prepare.

V.

To monarchs dear (K), some hundred miles astray,
 Oft have they seen Fate give the fatal blow!
 The seer in Sky shriek'd as the blood did flow
 When headless Charles warm on the scaffold lay!

As

(G) A gentleman of the name of *Barrow*, who introduced Home to Collins.

(H) A summer hut, built in the high part of the mountains, to tend their flocks in the warm season, when the pasture is fine.

(I) Waiting in wintry cave his wayward fits.

(K) Of this beautiful ode two copies have been printed: one by Dr Carlyle, from a manuscript which he acknowledges to be mutilated; another by an editor who seems to hope that a nameless somebody will be believed, when he declares, that "he discovered a *perfect copy* of this admirable ode among some old papers in the concealed drawers of a bureau left him by a relation." The present age has been already too much amused with pretended discoveries of poems in the bottoms of *old chests*, to pay full credit to an assertion of this kind, even though the scene of discovery be laid in a *bureau*. As the ode of the anonymous editor differs, however, very little from that of Dr Carlyle, and as what is affirmed by a GENTLEMAN may be true, though "he chooses not at present

Of Lyric
Poetry.

As Boreas threw his young Aurora (L) forth,
In the first year of the first George's reign,
And battles rag'd in welkin of the North,
They mourn'd in air, fell, fell rebellion, slain!
And as of late they joy'd in Preston's fight,
Saw at sad Falkirk all their hopes near crown'd!
They rav'd divining through their second-fight (M),
Pale, red Culloden, where these hopes were drown'd!
Illustrious William (N)! Britain's guardian name!
One William sav'd us from a tyrant's stroke;
He, for a sceptre, gain'd heroic fame,
But thou, more glorious, Slavery's chain hast broke,
To reign a private man, and bow to Freedom's yoke!

VI.

These, too, thou'lt sing! for well thy magic muse
Can to the topmost heav'n of grandeur soar!
Or stoop to wail the swain that is no more!
Ah, homely swains! your homeward steps ne'er loose;
Let not dank *Will* (O) mislead you to the heath:
Dancing in mirky night, o'er fen and lake,
He glows, to draw you downward to your death,
In his bewitch'd, low, marshy, willow brake!
What though far off, from some dark dell espied,
His glimm'ring mazes cheer th'excurive fight,
Yet turn, ye wand'rers, turn your steps aside,
Nor trust the guidance of that faithless light;
For watchful, lurking, 'mid th' unrustling reed,
At those mirk hours the wily monster lies,
And listens oft to hear the passing steed,
And frequent round him rolls his fullen eyes,
If chance his savage wrath may some weak wretch surprize.

VII.

Ah, luckless swain, o'er all unblest, indeed!
Whom late bewilder'd in the dank, dark fen,
Far from his flocks, and smoking hamlet, then!
To that sad spot **where hums the sedgy weed.*

* his way-
ward fate
shall lead.Of Lyric
Poetry.

On him, enrag'd, the fiend, in angry mood,
Shall never look with pity's kind concern,
But instant, furious, raise the whelming flood
O'er its drown'd banks, forbidding all return!
Or, if he meditate his wish'd escape,
To some dim hill that seems uprising near,
To his faint eye, the grim and grisly shape,
In all its terrors clad, shall wild appear.
Meantime the wat'ry surge shall round him rise,
Pour'd sudden forth from ev'ry swelling source!
What now remains but tears and hopeless sighs?
His fear-shook limbs have lost their youthful force,
And down the waves he floats, a pale and breathless corse!

VIII.

For him in vain his anxious wife shall wait,
Or wander forth to meet him on his way;
For him in vain, at to-fall of the day,
His babes shall linger at th' unclosing gate!
Ah, ne'er shall he return! Alone, if night,
Her travell'd limbs in broken slumbers steep!
With drooping willows drest, his mournful sprite
Shall visit sad, perchance, her silent sleep:
Then he, perhaps, with moist and wat'ry hand,
Shall fondly seem to press her shudd'ring cheek,
And with his blue-swoln face before her stand,
And, shiv'ring cold, these piteous accents speak:
"Pursue, dear wife, thy daily toils pursue,
"At dawn or dusk, industrious as before;
"Nor e'er of me one **helpless* thought renew,
"While I lie welt'ring on the ozier'd shore,
"Drown'd by the kelpie's† wrath, nor e'er shall aid thee † the water-
[more!"] fiend.
IX.

* hapless.

† the water-

fiend.

* style.

Unbounded is thy range; with varied *skill**
Thy muse may, like those feath'ry tribes which spring
From their rude rocks, extend her skirting wing
Round the moist marge of each cold Hebrid isle,

To

present to publish his name," we have inserted into our work the copy which pretends to be perfect, noting at the bottom or margin of the page the different readings of Dr Carlyle's edition. In the Doctor's manuscript, which appeared to have been nothing more than the *prima cura*, or first sketch of the poem, the fifth stanza and half of the sixth were wanting; and to give a continued context, he prevailed with Mr M'Kenzie, the ingenious author of the *Man of Feeling*, to fill up the chasm. This he did by the following beautiful lines, which we cannot help thinking much more happy than those which occupy their place in the copy said to be perfect:

"Or on some belying rock that shades the deep,
They view the lurid signs that cross the sky,
Where in the west the brooding tempests lie;
And hear their first, faint, rustling pennons sweep.
Or in the arched cave, where deep and dark
The broad unbroken billows heave and swell,
In horrid musings wrapt, they sit to mark
The lab'ring moon; or list the nightly yell
Of that dread spirit, whose gigantic form
The fear's entranced eye can well survey,
Through the dim air who guides the driving storm,
And points the wretched bark its destin'd prey.
Or him who hovers on his flagging wing,

O'er the dire whirlpool, that in ocean's waste,
Draws instant down whate'er devoted thing
The falling breeze within its reach hath plac'd—
The distant seaman hears, and flies with trembling haste.

Or if on land the fiend exerts his sway,
Silent he broods o'er quicksand, bog, or fen,
Far from the shelt'ring roof and haunts of men,
When witch'd darkness shuts the eye of day,
And shrouds each star that wont to cheer the night;
Or if the drifted snow perplex the way,
With treach'rous gleam he lures the fated wight
And leads him flound'ring on and quite astray."

(L) By young Aurora, Collins undoubtedly meant the first appearance of the northern lights, which is commonly said to have happened about the year 1715.

(M) Second-fight is the term that is used for the divination of the Highlanders.

(N) The late duke of Cumberland, who defeated the Pretender at the battle of Culloden.

(O) A fiery meteor, called by various names, such as *Will with the Wisp*, *Jack with the Lanthorn*, &c. It hovers in the air over marshy and fenny places.

Of Lyric
Poetry.

To that hoar pile (P) which still its ruin shows :
In whose small vaults a pigmy-folk is found,
Whose bones the delver with his spade upthrows,
And culls them, wond'ring, from the hallow'd ground !
Or thither (Q), where beneath the show'ry west,
The mighty kings of three fair realms are laid :
Once foes, perhaps, together now they rest,
No slaves revere them, and no wars invade :
Yet frequent now, at midnight solemn hour,
The rifted mounds their yawning cells unfold,
And forth the monarchs stalk with sov'reign pow'r
In pageant robes ; and, wreath'd with sheeny gold,
And on their twilight tombs aerial council hold.

X.

But, oh ! o'er all, forget not Kilda's race,
On whose bleak rocks, which brave the wasting tides,
Fair Nature's daughter, Virtue, yet abides.
Go ! just, as they, their blameless manners trace !
Then to my ear transmit some gentle song,
Of those whose lives are yet sincere and plain,
Their bounded walks the rugged cliffs along,
And all their prospect but the wint'ry main.
With sparing temp'rance at the needful time,
They drain the scented spring ; or, hunger-press'd,
Along th' Atlantic rock, undreading, climb,
And of its eggs despoil the solan's nest*.

* See *Bird-catching*,
p. 237. and
Pelicanus,
No. 3.

Thus, blest in primal innocence, they live,
Suffic'd, and happy with that frugal fare
Which tasteful toil and hourly danger give.
Hard is their shallow soil, and bleak and bare ;
Nor ever vernal bee was heard to murmur there !

XI.

Nor need'st thou blush that such false themes engage
Thy gentle mind, of fairer stores possess'd ;
For not alone they touch the village breast,
But fill'd in elder time th' historic page.
There, Shakespeare's self, with every garland crown'd,
Flew to those fiery climes his fancy'sheen (R),
In musing hour ; his wayward sisters found,
And with their terrors dress'd the magic scene.
From them he sung, when, 'mid his bold design,
Before the Scot, afflicted, and aghast !
The shadowy kings of Banquo's fated line,
Thro' the dark cave in gleamy pageant pass'd.
Proceed ! nor quit the tales, which, simply told,
Could once so well my answer'ing bosom pierce ;
Proceed, in forceful sounds, and colours bold,
The native legends of thy land rehearse ;
To such adapt thy lyre, and suit thy pow'ful verse.

XII.

In scenes like these, which, daring to depart
From sober truth, are still to nature true,
And call forth fresh delight to fancy's view,
Th' heroic muse employ'd her Tasso's art !

How have I trembl'd, when, at Tancred's stroke,
Its gushing blood the gaping cypress pour'd,
When each live plant with mortal accents spoke,
And the wild blast upheav'd the vanish'd sword !

How have I sat, when pip'd the pensive wind,
To hear his harp by British Fairfax strung !

Prevailing poet ! whose undoubting mind,
Believed the magic wonders which he sung !

Hence, at each sound, imagination glows !
Hence, at each picture, vivid life starts here ! (S)

Hence his warm lay with softest sweetness flows !
Melting it flows, pure, *murm'ring* *, strong, and clear, * numer-
And fills th' impassion'd heart, and wins th' harmonious ous.

XIII.

[ear !

All hail, ye scenes that o'er my soul prevail !

Ye splendid † friths and lakes, which, far away, † spacious.
Are by smooth Annan † fill'd, or pastoral Tay †, † Three ri-
Or Don's † romantic springs, at distance, hail ! vers in
The time shall come, when I, perhaps, may tread Scotland.

Your lowly *glens* *, o'erhung with spreading broom ; * valleys.
Or o'er your stretching heaths, by fancy led,

Or o'er your mountains creep, in awful gloom ! (T)

Then will I dress once more the faded bow'r,
Where Jonson (U) sat in Drummond's *clastic* † shade ; † social.

Or crop, from Tiviotdale, each lyric flow'r,
And mourn, on Yarrow's banks, *where Willy's laid* † ! † the wi-
Meantime, ye pow'rs that on the plains which bore dowed

The cordial youth, on Lothian's plains (X), attend ! maid !

Where'er *HOME dwells* §, on hill, or lowly moor, § he dwell.

To him I *loose* ||, your kind protection lend, || lose.

And, touch'd with love like mine, preserve my absent friend !

Dr Johnson, in his life of Collins, informs us, that Dr Warton and his brother, who had seen this ode in the author's possession, thought it superior to his other works. The taste of the Wartons will hardly be questioned ; but we are not sure that the following *Ode to the Passions* has much less merit, though it be merit of a different kind, than the Ode on the Superstitions of the Highlands :

WHEN Music, heav'nly maid, was young,
While yet in early Greece she sung,
The Passions oft, to hear her shell,
Throng'd around her magic cell,
Exulting, trembling, raging, fainting,
Possess'd beyond the Muse's painting ;
By turns they felt the glowing mind
Disturb'd, delighted, rais'd, refin'd.
Till once, 'tis said, when all were fir'd,
Fill'd with fury, rapt, inspir'd,
From the supporting myrtles round
They snatch'd her instruments of sound :

And

(P) One of the Hebrides is called the *Isle of Pigmies*, where it is reported, that several miniature bones of the human species have been dug up in the ruins of a chapel there.

(Q) Icolmkill, one of the Hebrides, where many of the ancient Scottish, Irish, and Norwegian kings, are said to be interred.

(R) This line wanting in Dr Carlyle's edition.

(S) This line wanting in Dr Carlyle's edition.

(T) This line wanting in Dr Carlyle's edition.

(U) Ben Jonson paid a visit on foot in 1619 to the Scotch poet Drummond, at his seat of Hawthornden, within seven miles of Edinburgh.

(X) Barrow, it seems, was at the university of Edinburgh, which is in the county of Lothian.

Of Lyric
Poetry

And as they oft had heard apart
Sweet lessons of her forceful art,
Each, for madness rul'd the hour,
Would prove his own expressive power.

First Fear his hand, its skill to try,
Amid the chords bewild'rd laid,
And back recoil'd, he knew not why,
Ev'n at the sound himself had made.

Next Anger rush'd; his eyes on fire,
In lightnings own'd his secret stings;
In one rude clash he struck the lyre,
And swept with hurried hand the strings.

With woeful measures wan Despair—
Low fullen sounds his grief beguil'd;
A solemn, strange, and mingled air;
'Twas sad by fits, by starts 'twas wild.

But thou, O Hope! with eyes so fair,
What was thy delighted measure?
Still it whisper'd promis'd pleasure,
And bade the lovely scenes at distance hail!—
Still would her touch the strain prolong,
And from the rocks, the woods, the vale,
She call'd on Echo still through all her song;
And where her sweetest theme she chose,
A soft responsive voice was heard at every close,
And Hope enchanted smil'd, and wav'd her golden hair.

And longer had she sung;—but, with a frown,
Revenge impatient rose;
He threw his blood-stain'd sword in thunder down,
And, with a withering look,
The war-denouncing trumpet took,
And blew a blast so loud and dread,
Were ne'er prophetic sounds so full of woe.
And ever and anon he beat
The doubling drum with furious heat;
And though sometimes, each dreary pause between,
Dejected Pity at his side
Her soul-subduing voice applied,
Yet still he kept his wild unalter'd mien,
While each strain'd ball of sight seem'd bursting from
his head.

Thy numbers, Jealousy, to nought were fix'd,
Sad proof of thy distressful state;
Of differing themes the veering song was mix'd;
And now it courted Love, now raving call'd on Hate.

With eyes up-raisd, as one inspir'd,
Pale Melancholy sat retir'd,
And from her wild sequester'd seat,
In notes by distance made more sweet,
Pour'd through the mellow horn her pensive soul,
And dashing soft from rocks around,
Bubbling runnels join'd the sound;
Through glades and glooms the mingled measure stole,
Or o'er some haunted streams with fond delay,
Round an holy calm diffusing,
Love of peace, and lonely musing,
In hollow murmurs died away.

But O! how alter'd was its sprightlier tone!
When Cheerfulness, a nymph of healthiest hue,
Her bow across her shoulder slung,
Her buskins gemm'd with morning dew,

Blew an inspiring air, that dale and thicket rung,
The hunter's call to Faun and Dryad known;
The oak-crown'd sisters, and their chaste-ey'd queen,
Satyrs and sylvan boys were seen,
Peeping from forth their alleys green;
Brown Exercise rejoic'd to hear,
And Sport leapt up, and seiz'd his beechen spear.

Last came Joy's ecstatic trial;
He, with viny crown advancing,
First to the lively pipe his hand address'd,
But soon he saw the brisk awakening viol,
Whose sweet entrancing voice he lov'd the best.
They would have thought who heard the strain,
They saw in Tempe's vale her native maids,
Amidst the festal sounding shades,
To some unwearied minstrel dancing,
While, as his flying fingers kiss'd the strings,
Love fram'd with Mirth a gay fantastic round:
Loose were her tresses seen, her zone unbound;
And he, amidst his frolic play,
As if he would the charming air repay,
Shook thousand odours from his dewy wings.

O music! sphere-descended maid,
Friend of pleasure, wisdom's aid,
Why, Goddess, why to us denied?
Lay'st thou thy ancient lyre aside?
As in that lov'd Athenian bower,
You learn'd an all-commanding power:
Thy mimic soul, O Nymph endear'd,
Can well recall what then it heard.
Where is thy native simple heart,
Devote to virtue, fancy, art?
Arise, as in that elder time,
Warm, energetic, chaste, sublime!
Thy wonders, in that god-like age,
Fill thy recording sister's page—
'Tis said, and I believe the tale,
Thy humblest reed could more prevail,
Had more of strength, diviner rage,
Than all which charms this laggard age;
Ev'n all at once together found
Cæcilia's mingled world of sound—
O! bid our vain endeavours cease,
Revive the just designs of Greece,
Return in all thy simple state!
Confirm the tales her sons relate.

We shall conclude this section, and these examples, with Gray's *Progress of Poesy*, which, in spite of the severity of Johnson's criticism, certainly ranks high among the odes which pretend to sublimity. The first stanza, when examined by the frigid rules of grammatical criticism, is certainly not faultless; but its faults will be overlooked by every reader who has any portion of the author's fervour:

I. 1.

Awake, Æolian lyre, awake,
And give to rapture all thy trembling strings:
From Helicon's harmonious springs
A thousand rills their mazy progress take;
The laughing flowers, that round them blow,
Drink life and fragrance as they flow.
Now the rich stream of music winds along,
Deep, majestic, smooth, and strong,

Thro'

Of Lyric
Poetry.

Thro' verdant vales, and Ceres' golden reign :
Now rolling down the steep amain,
Headlong, impetuous, see it pour :
The rocks and nodding groves rebellow to the roar.

I. 2.

Oh! Sovereign of the willing soul,
Parent of sweet and solemn-breathing airs,
Enchanting shell! the fullen cares,
And frantic passions, hear thy soft controul.
On Thracia's hills the lord of war
Has curb'd the fury of his car,
And dropp'd his thirsty lance at thy command.
Perching on the sceptred hand
Of Jove, thy magic lulls the feather'd king
With ruffled plumes, and flagging wing :
Quench'd in dark clouds of slumber lie
The terror of his beak, and lightnings of his eye.

I. 3.

Thee the voice, the dance, obey,
Temper'd to thy warbled lay :
O'er Idalia's velvet green
The rosy-crowned loves are seen.
On Cytherea's day,
With antic sports, and blue-ey'd pleasures,
Frisking light in frolic measures ;
Now pursuing, now retreating,
Now in circling troops they meet ;
To brisk notes, in cadence beating,
Glance their many twinkling feet.
Slow melting strains their queen's approach declare :
Where'er she turns, the Graces homage pay.
With arms sublime, that float upon the air,
In gliding state she wins her easy way :
O'er her warm cheek, and rising bosom, move
The bloom of young desire, and purple light of love.

II. 1.

Man's feeble race what ills await ;
Labour, and penury, the racks of pain,
Disease, and sorrow's weeping train,
And death, sad refuge from the storms of fate !
The fond complaint, my song, disprove,
And justify the laws of Jove.
Say, has he giv'n in vain the heav'nly muse ?
Night, and all her sickly dews,
Her spectres wan, and birds of boding cry,
He gives to range the dreary sky ;
Till down the eastern cliffs afar
Hyperion's march they spy, and glitt'ring shafts of war.

II. 2.

In climes beyond the solar road,
Where shaggy forms o'er ice-built mountains roam,
The Muse has broke the twilight-gloom,
To cheer the shiv'ring native's dull abode.
And oft, beneath the od'rous shade
Of Chili's boundless forests laid,
She deigns to hear the savage youth repeat,
In loose numbers wildly sweet,
Their feather-cinctur'd chiefs, and dusky loves.
Her track, where'er the goddess roves,
Glory pursue, and gen'rous shame,
Th' unconquerable mind, and freedom's holy flame.

II. 3.

Woods, that wave o'er Delphi's steep,
Isles, that crown the Ægean deep,

4

Of Lyric
Poetry.

Fields, that cool Ilissus laves,
Or where Mæander's amber waves
In ling'ring lab'riths creep,
How do your tuneful echoes languish
Mute, but to the voice of anguish !
Where each old poetic mountain
Inspiration breath'd around ;
Ev'ry shade and hallow'd fountain
Murmur'd deep a solemn sound :
Till the sad nine, in Greece's evil hour,
Left their Parnassus for the Latian plains.
Alike they scorn the pomp of tyrant power,
And coward vice that revels in her chains.
When Latium had her lofty spirit lost,
They fought, oh Albion! next thy sea-encircled coast.

III. 1.

Far from the sun, and summer-gale,
In thy green lap was nature's * darling laid,
What time, where lucid Avon stray'd,
To him the mighty mother did unveil
Her awful face : the dauntless child
Stretch'd forth his little arms, and smil'd.
This pencil take (the said) whose colours clear
Richly paint the vernal year :
Thine too these golden keys, immortal boy !
This can unlock the gates of joy ;
Of horror that, and thrilling fears,
Or ope the sacred source of sympathetic tears.

III. 2.

Nor second he †, that rode sublime
Upon the seraph-wings of ecstasy,
The secrets of th' abyss to spy.
He pass'd the flaming bounds of place and time :
The living throne, the sapphire blaze,
Where angels tremble while they gaze,
He saw ; but, blasted with excess of light,
Clos'd his eyes in endless night.
Behold, where Dryden's less presumptuous car,
Wide o'er the fields of glory bear
Two coursers of ethereal race,
With necks in thunder cloth'd, and long-resounding
pace.

III. 3.

Hark, his hands the lyre explore !
Bright-ey'd fancy, hov'ring o'er,
Scatters from her pictur'd urn
Thoughts that breathe, and words that burn.
But ah! 'tis heard no more—
Oh! Lyre divine, what daring spirit
Wakes thee now? tho' he inherit
Nor the pride, nor ample pinion,
That the Theban eagle bear,
Sailing with supreme dominion
Through the azure deep of air :
Yet oft before his infant eyes would run
Such forms as glitter in the Muse's ray,
With orient hues, unborrow'd of the sun :
Yet shall he mount, and keep his distant way
Beyond the limits of a vulgar fate,
Beneath the good how far—but far above the great.

SECT. III. *Of the Elegy.*

THE *Elegy* is a *mournful* and *plaintive*, but yet sweet and engaging, kind of poem. It was first invented to bewail

* Shakes-
peare.

† Milton.

133

The *elegy*.

Elegy. bewail the death of a friend; and afterwards used to express the complaints of lovers, or any other melancholy subject. In process of time, not only matters of grief, but joy, wishes, prayers, expostulations, reproaches, admonitions, and almost every other subject, were admitted into elegy; however, funeral lamentations and affairs of love seem most agreeable to its character, which is gentleness and tenacity.

The plaintive elegy, in mournful state,
Dishevell'd weeps the stern decrees of fate:
Now paints the lover's torments and delights;
Now the nymph flatters, threatens, or invites.
But he, who would these passions well express,
Must more of love than poetry possess.
I hate those lifeless writers whose forc'd fire
In a cold style describes a hot desire;
Who sigh by rule, and, raging in cold blood,
Their sluggish muse spur to an am'rous mood.
Their ecstasies insipidly they feign;
And always pine, and fondly hug their chain;
Adore their prison, and their suff'rings bless;
Make sense and reason quarrel as they please.
'Twas not of old in this affected tone,
That smooth Tibullus made his am'rous moan;
Or tender Ovid, in melodious strains,
Of love's dear art the pleasing rules explains.
You, who in elegy would justly write,
Consult your heart; let that alone endite.

[From the French of Despreux.] SOAMES.

134
How to be
made.

The plan of an elegy, as indeed of all other poems, ought to be made before a line is written; or else the author will ramble in the dark, and his verses have no dependance on each other. No *epigrammatic points* or conceits, none of those *fine things* which most people are so fond of in every sort of poem, can be allowed in this, but must give place to nobler beauties, those of *nature* and the *passions*. Elegy rejects whatever is facetious, satirical, or majestic, and is content to be plain, decent, and unaffected; yet in this humble state is the sweet and engaging, elegant and attractive. This poem is adorned with frequent *commiserations, complaints, exclamations, addresses to things or persons*, short and proper *digressions, allusions, comparisons, prosopopœias* or feigned persons, and sometimes with *short descriptions*. The diction ought to be free from any *harshness; neat, easy, perspicuous, expressive of the manners, tender, and pathetic*; and the numbers should be *smooth and flowing*, and captivate the ear with their uniform sweetness and delicacy.

Of elegies on the subject of death, that by Mr Gray, written in a country churchyard, is one of the best that has appeared in our language, and may be justly esteemed a masterpiece. But being so generally known, it would be superfluous to insert it here.

On the subject of love, we shall give an example from the elegies of Mr Hammond.

Let others boast their heaps of shining gold,
And view their fields with waving plenty crown'd,
Whom neighb'ring foes in constant terror hold,
And trumpets break their slumbers, never found:
While, calmly poor, I trifle life away,
Enjoy sweet leisure by my cheerful fire,
No wanton hope my quiet shall betray,
But cheaply bless'd I'll scorn each vain desire.

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With timely care I'll sow my little field,
And plant my orchard with its master's hand;
Nor blush to spread the hay, the hook to wield,
Or range my sheaves along the sunny land.
If late at dusk, while carelessly I roam,
I meet a strolling kid or bleating lamb,
Under my arm I'll bring the wand'rer home,
And not a little chide its thoughtless dam.
What joy to hear the tempest howl in vain,
And clasp a fearful mistress to my breast?
Or lull'd to slumber by the beating rain,
Secure and happy sink at last to rest.
Or if the sun in flaming Leo ride,
By shady rivers indolently stray,
And, with my DELIA walking side by side,
Hear how they murmur, as they glide away.
What joy to wind along the cool retreat,
To stop and gaze on DELIA as I go!
To mingle sweet discourse with kisses sweet,
And teach my lovely scholar all I know!
Thus pleas'd at heart, and not with fancy's dream,
In silent happiness I rest unknown;
Content with what I am, not what I seem,
I live for DELIA and myself alone.

Ah foolish man! who, thus of her possess'd,
Could float and wander with ambition's wind,
And, if his outward trappings spoke him blest,
Not heed the sickness of his conscious mind.
With her I scorn the idle breath of praise,
Nor trust to happiness that's not our own;
The smile of fortune might suspicion raise,
But here I know that I am lov'd alone.
STANHOPE, in wisdom as in wit divine,
May rise and plead Britannia's glorious cause,
With steady rein his eager wit confine,
While manly sense the deep attention draws.
Let STANHOPE speak his lilt'ning country's wrong,
My humble voice shall please one partial maid;
For her alone I pen my tender song,
Securely sitting in his friendly shade.
STANHOPE shall come, and grace his rural friend;
DELIA shall wonder at her noble guest,
With blushing awe the ripen fruit commend,
And for her husband's patron cull the best.
Her's be the care of all my little train,
While I with tender indolence am blest,
The favourite subject of her gentle reign,
By love alone distinguish'd from the rest.
For her I'll yoke my oxen to the plough,
In gloomy forests tend my lonely flock,
For her a goatherd climb the mountain's brow,
And sleep extended on the naked rock.
Ah! what avails to press the stately bed,
And far from her 'midst tasteless grandeur weep,
By marble-fountains lay the pensive head,
And, while they murmur, strive in vain to sleep!

DELIA alone can please and never tire,
Exceed the paint of thought in true delight;
With her, enjoyment wakens new desire,
And equal rapture glows thro' ev'ry night.
Beauty and worth in her alike contend
To charm the fancy, and to fix the mind;
In her, my wife, my mistress, and my friend,
I taste the joys of sense and reason join'd.

C

On

Pastoral.

On her I'll gaze when others are loves o'er,
 And dying press her with my clay-cold hand—
 Thou weep'it already, as I were no more,
 Nor can that gentle breast the thought withstand.
 Oh! when I die, my latest moments spare,
 Nor let thy grief with sharper torments kill:
 Wound not thy cheeks, nor hurt that flowing hair;
 Tho' I am dead, my soul shall love thee still.
 Oh quit the room, oh quit the deathful bed,
 Or thou wilt die, so tender is thy heart!
 Oh leave me, DELIA! ere thou see me dead,
 These weeping friends will do thy mournful part.
 Let them, extended on the decent bier,
 Convey the corse in melancholy state,
 Thro' all the village spread the tender tear,
 While pitying maids our wond'rous love relate.

SECT. IV. *Of the Pastoral.*135
The pasto-
ral.

THIS poem takes its name from the Latin word *pastor*, a "shepherd;" the subject of it being something in the pastoral or rural life; and the persons, interlocutors, introduced in it, either shepherds or other rustics.

These poems are frequently called *eclogues*, which signifies "select or choice pieces;" though some account for this name in a different manner. They are also called *bucolicks*, from *βουκολος*, "a herdsman."

136
Why it ge-
nerally
pleases.

This kind of poem, when happily executed, gives great delight; nor is it a wonder, since innocence and simplicity generally please: to which let us add, that the scenes of pastorals are usually laid in the country, where both poet and painter have abundant matter for the exercise of genius, such as enchanting prospects, purling streams, shady groves, enamelled meads, flowery lawns, rural amusements, the bleating of flocks, and the music of birds; which is of all melody the most sweet and pleasing, and calls to our mind the wisdom and taste of Alexander, who, on being importuned to hear a man that imitated the notes of the nightingale, and was thought a great curiosity, replied, that *he had had the happiness of hearing the nightingale herself.*

137
Its charac-
ters and

The character of the pastoral consists in simplicity, brevity, and delicacy; the two first render an eclogue *natural*, and the last *delightful*. With respect to nature, indeed, we are to consider, that as a pastoral is an image of the ancient times of innocence and undesigned plainness, we are not to describe shepherds as they really are at this day, but as they may be conceived then to have been, when the best of men, and even princes, followed the employment. For this reason, an air of piety should run through the whole poem; which is visible in the writings of antiquity.

To make it natural with respect to the present age, some knowledge in rural affairs should be discovered, and that in such a manner as if it was done by chance rather than by design; lest by too much pains to seem natural, that simplicity be destroyed from whence arises the delight; for what is so engaging in this kind of poetry proceeds not so much from the idea of a country life itself, as in exposing only the best part of a shepherd's life, and concealing the misfortunes and miseries which sometimes attend it. Besides, the subject must contain some particular beauty in itself, and each eclogue present a scene or prospect to our view enriched with variety:

which variety is in a great measure obtained by frequent comparisons drawn from the most agreeable objects of the country; by interrogations to things inanimate; by short and beautiful digressions; and by elegant turns on the words, which render the numbers more sweet and pleasing. To this let us add, that the connections must be negligent, the narrations and descriptions short, and the periods concise.

Riddles, parables, proverbs, antique phrases, and superfluous fables, are fit materials to be intermixed with this kind of poem. They are here, when properly applied, very ornamental; and the more so, as they give our modern compositions the air of the ancient manner of writing.

The style of the pastoral ought to be humble, yet style. 138
 pure; neat, but not florid; easy, and yet lively: and the numbers should be smooth and flowing.

This poem in general should be short, and ought never much to exceed 100 lines; for we are to consider that the ancients made these sort of compositions their amusement, and not their business: but however short they are, every eclogue must contain a plot or fable, which must be simple and one; but yet so managed as to admit of short digressions. Virgil has always observed this.—We shall give the plot or argument of this first pastoral as an example. Melibæus, *an unfortunate shepherd, is introduced with Tityrus, one in more fortunate circumstances; the former addresses the complaint of his sufferings and banishment to the latter, who enjoys his flocks and folds in the midst of the public calamity, and therefore expresses his gratitude to the benefactor from whom this favour flowed: but Melibæus accuses fortune, civil wars, and bids adieu to his native country.* This is therefore a dialogue.

But we are to observe, that the poet is not always obliged to make his eclogue *allegorical*, and to have real persons represented by the fictitious characters introduced; but is in this respect entirely at his own liberty.

Nor does the nature of the poem require it to be always carried on by way of dialogue; for a shepherd may with propriety sing the praises of his love, complain of her inconstancy, lament her absence, her death, &c. and address himself to groves, hills, rivers, and such like rural objects, even when alone.

We shall now give an example from each of those authors who have eminently distinguished themselves by this manner of writing, and introduce them in the order of time in which they were written.

Theocritus, who was the father or inventor of this Examples
 kind of poetry, has been deservedly esteemed by the of the pa-
 best critics; and by some, whose judgement we cannot storal from
 dispute, preferred to all other pastoral writers, with Theocritus.
 perhaps the single exception of the tender and delicate Gesner. We shall insert his third *idyllium*, not because it is the best, but because it is within our compass.

To Amaryllis, lovely nymph, I speed,
 Meanwhile my goats upon the mountains feed.
 O Tityrus, tend them with assiduous care,
 Lead them to crystal springs and pastures fair,
 And of the ridgling's butting horns beware.
 Sweet Amaryllis, have you then forgot
 Our secret pleasures in the conscious grott,

Where

Pastoral. Where in my folding arms you lay reclin'd ?
 Blest was the shepherd, for the nymph was kind.
 I whom you call'd *your Dear, your Love*, so late,
 Say, am I now the object of your hate ?
 Say, is my form displeasing to your sight ?
 This cruel love will surely kill me quite.
 Lo! ten large apples, tempting to the view,
 Pluck'd from your favourite tree, where late they grew.
 Accept this boon, 'tis all my present store ;
 To-morrow will produce as many more.
 Meanwhile these heart-consuming pains remove,
 And give me gentle pity for my love.
 Oh! was I made by some transforming power
 A bee to buzz in your sequester'd bow'r!
 To pierce your ivy shade with murmuring sound,
 And the light leaves that compass you around.
 I know thee, Love, and to my sorrow find,
 A god thou art, but of the savage kind ;
 A lioness sure suckled the fell child,
 And with his brothers nurst him in the wild ;
 On me his scorching flames incessant prey,
 Glow in my bones, and melt my soul away.
 Ah, nymph, whose eyes destructive glances dart,
 Fair is your face, but flinty is your heart :
 With kisses kind this rage of love appease ;
 For me, fond swain! ev'n empty kisses please.
 Your scorn distracts me, and will make me tear
 The flow'ry crown I wove for you to wear,
 Where roses mingle with the ivy-wreath,
 And fragrant herbs ambrosial odours breathe.
 Ah me! what pangs I feel ; and yet the fair
 Nor sees my sorrows nor will hear my pray'r.
 I'll doff my garments, since I needs must die,
 And from yon rock that points its summit high,
 Where patient *Alpis* snares the finny fry,
 I'll leap, and, though perchance I rise again,
 You'll laugh to see me plunging in the main.
 By a prophetic poppy-leaf I found
 Your chang'd affection, for it gave no sound,
 Though in my hand struck hollow as it lay,
 But quickly wither'd like your love away.
 An old witch brought sad tidings to my ears,
 She who tells fortunes with the sieve and sheers
 For leasing barley in my fields of late,
 She told me, I should love, and you should hate!
 For you my care a milk-white goat supply'd.
 Two wanton kids run frisking at her side ;
 Which oft the nut-brown maid, *Erithacis*,
 Has begg'd and paid before-hand with a kiss ;
 And since you thus my ardent passion slight,
 Her's they shall be before to-morrow night.
 My right eye itches ; may it lucky prove,
 Perhaps I soon shall see the nymph I love ;
 Beneath yon pine I'll sing distinct and clear,
 Perhaps the fair my tender notes shall hear ;
 Perhaps may pity my melodious moan ;
 She is not metamorphos'd into stone.
 Hippomenes, provok'd by noble strife,
 To win a mistress, or to lose his life,
 Threw golden fruit in *Atalanta's* way :
 The bright temptation caus'd the nymph to stay ;
 She look'd, she languish'd, all her soul took fire,
 She plung'd into the gulf of deep desire.
 To Pyle from *Othrys* sage *Melampus* came,
 He drove the lowing herd, yet won the dame ;

Fair *Pero* blest his brother *Bias's* arms,
 And in a virtuous race diffus'd unfading charms.
 Adonis fed his cattle on the plain,
 And sea-born *Venus* lov'd the rural swain ;
 She mourn'd him wounded in the fatal chace,
 Nor dead dismiss'd him from her warm embrace.
 Though young *Endymion* was by *Cynthia* blest,
 I envy nothing but his lasting rest.
Jasion slumb'ring on the *Cretan* plain
 Ceres once saw, and blest the happy swain
 With pleasures too divine for ears profane.
 My head grows giddy, love affects me fore ;
 Yet you regard not ; so I'll sing no more—
 Here will I put a period to my care—
 Adieu, false nymph, adieu ungrateful fair ;
 Stretch'd near the grotto, when I've breath'd my last,
 My corse will give the wolves a rich repast,
 As sweet to them as honey to your taste.

FAWKES.

Virgil succeeds *Theocritus*, from whom he has in ¹⁴⁰Virgil some places copied, and always imitated with success. As a specimen of his manner, we shall introduce his first pastoral, which is generally allowed to be the most perfect.

MELIBOEUS and TITYRUS.

Mel. Beneath the shade which beechen boughs diffuse,
 You, *Tityrus*, entertain your sylvan muse.
 Round the wide world in banishment we roam,
 Forc'd from our pleasing fields and native home ;
 While stretch'd at ease you sing your happy loves,
 And *Amyrillis* fills the shady groves.

Tit. These blessings, friend, a deity bestow'd ;
 For never can I deem him less than god.
 The tender firstling of my woolly breed
 Shall on his holy altar often bleed.
 He gave me kine to graze the flow'ry plain,
 And so my pipe renew'd the rural strain.

Mel. I envy not your fortune ; but admire,
 That while the raging sword and wasteful fire
 Destroy the wretched neighbourhood around,
 No hostile arms approach your happy ground.
 Far diff'rent is my fate ; my feeble goats
 With pains I drive from their forsaken cotes :
 And this you see I scarcely drag along,
 Who yeaning on the rocks has left her young,
 The hope and promise of my falling fold.
 My loss by dire portents the gods foretold ;
 For, had I not been blind, I might have seen
 Yon riven oak, the fairest on the green,
 And the hoarse raven on the blasted bough
 By croaking from the left presag'd the coming blow.
 But tell me, *Tityrus*, what heav'nly pow'r
 Preserv'd your fortunes in that fatal hour ?

Tit. Fool that I was, I thought imperial Rome
 Like *Mantua*, where on market-days we come,
 And thither drive our tender lambs from home.
 So kids and whelps their fires and dams express ;
 And so the great I measur'd by the less :
 But country-towns, compar'd with her, appear
 Like shrubs when lofty cypresses are near.

Mel. What great occasion call'd you hence to Rome ?

Tit. Freedom, which came at length, tho' slow to come ;

Pastoral.

Nor did my search of liberty begin
Till my black hairs were chang'd upon my chin ;
Nor Amaryllis would vouchsafe a look,
Till Galatea's meaner bonds I broke.
Till then a helpless, hopeless, homely swain,
I sought not freedom, nor aspir'd to gain :
Tho' many a victim from my folds was bought,
And many a cheese to country markets brought,
Yet all the little that I got I spent,
And still return'd as empty as I went.

Mel. We stood amaz'd to see your mistress mourn,
Unknowing that she pin'd for your return ;
We wonder'd why she kept her fruit so long,
For whom so late th' ungather'd apples hung :
But now the wonder ceases, since I see
She kept them only, Tityrus, for thee :
For thee the bubb'ling springs appear'd to mourn,
And whisp'ring pines made vows for thy return.

Tiz. What should I do ? while here I was enchain'd,
No glimpse of godlike liberty remain'd ;
Nor could I hope in any place but there
To find a god so present to my pray'r.
There first the youth of heav'nly birth I view'd,
For whom our monthly victims are renew'd.

He heard my vows, and graciously decreed
My grounds to be restor'd my former flocks to feed

Mel. O fortunate old man ! whose farm remains
For you sufficient, and requites your pains,
Though rushes overspread the neighb'ring plains,
Tho' here the marshy grounds approach your fields,
And there the soil a stony harvest yields.
Your teeming ewes shall no strange meadows try,
Nor fear a rot from tainted company.
Behold yon bord'ring fence of fallow trees
Is fraught with flow'rs, the flow'rs are fraught with bees :
The busy bees, with a soft murmur'ing strain,
Invite to gentle sleep the lab'ring swain :
While from the neighb'ring rock with rural songs
The pruner's voice the pleasing dream prolongs ;
Stock doves and turtles tell their am'rous pain,
And, from the lofty elms, of love complain.

Tiz. Th' inhabitants of seas and skies shall change
And fish on shore and stags in air shall range,
The banish'd Parthian dwell on Arar's brink,
And the blue German shall the Tigris drink ;
Ere I, forsaking gratitude and truth,
Forget the figure of that godlike youth.

Mel. But we must beg our bread in climes unknown,
Beneath the scorching or the freezing zone ;
And some to far Oaxis shall be sold,
Or try the Libyan heat or Scythian cold ;
The rest among the Britons be confin'd,
A race of men from all the world disjoin'd.
O ! must the wretched exiles ever mourn ?
Nor after length of rolling years return ?
Are we condemn'd by Fate's unjust decree,
No more our houses and our homes to see ?
Or shall we mount again the rural throne,
And rule the country, kingdoms once our own ?
Did we for these barbarians plant and sow,
On these, on these, our happy fields bestow ?
Good heav'n, what dire effects from civil discords flow !
Now let me graft my pears, and prune the vine ;
The fruit is theirs, the labour only mine.

Pastoral.

Farewel my pastures, my paternal flock !
My fruitful fields, and my more fruitful flock !
No more, my goats, shall I behold you climb
The steepy cliffs, or crop the flow'ry thyme ;
No more extended in the grot below,
Shall see you browsing on the mountain's brow
The prickly shrubs, and after on the bare
Lean down the deep abyss and hang in air !
No more my sheep shall sip the morning dew ;
No more my song shall please the rural crew :

Tiz. This night, at least, with me forget your care ;
Chestnuts and curds and cream shall be your fare :
The carpet ground shall be with leaves o'erspread,
And boughs shall weave a cov'ring for your head :
For see yon sunny hill the shade extends,
And curling smoke from cottages ascends.

DRYDEN.

Spenser was the first of our countrymen who acquired ¹⁴¹Spenser.
any considerable reputation by this method of writing.
We shall insert his sixth eclogue, or that for June,
which is allegorical, as will be seen by the

ARGUMENT. "Hobbinol, from a description of the
pleasures of the place, excites Colin to the enjoyment
of them. Colin declares himself incapable of delight
by reason of his ill success in love, and his loss of Rosa-
lind, who had treacherously forsaken him for Menalcas
another shepherd. By Tityrus (mentioned before in
Spenser's second eclogue, and again in the twelfth) is
plainly meant Chaucer, whom the author sometimes
professed to imitate. In the person of Colin is repre-
sented the author himself; and Hobbinol's inviting him
to leave the hill country, seems to allude to his leaving
the north, where, as is mentioned in his life, he had for
some time resided."

Hob. Lo ! Colin, here the place, whose pleasant sight
From other shades hath wean'd my wand'ring mind :

Tell me, what wants me here, to work delight ?
The simple air, the gentle warbling wind,
So calm, so cool, as nowhere else I find :

The grassy ground with dainty daisies dight,
The bramble-bush, where birds of every kind
To th' water's fall their tunes attemper right.

Col. O ! happy Hobbinol, I bless thy state,
That paradise hast found which Adam lost.

Here wander may thy flock early or late,
Withouten dread of wolves to been ylost ;

Thy lovely lays here mayst thou freely boast :
But I, unhappy man ! whom cruel fate,

And angry gods, pursue from coast to coast,
Can nowhere find to shroud my luckless pate.

Hob. Then if by me thou list advised be,
Forsake the soil that so doth thee bewitch :

Leave me those hills, where harbroughnis to see,
Nor holly bush, nor breere, nor winding ditch ;

And to the dales resort, where shepherds rich,
And fruitful flocks been everywhere to see :

Here no night-ravens lodge, more black than pitch,
Nor elvish ghosts, nor ghastly owls do flee.

But friendly fairies met with many graces,
And light-foot nymphs can chace the ling'ring night,

With heydeguiques, and trimly trodden traces ;
Whilst sisters nine, which dwell on Parnass' height,

Do

Pastoral.

Do make them music, for their more delight;
And Pan himself to kiss their crystal faces,
Will pipe and dance, when Phœbe shineth bright:
Such peerless pleasures have we in these places.

Col. And I whilst youth, and course of careless years,
Did let me walk withouten links of love,

In such delights did joy amongst my peers:
But riper age such pleasures doth reprove,

My fancy eke from former follies move
To strayed steps: for time in passing wears
(As garments doen, which waxen old above)
And draweth new delights with hoary hairs.

Though couth I sing of love, and tune my pipe
Unto my plaintive pleas in verses made:

Though would I seek for queen-apples unripe
To give my Rosalind, and in fommer shade

Dight gawdy girlonds was my common trade,
To crown her golden locks: but years more ripe,

And loss of her, whose love as life I wayde,
Those weary wanton toys away did wipe.

Hob. Colin, to hear thy rhymes and roundelays,
Which thou wert wont on wasteful hills to sing,

I more delight, than lark in fommer days:
Whose echo made the neighbour groves to ring,

And taught the birds, which in the lower spring
Did thrond in shady leaves from sunny rays,

Frame to thy song their cheerful cherishing,
Or hold their peace, for shame of thy sweet lays.

I saw Calliope with muses moe,
Soon as thy oaten pipe began to sound,

Their ivory lutes and tamburins forego,
And from the fountain, where they fate around,

Ren after hastily thy silver sound.
But when they came, where thou thy skill didst show,

They drew aback, as half with shame confound,
Shepherd to see, them in their art outgo.

Col. Of muses, Hobbinol, I con no skill,
For they been daughters of the highest Jove,

And holden scorn of homely shepherds quill:
For sith I heard that Pan with Phœbus strove

Which him to much rebuke and danger drove,
I never list presume to Parnass' hill,

But piping low, in shade of lowly grove,
I play to please myself, albeit ill.

Nought weigh I, who my song doth praise or blame,
Ne strive to win renown, or pass the rest:

With shepherds sits not follow flying fame,
But feed his flocks in fields, where falls him best.

I wot my rimes been rough, and rudely drest;
The fitter they, my careful case to frame:

Enough is me to paint out my unrest,
And pour my piteous complaints out in the same.

The God of shepherds, Tityrus, is dead,
Who taught me homely, as I can, to make:

He, whilst he lived, was the sov'reign head
Of shepherds all, that been with love ytake.

Well couth he wail his woes, and lightly slake
The flames which love within his heart had bred,

And tell us merry tales to keep us wake,
The while our sheep about us safely fed.

Now dead he is, and lieth wrapt in lead,
(O why should death on him such outrage show!)

And all his passing skill with him is fled,
The fame whereof doth daily greater grow.

But if on me some little drops would flow

Pastoral.

Of that the spring was in his learned hed,

I soon would learn these woods to wail my woe,
And teach the trees their trickling tears to shed.

Then would my plaints, caus'd of discourtesee,
As messengers of illis my painful flight,

Fly to my love, wherever that she be,
And pierce her heart with point of worthy wight;

As she deserves, that wrought so deadly spight.
And thou, Menalcas, that by treachery

Didst underfong my las to wax so light,
Should'st well be known for such thy villany.

But since I am not, as I wish I were,
Ye gentle shepherds, which your flocks do feed,

Whether on hills or dales, or other where,
Bear witness all of this so wicked deed:

And tell the las, whose flower is woxe a weed,
And faultless faith is turn'd to faithless seere,

That she the trust shepherd's heart made bleed,
That lives on earth, and loved her most dear.

Hob. O! careful Colin, I lament thy case,
Thy tears would make the hardest sinit to flow!

Ah! faithless Rosalind, and void of grace,
That art the root of all this rueful woe!

But now is time, I guess, homeward to go;
Then rise, ye blessed flocks, and home apace

Left night with stealing steps do you forego,
And wet your tender lambs that by you trace.

By the following eclogue the reader will perceive that ¹⁴² Philips.

Mr Philips has, in imitation of Spenser, preserved in his pastorals many antiquated words, which, though they are discarded from polite conversation, may naturally be supposed still to have place among the shepherds and other rustics in the country. We have made choice of his second eclogue, because it is brought home to his own business, and contains a complaint against those who had spoken ill of him and his writings.

THENOT, COLINET.

Th. Is it not Colinet I lonc some fee
Leaning with folded arms against the tree?

Or is it age of late bedins my sight?
'Tis Colinet, indeed, in woful plight.

Thy cloudy look, why melting into tears,
Unseemly, now the sky so bright appears?

Why in this mournful manner art thou found,
Unthankful lad, when all things smile around?

Or hear'st not lark and linnet jointly sing,
Their notes blithe-warbling to salute the spring?

Co. Tho' blithe their notes, not so my wayward fate;
Nor lark would sing, nor linnet, in my state.

Each creature, Thenot, to his task is born;
As they to mirth and music, I to mourn.

Waking, at midnight, I my woes renew,
My tears oft mingling with the falling dew.

Th. Small cause, I ween, has lusty youth to plain;
Or who may then the weight of eld sustain,

When every slackening nerve begins to fail,
And the load presseth as our days prevail?

Yet though with years my body downward tend,
As trees beneath their fruit in autumn bend,

Spite of my snowy head and icy veins,
My mind a cheerful temper still retains;

And why should man, mishap what will, repine,
Sour every sweet, and mix with tears his wine?

But tell me then; it may relieve thy woe,
To let a friend thine inward ailment know.

Pastoral.

Co. Idly 'twill waste thee, Thenot, the whole day,
Should'st thou give ear to all my grief can say.
Thine ewes will wander; and the heedless lambs,
In loud complaints, requirè their absent dams.

Th. See Lightfoot; he shall tend them close: and I,
'Tween whites, across the plain will glance mine eye.

Co. Where to begin I know not, where to end.

Does there one smiling hour my youth attend?
Though few my days, as well my follies flow,
Yet are those days all clouded o'er with wo:
No happy gleam of sunshine doth appear,
My low'ring sky and wint'ry months to cheer.
My piteous plight in yonder naked tree,
Which bears the thunder-scar too plain, I see:
Quite destitute it stands of shelter kind,
The mark of storms, and sport of every wind;
The riven trunk feels not the approach of spring;
Nor birds among the leafless branches sing:
No more, beneath thy shade, shall shepherds throng
With jocund tale, or pipe, or pleasing song.
Ill-fated tree! and more ill-fated I!

From thee, from me, alike the shepherds fly.

Th. Sure thou in hapless hour of time wast born,
When blighting mildews spoil the rising corn,
Or blasting winds o'er blossom'd hedge-rows pass,
To kill the promis'd fruits, and scorch the grass,
Or when the moon, by wizard charm'd, foreshows,
Blood-stain'd in foul eclipse, impending woes.
Untimely born, ill luck betides thee still.

Co. And can there, Thenot, be a greater ill?

Th. Nor fox, nor wolf, nor rot among our sheep:
From these good shepherd's care his flock may keep;
Against ill luck, alas! all forecast fails;
Nor toil by day, nor watch by night, avails.

Co. Ah me, the while! ah me, the luckless day!

Ah luckless lad! befits me more to say.
Unhappy hour! when fresh in youthful bud,
I left, Sabrina fair, thy silv'ry flood.
Ah silly I! more silly than my sheep,
Which on thy flow'ry banks I wont to keep.
Sweet are thy banks; oh, when shall I once more
With ravish'd eyes review thine ancl'd shore?
When, in the crystal of thy waters, scan
Each feature faded, and my colour wan?
When shall I see my hut, the small abode
Myself did raise and cover o'er with sod?
Small though it be, a mean and humble cell,
Yet is there room for peace and me to dwell.

Th. And what inticement charm'd thee far away

From thy lov'd home, and led thy heart astray?

Co. A lewd desire strange lands and swains to know.

Ah me! that every I should covet wo,
With wand'ring feet unblest, and fond of fame,
I sought I know not what besides a name.

Th. Or, sooth to say, didst thou not hither come

In search of gains more plenty than at home?

A rolling stone is ever bare of moss;
And, to their cost, green years old proverbs cross.

Co. Small need there was, in random search of gain,

To drive my pining flock athwart the plain
To distant Cam. Fine gain at length, I trow,
To hoard up to myself such deal of wo!

My sheep quite spent through travel and ill fare,
And like their keeper ragged grown and bare,

The damp cold green sward for my nightly bed,
And some slant willow's trunk to rest my head.

Hard is to bear of pinching cold the pain;
And hard is want to the unpractis'd swain;
But neither want, nor pinching cold, is hard,
To blasting storms of calumny compar'd:
Unkind as hail it falls; the pelting show'r
Destroys the tender herb and budding flow'r.

Th. Slander we shepherds count the vilest wrong:
And what wounds forer than an evil tongue?

Co. Untoward lads, the wanton imps of spite
Make mock of all the ditties I endite.

In vain, O Colinet, thy pipe, so shrill,
Charms every vale, and gladdens every hill:
In vain thou seek'st the coverings of the grove,
In the cool shade to sing the pains of love:
Sing what thou wilt, ill-nature will prevail;
And every elf hath skill enough to rail.

But yet, though poor and artless be my vein,
Menalca seems to like my simple strain:
And while that he delighteth in my song,
Which to the good Menalca doth belong,
Nor night nor day shall my rude music cease;
I ask no more, so I Menalca please.

Th. Menalca, lord of these fair fertile plains,
Preserves the sheep, and o'er the shepherds reigns;
For him our yearly wakes and feasts we hold,
And choose the fairest firstlings from the fold;
He, good to all who good deserves, shall give
Thy flock to feed, and thee at ease to live,
Shall curb the malice of unbridled tongues,
And bounteously reward thy rural songs.

Co. First then shall lightsome birds forget to fly,
The briny ocean turn to pastures dry,
And every rapid river cease to flow,
Ere I unmindful of Menalca grow.

Th. This night thy care with me forget, and fold
Thy flock with mine, to ward th' injurious cold.
New milk, and clouted cream, mild cheese and curd,
With some remaining fruit of last year's hoard,
Shall be our ev'ning fare; and, for the night,
Sweet herbs and moss, which gentle sleep invite:
And now behold the sun's departing ray,
O'er yonder hill, the sign of ebbing day:
With songs the jovial hinds return from plow;
And unyok'd heifers, loitering homeward, low.

Mr Pope's Pastorals next appeared, but in a different
dress from those of Spenser and Philips; for he has dis-
carded all antiquated words, drawn his swains more mo-
dern and polite, and made his numbers exquisitely har-
monious: his eclogues therefore may be called *better*
poems, but not better pastorals. We shall insert the ce-
logue he has inscribed to Mr Wycherly, the beginning
of which is in imitation of Virgil's first pastoral.

Beneath the shade a spreading beech displays,
Hylas and Ægon sung their rural lays:
This mourn'd a faithless, that an absent love,
And Delia's name and Doris fill'd the grove.
Ye Mantuan nymphs, your sacred succour bring;
Hylas and Ægon's rural lays I sing.

Thou, whom the nine with Plautus' wit inspire,
The art of Terence, and Menander's fire:
Whose sense instructs us, and whose humour charms,
Whose judgement sways us, and whose spirit warms!

Oh

Pastoral. Oh, skill'd in nature ! see the hearts of swains,
Their artless passions, and their tender pains.
Now setting Phœbus shone serenely bright,
And fleecy clouds were streak'd with purple light ;
When tuneful Hylas, with melodious moan,
Taught rocks to weep, and made the mountains groan.

Go, gentle gales, and bear my sighs away !
To Delia's ear the tender notes convey.
As some sad turtle his lost love deplores,
And with deep murmurs fills the sounding shores ;
Thus, far from Delia, to the winds I mourn,
Alike unheard, unpity'd, and forlorn.

Go, gentle gales, and bear my sighs along !
For her the feather'd quires neglect their song ;
For her, the limes their pleasing shades deny
For her, the lilies hang their head and die.
Ye flow'rs, that droop forsaken by the spring ;
Ye birds, that left by summer cease to sing ;
Ye trees, that fade when autumn's heats remove ;
Say, is not absence death to those who love ?

Go, gentle gales, and bear thy sighs away !
Cur'd be the fields that cause my Delia's stay :
Fade ev'ry blossom, wither ev'ry tree,
Die ev'ry flow'r and perish all but she.
What have I said ? where'er my Delia flies,
Let spring attend, and sudden flow'rs arise ;
Let opening roses knotted oaks adorn,
And liquid amber drop from ev'ry thorn.

Go, gentle gales, and bear my sighs along !
The birds shall cease to tune their ev'ning song,
The winds to breathe, the waving woods to move,
And streams to murmur, ere I cease to love.
Not bubbling fountains to the thirsty swain,
Not balmy sleep to lab'ers faint with pain,
Not show'rs to larks, or sunshine to the bee,
Are half so charming as thy sight to me.

Go, gentle gales, and bear my sighs away !
Come, Delia, come ! ah, why this long delay ?
Through rocks and caves the name of Delia sounds ;
Delia, each cave and echoing rock rebounds.
Ye pow'rs, what pleasing frenzy soothes my mind !
Do lovers dream, or is my Delia kind ?
She comes, my Delia comes !—now cease, my lay ;
And cease, ye gales, to bear my sighs away !

Next Ægon sung, while Windsor groves admir'd ;
Rehearse, ye muses, what yourselves inspir'd.

Resound, ye hills, resound my mournful strain !
Of perjur'd Doris, dying, I complain :
Here where the mountains, less'ning as they rise,
Lose the low vales, and steal into the skies ;
While lab'ring oxen, spent with toil and heat,
In their loose traces from the field retreat ;
While curling smokes from village-tops are seen,
And the fleet shades glide o'er the dusky green.

Resound, ye hills, resound my mournful lay !
Beneath yon poplar oft we pass'd the day :
Oft on the rind I carv'd her am'rous vows,
While she with garlands hung the bending boughs :
The garlands fade, the boughs are worn away ;
So dies her love, and so my hopes decay.

Resound, ye hills, resound my mournful strain !
Now bright Arcturus glads the teeming grain ;
Now golden fruits in loaded branches shine,
And grateful clusters, swell with floods of wine ;

Now blushing berries paint the yellow grove :
Just gods ! shall all things yield return but love ?

Resound, ye hills, resound my mournful lay !
The shepherds cry, " Thy flocks are left a prey."——
Ah ! what avails it me the flocks to keep,
Who lost my heart, while I preserv'd my sheep ?
Pan came, and ask'd, what magic caus'd my smart,
Or what ill eyes malignant glances dart ?
What eyes but hers, alas ! have pow'r to move ?
And is there magic but what dwells in love ?

Resound, ye hills, resound my mournful strains !
I'll fly from shepherds, flocks, and flow'ry plains.—
From shepherds, flocks, and plains, I may remove,
Forsake mankind, and all the world—but love !
I know thee, Love ! wild as the raging main,
More fell than tygers on the Libyan plain :
'Thou wert from Ætna's burning entrails torn,
Got by fierce whirlwinds, and in thunder born.

Resound, ye hills, resound my mournful lay !
Farewel, ye woods, adieu the light of day !
One leap from yonder cliff shall end my pains.
No more, ye hills, no more resound my strains !

Thus sung the shepherds till th' approach of night,
The skies yet blushing with departing light,
When falling dews with spangles deck the glade,
And the low sun had lengthen'd ev'ry shade.

To these pastorals, which are written agreeably to the taste of antiquity, and the rules above prescribed, we shall beg leave to subjoin another that may be called *burlesque pastoral*, wherein the ingenious author, Mr Gay, has ventured to deviate from the beaten road, and described the shepherds and ploughmen of our own time and country, instead of those of the golden age, to which the modern critics confine the pastoral. His six pastorals, which he calls the *Shepherd's Week*, are a beautiful and lively representation of the manners, customs, and notions of our rustics. We shall insert the first of them, intitled *The Squabble*, wherein two clowns try to outdo each other in singing the praises of their sweethearts, leaving it to a third to determine the controversy. The persons named are *Lobbin Clout*, *Cuddy*, and *Cloddipole*.

Lob. Thy younglings, Cuddy, are but just awake ;
No throstle shrill the bramble-bush forsake ;
No chirping lark the welkin sheen * invokes ;
No damsel yet the swelling udder strokes ;
O'er yonder hill does scant † the dawn appear ;
Then why does Cuddy leave his cott so rear ‡ ?

Cud. Ah Lobbin Clout ! I ween || my plight is guest ; ||
For *he that loves, a stranger is to rest.*

If swains belye not, thou hast prov'd the smart,
And Blouzalinda's mistress of thy heart.
This rising tear betokeneth well thy mind ;
Those arms are folded for thy Blouzalind.
And well, I trow, our piteous plights agree ;
Thee Blouzalinda smites, Buxoma me.

Lob. Ah Blouzalind ! I love thee more by half,
Than deer their fawns, or cows the new-fall'n calf.
Woe worth the tongue, may blisters fore it gall,
That names *Buxoma Blouzalind* withal !

Cud. Hold, witless Lobbin Clout, I thee advise,
Lest blisters fore on thy own tongue arise.
Lo yonder Cloddipole, the blithsome swain,
The wisest lout of all the neighb'ring plain !

Pastoral.

144
Gay.* Shining
or bright
sky.

† Scarce,

‡ Early.

|| Conceive.

Pastoral. From Cloddipole we learnt to read the skies,
To know when hail will fall, or winds arise.
** Formerly.* He taught us erit * the heifer's tail to view,
When stuck aloft, that show'rs would straight ensue :
He first that useful secret did explain,
That pricking corns foretold the gath'ring rain.
When swallows fleet soar high and sport in air,
He told us that the welkin would be clear.
Let Cloddipole then hear us twain rehearse,
And praise his sweetheart in alternate verse.
I'll wager this same oaken staff with thee,
That Cloddipole shall give the prize to me.

Lob. See this tobacco-pouch, that's lin'd with hair,
Made of the skin of sleekest fallow-deer :
This pouch, that's tied with tape of reddest hue,
I'll wager, that the prize shall be my due.

Cud. Begin thy carols, then, thou vaunting fletcher ;
Be thine the oaken staff, or mine the pouch.

Lob. My Blouzalinda is the blithest lass,
Than primrose sweeter, or the clover-grass.
Fair is the king-cup that in meadow blows,
Fair is the daisy that beside her grows ;
Fair is the gilly-flow'r of gardens sweet ;
Fair is the marygold, for pottage meet :
But Blouzalind's than gilly-flower more fair,
Than daisy, marygold, or king-cup rare.

Cud. My brown Buxoma is the feateft maid
That e'er at wake delightful gambol play'd ;
Clean as young lambkins, or the goose's down,
And like the goldfinch in her Sunday gown.
The witless lamb may sport upon the plain,
The frisking kid delight the gaping swain ;
The wanton calf may skip with many a bound,

** Nimblest.* And my cur Tray play deffest * feats around :
But neither lamb, nor kid, nor calf, nor Tray,
Dance like Buxoma on the first of May.

Lob. Sweet is my toil when Blouzalind is near ;
Of her bereft, 'tis winter all the year.
With her no sultry summer's heat I know ;
In winter, when the's nigh, with love I glow.
Come, Blouzalinda, ease thy swain's desire,
My summer's shadow, and my winter's fire !

Cud. As with Buxoma once I work'd at hay,
E'en noon-tide labour seem'd an holiday ;
And holidays, if haply she were gone,
Like worky-days I wish'd would soon be done.
Eftsoons †, O sweetheart kind, my love repay,
And all the year shall then be holiday.

† Very soon.

Lob. As Blouzalinda, in a gamefome mood,
Behind a hay-coek loudly laughing stood,
I flily ran and snatch'd a hasty kiss ;
She wip'd her lips, nor took it much amifs.
Believe me, Cuddy, while I'm bold to say,
Her breath was sweeter than the ripen'd hay.

Cud. As my Buxoma, in a morning fair,
With gentle finger stroak'd her milky care,
I quaintly § stole a kiss ; at first, 'tis true,
She frown'd, yet after granted one or two.
Lobbin, I swear, believe who will my vows,
Her breath by far excell'd the breathing cows.

§ Wag-
giftly.

Lob. Leek to the Welch, to Dutchmen butter's dear,
Of Irish swains potatoes are the cheer ;
Oats for their feasts the Scottifh shepherds grind,
Sweet turnips are the food of Blouzalind :

While the loves turnips, butter I'll despise,
Nor leeks, nor oatmeal, nor potatoes prize.

Cud. In good roast beef my landlord sticks his knife,
The capon fat delights his dainty wife ;
Pudding our parson eats, the squire loves hare ;
But white-pot thick is my Buxoma's fare.
While she loves white-pot, capon ne'er shall be,
Nor hare, nor beef, nor pudding, food for me.

Lob. As once I play'd at blind man's buff, it hap't
About my eyes the towel thick was wrapt :
I miss'd the swains, and seiz'd on Blouzalind ;
True speaks that ancient proverb, Love is blind.

Cud. As at hot-cockles once I laid me down,
And felt the weighty hand of many a clown ;
Buxoma gave a gentle tap, and I
Quick rose, and read soft mischief in her eye.

Lob. On two near elms the slacken'd cord I hung ;
Now high, now low, my Blouzalinda swung ;
With the rude wind her rump'd garment rose,
And show'd her taper leg and scarlet hose.

Cud. Across the fallen oak the plank I laid,
And myself pois'd against the tott'ring maid !
High leapt the plank, and down Buxoma fell ;
I spy'd—but faithful sweethearts never tell.

Lob. This riddle, Cuddy, if thou canst, explain,
This wily riddle puzzles every swain :
*What flow'r is that which bears the virgin's name,
The richest metal joined with the same * ?*

* Marigold.

Cud. Answer, thou carle, and judge this riddle right,
I'll frankly own thee for a cunning wight :

*What flow'r is that which royal honour craves,
Adjoin the virgin, and 'tis strown on graves † ?*

† Rosemary.

Clod. Forbear, contending louts, give o'er your
frains ;

An oaken staff each merits for his pains.
But see the sun-beams bright to labour warn,
And gild the thatch of goodman Hodge's barn.
Your herds for want of water stand a-dry ;
They're weary of your songs—and so am I.

We have given the rules usually laid down for pastoral writing, and exhibited some examples written on this plan ; but we have to observe that this poem may take very different forms. It may appear either as a comedy or as a ballad. As a pastoral comedy, there is perhaps nothing which possesses equal merit with Ramsay's *Gentle Shepherd*, and we know not where to find in any language a rival to the *Pastoral Ballad* of Shenstone. That the excellence of this poem is great can hardly be questioned, since it compelled a critic, who was never lavish of his praise, and who on all occasions was ready to vilify the pastoral, to express himself in terms of high encomium. " In the first part (says he) are two passages, to which if any mind denies its sympathy, it has no acquaintance with love or nature :

¹⁴⁵
Shenstone.

I priz'd every boar that went by,
Beyond all that had pleas'd me before ;
But now they are past, and I sigh,
And I grieve that I priz'd them no more.
When forc'd the fair nymph to forego,
What anguish I felt in my heart !
Yet I thought—but it might not be so,
'Twas with pain that she saw me depart.

She

She gaz'd, as I slowly withdrew,
My path I could hardly discern;
So sweetly she bade me adieu,
I thought that she bade me return.

“ In the second (continues the same critic) this passage has its prettiness, though it be not equal to the former :”

I have found out a gift for my fair ;
I have found where the wood-pigeons breed :
But let me that plunder forbear,
She would say 'twas a barbarous deed :
For he ne'er could be true, she averr'd,
Who could rob a poor bird of its young ;
And I lov'd her the more when I heard
Such tenderness fall from her tongue.

SECT. V. Of Didactic or Preceptive Poetry.

¹⁴⁶ Origin and use of didactic poetry. THE method of writing precepts in verse, and embellishing them with the graces of poetry, had its rise, we may suppose, from a due consideration of the frailties and perverseness of human nature; and was intended to engage the affections, in order to improve the mind and amend the heart.

Didactic or preceptive poetry, has been usually employed either to illustrate and explain our moral duties, our philosophical inquiries, our business and pleasures; or in teaching the art of criticism or poetry itself. It may be adapted, however, to any other subject; and may in all cases, where instruction is designed, be employed to good purpose. Some subjects, indeed, are more proper than others, as they admit of more poetical ornaments, and give a greater latitude to genius: but whatever the subject is, those precepts are to be laid down that are the most useful; and they should follow each other in a natural easy method, and be delivered in the most agreeable engaging manner. What the prose writer tells you ought to be done, the poet often conveys under the form of a narration, or shows the necessity of in a description; and by representing the action as done, or doing, conceals the precept that should enforce it. The poet likewise, instead of telling the whole truth, or laying down all the rules that are requisite, selects such parts only as are the most pleasing, and communicates the rest indirectly, without giving us an open view of them; yet takes care that nothing shall escape the reader's notice with which he ought to be acquainted. He discloses just enough to lead the imagination into the parts that are concealed; and the mind, ever gratified with its own discoveries, is complimented with exploring and finding them out; which, though done with ease, seems so considerable, as not to be obtained but in consequence of its own adroitness and sagacity.

¹⁴⁷ Rules to be observed in its composition. But this is not sufficient to render didactic poetry always pleasing: for where precepts are laid down one after another, and the poem is of considerable length, the mind will require some recreation and refreshment by the way; which is to be procured by seasonable moral reflections, pertinent remarks, familiar similes, and descriptions naturally introduced, by allusions to ancient histories or fables, and by short and pleasant digressions and excursions into more noble subjects, so aptly brought in, that they may seem to have a remote relation, and be of a

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piece with the poem. By thus varying the form of instruction, the poet gives life to his precepts, and awakens and secures our attention, without permitting us to see by what means we are thus captivated: and his art is the more to be admired, because it is so concealed as to escape the reader's observation.

The style, too, must maintain a dignity suitable to the subject, and every part be drawn in such lively colours, that the things described may seem as if presented to the reader's view.

But all this will appear more evident from example; and though entire poems of this kind are not within the compass of our design, we shall endeavour to select such passages as will be sufficient to illustrate the rules we have here laid down.

We have already observed, that, according to the usual divisions, there are four kinds of didactic poems, viz. those that respect our moral duties, our philosophical speculations, our business and pleasures, or that give precepts for poetry and criticism.

I. On the first subject, indeed, we have scarce any thing that deserves the name of poetry, except Mr Pope's *Essay on Man*, his *Ethic Epistles*, Blackmore's *Creation*, and part of Young's *Night Thoughts*; to which therefore we refer as examples.

II. Those preceptive poems that concern philosophical speculations, though the subject is so pregnant with matter, affords such a field of fancy, and is so capable of every decoration, are but few. Lucretius is the most considerable among the ancients who has written in this manner; among the moderns we have little else but small detached pieces, except the poem called *Anti-Lucretius*, which has not yet received an English dress; Dr Akenfide's *Pleasures of the Imagination*, and Dr Darwin's *Botanic Garden*; which are all worthy of our admiration. Some of the small pieces in this department are also well executed; and there is one entitled the *Universe*, written by Mr Baker, from which we shall borrow an example.

The author's scheme is in some measure coincident with Mr Pope's, so far especially as it tends to restrain the pride of man, with which design it was professedly written.

The passage we have selected is that respecting the planetary system.

Unwise! and thoughtless! impotent! and blind!
Can wealth, or grandeur, satisfy the mind?
Of all those pleasures mortals most admire,
Is there one joy sincere, that will not tire?
Can love itself endure? or beauty's charms
Afford that bliss we fancy in its arms?—
Then let thy soul more glorious aims pursue:
Have thy CREATOR and his works in view.
Be these thy study: hence thy pleasures bring:
And drink large draughts of wisdom from its spring;
That spring, whence perfect joy, and calm repose,
And blest content, and peace eternal, flows.

Observe how regular the planets run,
In stated times, their courses round the Sun.
Diff'rent their bulk, their distance, their career,
And diff'rent much the compass of their year:
Yet all the same eternal laws obey,
While God's unerring finger points the way.

First Mercury, amidst full tides of light,
Rolls next the sun, through his small circle bright.

Didactic.

¹⁴⁸ Examples in didactic poetry.

Didactic.

All that dwell here must be refin'd and pure :
Bodies like ours such ardour can't endure :
Our earth would blaze beneath so fierce a ray,
And all its marble mountains melt away.

Fair Venus, next, fulfils her larger round,
With softer beams, and milder glory crown'd.
Friend to mankind, she glitters from afar,
Now the bright ev'ning, now the morning star.

More distant still, our earth comes rolling on,
And forms a wider circle round the sun :
With her the moon, companion ever dear !
Her course attending through the shining year.

See, Mars, alone, runs his appointed race,
And measures out, exact, the destin'd space :
Nor nearer does he wind, nor farther stray,
But finds the point whence first he roll'd away.

More yet remote from day's all cheering source,
Vast Jupiter performs his constant course :
Four friendly moons, with borrow'd lustre, rise,
Bestow their beams divine, and light his skies.

Farthest and last, scarce warm'd by Phœbus' ray,
Through his vast orbit Saturn wheels away.
How great the change could we be wafed there !
How slow the seasons ! and how long the year !
One moon, on us, reflects its cheerful light :
There, five attendants brighten up the night.
Here, the blue firmament bedeck'd with stars ;
There, over-head, a lucid arch appears.

From hence, how large, how strong, the sun's bright ball !
But seen from thence, how languid and how small !—
When the keen north with all its fury blows,
Congeals the floods, and forms the fleecy snows,
'Tis heat intense to what can there be known :
Warmer our poles than is its burning zone.

Who there inhabits must have other pow'rs,
Juices, and veins, and sense, and life, than ours.
One moment's cold, like theirs, would pierce the bone,
Freeze the heart-blood, and turn us all to stone.

Strange and amazing must the diff'rence be
'T'wixt this dull planet and bright Mercury :
Yet reason says, nor can we doubt at all,
Millions of beings dwell on either ball,
With constitutions fitted for the spot,
Where Providence, all wise, has fix'd their lot.

Wondrous art thou, O GOD, in all thy ways !
Their eyes to thee let all thy creatures raise ;
Adore thy grandeur, and thy goodness praise.

Ye sons of men ! with satisfaction know,
God's own right hand dispenses all below :
Nor good nor evil does by chance befall ;
He reigns supreme, and he directs it all.

At his command, affrighting human-kind,
Comets drag on their blazing lengths behind :
Nor, as we think, do they at random rove,
But, in determin'd times, through long ellipses move.
And tho' sometimes they near approach the sun,
Sometimes beyond our system's orbit run ;
Throughout their race they act their Maker's will,
His pow'r declare, his purposes fulfil.

III. Of those preceptive poems that treat of the business and pleasures of mankind, Virgil's *Georgics* claim our first and principal attention. In these he has laid down the rules of husbandry in all its branches with the utmost exactness and perspicuity, and at the

same time embellished them with all the beauties and graces of poetry. Though his subject was husbandry, he has delivered his precepts, as Mr Addison observes, not with the simplicity of a ploughman, but with the address of a poet : the meanest of his rules are laid down with a kind of grandeur ; and he breaks the clods, and tosses about the dung, with an air of gracefulness. Of the different ways of conveying the same truth to the mind, he takes that which is pleasantest ; and this chiefly distinguishes poetry from prose, and renders Virgil's rules of husbandry more delightful and valuable than any other.

These poems, which are esteemed the most perfect of the author's works, are, perhaps, the best that can be proposed for the young student's imitation in this manner of writing ; for the whole of his *Georgics* is wrought up with wonderful art, and decorated with all the flowers of poetry.

IV. Of those poems which give precepts for the recreations and pleasures of a country life, we have several in our own language that are justly admired. As the most considerable of those diversions, however, are finely treated by Mr Gay in his *Rural Sports*, we particularly refer to that poem.

We should here treat of those preceptive poems that teach the art of poetry itself, of which there are many that deserve particular attention ; but we have anticipated our design, and rendered any farther notice of them in a manner useless, by the observations we have made in the course of this treatise. We ought however to remark, that Horace was the only poet among the ancients who wrote precepts for poetry in verse ; at least his epistle to the Pisos is the only piece of the kind that has been handed down to us ; and that is so perfect, it seems almost to have precluded the necessity of any other. Among the moderns we have several that are justly admired ; as Boileau, Pope, &c.

Poets who write in the preceptive manner should take care to choose such subjects as are worthy of their muse, and of consequence to all mankind ; for to bestow both parts and pains to teach people trifles that are unworthy of their attention, is to the last degree ridiculous.

Among poems of the useful and interesting kind, Dr Armstrong's *Art of Preserving Health* deserves particular recommendation, as well in consideration of the subject, as of the elegant and masterly manner in which he has treated it ; for he has made those things, which are in their own nature dry and unentertaining, perfectly agreeable and pleasing, by adhering to the rules observed by Virgil and others, in the conduct of these poems.

With regard to the style or dress of these poems, it should be so rich as to hide the nakedness of the style. subject, and the barrenness of the precepts should be lost in the lustre of the language. " It ought to abound in the most bold and forcible metaphors, the most glowing and picturesque epithets ; it ought to be elevated and enlivened by pomp of numbers and majesty of words, and by every figure that can lift a language above the vulgar and current expressions." One may add, that in no kind of poetry (not even in the sublime ode) is beauty of expression so much to be regarded as in this. For the epic writer should be very cautious of indulging himself in too florid a manner of expression,

Didactic.

Didactic. expression, especially in the dramatic parts of his fable, where he introduces dialogue: and the writer of tragedy cannot fall into so nauseous and unnatural an affectation, as to put laboured descriptions, pompous epithets, studied phrases, and high-flown metaphors, into the mouths of his characters. But as the didactic poet speaks in his own person, it is necessary and proper for him to use a brighter colouring of style, and to be more studious of ornament. And this is agreeable to an admirable precept of Aristotle, which no writer should ever forget,—“That diction ought most to be laboured in the unactive, that is, the descriptive, parts of a poem, in which the opinions, manners, and passions of men are not represented; for too glaring an expression obscures the manners and the sentiments.”

We have already observed that any thing in nature may be the subject of this poem. Some things however will appear to more advantage than others, as they give a greater latitude to genius, and admit of more poetical ornaments. Natural history and philology are copious subjects. Precepts in these might be decorated with all the flowers in poetry; and, as Dr Trapp observes, how can poetry be better employed, or more agreeably to its nature and dignity, than in celebrating the works of the great Creator, and describing the nature and generation of animals, vegetables, and minerals; the revolutions of the heavenly bodies; the motions of the earth; the flux and reflux of the sea; the cause of thunder, lightning, and other meteors; the attraction of the magnet; the gravitation, cohesion, and repulsion of matter; the impulsive motion of light; the slow progression of sounds; and other amazing phenomena of nature? Most of the arts and sciences are also proper subjects for this poem; and none are more so than its two sister arts, painting and music. In the former, particularly, there is room for the most entertaining precepts concerning the disposal of colours; the arrangement of lights and shades; the secret attractives of beauty; the various ideas which make up the one; the distinguishing between the attitudes proper to either sex, and every passion; the representing prospects of buildings, battles, or the country; and lastly, concerning the nature of imitation, and the power of painting. What a boundless field of invention is here? What room for description, comparison, and poetical fable? How easy the transition, at any time, from the draught to the original, from the shadow to the substance? and from hence, what noble excursions may be made into history, into panegyric upon the greatest beauties or heroes of the past or present age?

SECT. VI. *Of the Epistle.*

150
The character of the epistle.

THIS species of writing, if we are permitted to lay down rules from the examples of our best poets, admits of great latitude, and solicits ornament and decoration; yet the poet is still to consider, that the true character of the epistle is ease and elegance; nothing therefore should be forced or unnatural, laboured, or affected, but every part of the composition should breathe an easy, polite, and unconstrained freedom.

It is suitable to every subject; for as the epistle takes place of discourse, and is intended as a sort of distant

conversation, all the affairs of life and researches into nature may be introduced. Those, however, which are fraught with compliment or condolence, that contain a description of places, or are full of pertinent remarks, and in a familiar and humorous way describe the manners, vices, and follies of mankind, are the best; because they are most suitable to the true character of epistolary writing, and (business set apart) are the usual subjects upon which our letters are employed.

All farther rules and directions are unnecessary; for this kind of writing is better learned by example and practice than by precept. We shall, therefore, in conformity to our plan, select a few epistles for the reader's imitation; which, as this method of writing has of late much prevailed, may be best taken, perhaps, from our modern poets.

The following letter from Mr Addison to Lord Halifax, contains an elegant description of the curiosities and places about Rome, together with such reflections on the inestimable blessings of liberty as must give pleasure to every Briton, especially when he sees them thus placed in direct opposition to the baneful influence of slavery and oppression, which are ever to be seen among the miserable inhabitants of those countries.

While you, my lord, the rural shades admire,
And from Britannia's public posts retire,
Nor longer, her ungrateful sons to please,
For their advantage sacrifice your ease;
Me into foreign realms my fate conveys,
Through nations fruitful of immortal lays,
Where the soft season and inviting clime
Conspire to trouble your repose with rhyme.

For wheresoe'er I turn my raviſh'd eyes,
Gay gilded scenes and shining prospects rise,
Poetic fields encompass me around,
And still I seem to tread on classic ground;
For here the muse so oft her harp has strung,
That not a mountain rears its head unsung,
Renown'd in verse each shady thicket grows,
And ev'ry stream in heav'nly numbers flows.

How am I pleas'd to search the hills and woods
For rising springs and celebrated floods;
To view the Nar, tumultuous in his course,
And trace the smooth Clitumnus to his source;
To see the Mincia draw its wat'ry store
Through the long windings of a fruitful shore,
And hoary Albula's infected tide
O'er the warm bed of smoking sulphur glide!

Fir'd with a thousand raptures, I survey
Eridanus thro' flow'ry meadows stray,
The king of floods! that, rolling o'er the plains,
The tow'ring Alps of half their moisture drains,
And, proudly swoln with a whole winter's snows,
Distributes wealth and plenty where he flows.

Sometimes, misguided by the tuneful throng,
I look for streams immortaliz'd in song,
That lost in silence and oblivion lie,
(Dumb are their fountains and their channels dry)
Yet run for ever by the muse's skill,
And in the smooth description murmur still.

Sometimes to gentle Tiber I retire,
And the fam'd river's empty shores admire,
That, destitute of strength, derives its course
From thirsty urns, and an unfruitful source;

Epistle.

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Examples
in episto-
lary poetry
from Addi-
son,

Epistle.

Yet sung so often in poetic lays,
With scorn the Danube and the Nile surveys;
So high the deathless muse exalts her theme!
Such was the Boyn, a poor inglorious stream,
That in Hibernian vales obscurely stray'd,
And unobserv'd in wild meanders play'd;
Till, by your lines, and Nassau's sword renown'd,
Its rising billows through the world resound,
Where'er the hero's godlike acts can pierce,
Or where the fame of an immortal verse.

Oh cou'd the muse my ravish'd breast inspire
With warmth like yours, and raise an equal fire,
Unnumber'd beauties in my verse should shine,
And Virgil's Italy should yield to mine!

See how the golden groves around me smile,
That shun the coasts of Britain's stormy isle,
Or when transplanted and preserv'd with care,
Curse the cold clime, and starve in northern air.
Here kindly warmth their mounting juice ferments
To nobler tastes, and more exalted scents:
Ev'n the rough rocks with tender myrtles bloom,
And trodden weeds send out a rich perfume.
Bear me, some god, to Baia's gentle seats,
Or cover me in Umbria's green retreats;
Where western gales eternally reside,
And all the seasons lavish all their pride:
Blossoms, and fruits, and flow'rs together rise,
And the whole year in gay confusion lies.

Immortal glories in my mind revive,
And in my soul a thousand passions strive,
When Rome's exalted beauties I descry
Magnificent in piles of ruin lie.
An amphitheatre's amazing height
Here fills my eye with terror and delight,
That on its public shows unpeopled Rome,
And held uncrowded nations in its womb:
Here pillars rough with sculpture pierce the skies;
And here the proud triumphal arches rise,
Where the old Romans deathless acts display'd,
Their base degenerate progeny upbraid:
Whole rivers here forsake the fields below,
And wond'ring at their height thro' airy channels flow.

Still to new scenes my wand'ring muse retires;
And the dumb show of breathing rocks admires;
Where the smooth chissel all its force has shown,
And soften'd into flesh the rugged stone.
In solemn silence, a majestic band,
Heroes, and gods, and Roman consuls stand,
Stern tyrants, whom their cruelties renown,
And emperors in Parian marble frown:
While the bright dames, to whom they humbly su'd,
Still show the charms that their proud hearts subdu'd.

Fain would I Raphael's godlike art rehearse,
And show th' immortal labours in my verse,
Where from the mingled strength of shade and light
A new creation rises to my sight,
Such heav'nly figures from his pencil flow,
So warm with life his blended colours glow.
From theme to theme with secret pleasure tost,
Amidst the soft variety I'm lost.
Here pleasing airs my ravish'd soul confound
With circling notes and labyrinths of sound;
Here domes and temples rise in distant views,
And opening palaces invite my muse.

Epistle.

How has kind heav'n adorn'd the happy land,
And scatter'd blessings with a wasteful hand!
But what avail her unexhausted stores,
Her blooming mountains, and her sunny shores,
With all the gifts that heav'n and earth impart,
The smiles of nature, and the charms of art,
While proud oppression in her valleys reigns,
And tyranny usurps her happy plains?

The poor inhabitant beholds in vain
The red'ning orange and the swelling grain:
Joyless he sees the growing oils and wines,
And in the myrtle's fragrant shade repines:
Starves, in the midst of nature's bounty curst,
And in the loaded vineyard dies for thirst.

O liberty, thou goddess heav'nly bright,
Profuse of blis, and pregnant with delight!
Eternal pleasures in thy presence reign,
And smiling plenty leads thy wanton train;
Eas'd of her load, subjection grows more light,
And poverty looks cheerful in thy sight;
Thou mak'st the gloomy face of nature gay,
Giv'st beauty to the sun, and pleasure to the day.

Thee, goddess, thee, Britannia's isle adores;
How has she oft exhausted all her stores,
How oft in fields of death thy presence fought,
Nor thinks the mighty prize too dearly bought!
On foreign mountain may the sun refine
The grape's soft juice, and mellow it to wine,
With citron groves adorn a distant soil,
And the fat olive swell with floods of oil:
We envy not the warmer clime, that lies
In ten degrees of more indulgent skies,
Nor at the coarseness of our heav'n repine,
Tho' o'er our heads the frozen Pleiads shine:
'Tis liberty that crowns Britannia's isle, [smile,
And makes her barren rocks and her bleak mountains

Others with tow'ring piles may please the sight,
And in their proud aspiring domes delight;
A nicer touch to the stretch'd canvas give,
Or teach their animated rocks to live:
'Tis Britain's care to watch o'er Europe's fate,
And hold in balance each contending state,
To threaten bold presumptuous kings with war,
And answer her afflicted neighbour's pray'r.
The Dane and Swede, rous'd up by fierce alarms,
Bless the wise conduct of her pious arms:
Soon as her fleets appear, their terrors cease,
And all the northern world lies hush'd in peace.

Th' ambitious Gaul beholds with secret dread
Her thunder aim'd at his aspiring head,
And fain her godlike sons would disunite
By foreign gold, or by domestic spite;
But strives in vain to conquer or divide,
Whom Nassau's arms defend and counsels guide.

Fir'd with the name, which I so oft have found
The distant climes and different tongues resound,
I bridle in my struggling muse with pain,
That longs to launch into a bolder strain.
But I've already troubled you too long,
Nor dare attempt a more advent'rous song:
My humble verse demands a softer theme,
A painted meadow, or a purling stream;
Unfit for heroes; whom immortal lays,
And lines like Virgil's, or like yours, should praise.

There

Epistle.

Epistle.

There is a fine spirit of freedom, and love of liberty, displayed in the following letter from Lord Lyttleton to Mr Pope; and the message from the shade of Virgil, which is truly poetical, and justly preceptive, may prove an useful lesson to future bards.

From Rome, 1730.

152
Lyttleton,

IMMORTAL bard! for whom each muse has wove
The fairest garlands of the Aonian grove;
Prefer'd, our drooping genius to restore,
When Addison and Congreve are no more;
After so many stars extinct in night,
The darken'd age's last remaining light!
To thee from Latian realms this verse is writ,
Inspir'd by memory of ancient wit:
For now no more these climes their influence boast,
Fall'n is their glory, and their virtue lost;
From tyrants, and from priests, the muses fly,
Daughters of reason and of liberty.

Nor Baiæ now nor Umbria's plain they love,
Nor on the banks of Nar or Mincia rove;
To Thames's flow'ry borders they retire,
And kindle in thy breast the Roman fire.
So in the shades, where cheer'd with summer rays
Melodious linnets warbled sprightly lays,
Soon as the faded, falling leaves complain
Of gloomy winter's inauspicious reign,
No tuneful voice is heard of joy or love,
No mournful silence saddens all the grove.

Unhappy Italy! whose alter'd state
Has felt the worst severity of fate:
Not that barbarian hands her faces broke,
And bow'd her haughty neck beneath their yoke;
Nor that her palaces to earth are thrown,
Her cities desert, and her fields unfown;
But that her ancient spirit is decay'd,
That sacred wisdom from her bounds is fled,
That there the source of science flows no more,
Whence its rich streams supply'd the world before.

Illustrious names! that once in Latium shin'd,
Born to instruct and to command mankind;
Chiefs, by whose virtue mighty Rome was rais'd,
And poets, who those chiefs sublimely prais'd!
Oft I the traces you have left explore,
Your ashes visit, and your urns adore;
Oft kiss, with lips devout, some mould'ring stone,
With ivy's venerable shade o'ergrown;
Those hallow'd ruins better pleas'd to see,
Than all the pomp of modern luxury.

As late on Virgil's tomb fresh flow'rs I strow'd,
While with th' inspiring muse my bosom glow'd,
Crown'd with eternal bays, my ravish'd eyes
Beheld the poet's awful form arise:
Stranger, he said, whose pious hand has paid
These grateful rites to my attentive shade,
When thou shalt breathe thy happy native air,
To Pope this message from his master bear.

Great bard, whose numbers I myself inspire,
To whom I gave my own harmonious lyre,
If high exalted on the throne of wit,
Near me and Homer thou aspire to sit,
No more let meaner satire dim the rays
That flow majestic from thy noble bays.
In all the flow'ry paths of Pindus stray:
But shun that thorny, that unpleasing way;

Nor, when each soft engaging muse is thine,
Address the least attractive of the nine.

Of thee more worthy were the task to raise
A lasting column to thy country's praise,
To sing the land, which yet alone can boast
That liberty corrupted Rome has lost;
Where science in the arms of peace is laid,
And plants her palm beneath the olive's shade.
Such was the theme for which my lyre I strung,
Such was the people whose exploits I sung;
Brave, yet refin'd, for arms and arts renown'd,
With diff'rent bays by Mars and Phœbus crown'd,
Dauntless opposers of tyrannic sway,
But pleas'd a mild AUGUSTUS to obey.

If these commands submissive thou receive,
Immortal and unblam'd thy name shall live;
Envy to black Cocytus shall retire,
And howl with furies in tormenting fire;
Approving time shall consecrate thy lays,
And join the patriot's to the poet's praise.

The following letter from Mr Philips to the earl of Dorset is entirely descriptive; but is one of those descriptions which will be ever read with delight.

Copenhagen, March 9. 1709.

From frozen climes, and endless tracts of snow,
From streams which northern winds forbid to flow,
What present shall the muse to Dorset bring,
Or how, so near the pole, attempt to sing?
The hoary winter here conceals from sight
All pleasing objects which to verse invite.
The hills and dales, and the delightful woods,
The flow'ry plains, and silver-streaming floods,
By snow disguis'd, in bright confusion lie,
And with one dazzling waste fatigue the eye.

No gentle breathing breeze prepares the spring,
No birds within the desert region sing:
The ships, unmov'd, the boist'rous winds defy,
While rattling chariots o'er the ocean fly.
The vast Leviathan wants room to play,
And spout his waters in the face of day:
The starving wolves along the main sea sprowl,
And to the moon in icy valleys howl.
O'er many a shining league the level main
Here spreads itself into a glassy plain:
There solid billows of enormous size,
Alps of green ice, in wild disorder rise.
And yet but lately have I seen, ev'n here,
The winter in a lovely dress appear.
Ere yet the clouds let fall the treasure'd snow,
Or winds began through hazy skies to blow,
At ev'ning a keen eastern breeze arose,
And the descending rain unfully'd froze;
Soon as the silent shades of night withdrew,
The ruddy morn disclos'd at once to view
The face of nature in a rich disguise,
And brighten'd ev'ry object to my eyes:
For ev'ry shrub, and ev'ry blade of grass,
And ev'ry pointed thorn, seem'd wrought in glass;
In pearls and rubies rich the hawthorns show,
While through the ice the crimson berries glow.
The thick sprung reeds, which watery marshes yield,
Seem'd polish'd lances in a hostile field.
The stag in limpid currents with surprise,
Sees crystal branches on his forehead rise:

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Philips,
and

The

Epistle.

The spreading oak, the beech, and tow'ring pine,
Glaz'd over, in the freezing æther shine.
The frighted birds the rattling branches shun,
Which wave and glitter in the distant sun.

When if a sudden gust of wind arise,
The brittle forest into atoms flies,
The crackling wood beneath the tempest bends,
And in a spangled shower the prospect ends:
Or, if a southern gale the region warm,
And by degrees unbend the wint'ry charm,
The traveller a miry country sees,
And journeys sad beneath the dropping trees:
Like some deluded peasant Merlin leads
Thro' fragrant bow'rs and thro' delicious meads,
While here enchanted gardens to him rise,
And airy fabrics there attract his eyes,
His wandering feet the magic paths pursue,
And while he thinks the fair illusion true,
The trackless scenes disperse in fluid air,
And woods, and wilds, and thorny ways appear;
A tedious road the weary wretch returns,
And, as he goes, the transient vision mourns.

The great use of medals is properly described in the ensuing elegant epistle from Mr Pope to Mr Addison; and the extravagant passion which some people entertain only for the colour of them, is very agreeably and very justly ridiculed.

154
Pope.

SEE the wild waste of all devouring years!
How Rome her own sad sepulchre appears!
With nodding arches, broken temples spread!
The very tombs now vanish like their dead!
Imperial wonders rais'd on nations spoil'd,
Where mix'd with slaves the groaning martyr toil'd!
Huge theatres, that now unpeopled woods,
Now drain'd a distant country of her floods!
Fanes, which admiring gods with pride survey,
Statues of men, scarce less alive than they!
Some felt the silent stroke of mould'ring age,
Some hostile fury, some religious rage;
Barbarian blindness, Christian zeal conspire,
And papal piety, and Gothic fire.
Perhaps, by its own ruin sav'd from flame,
Some bury'd marble half preserves a name:
That name the learn'd with fierce disputes pursue,
And give to Titus old Vespasian's due.

Ambition sigh'd: She found it vain to trust
The faithless column and the crumbling bust;
Huge moles, whose shadow stretch'd from shore to shore,
Their ruins perish'd, and their place no more;
Convinc'd, she, now contracts her vast design,
And all her triumphs shrink into a coin.
A narrow orb each crowded conquest keeps,
Beneath her palm here sad Judæa weeps;
Now scantier limits the proud arch confine,
And scarce are seen the prostrate Nile or Rhine;
A small Euphrates through the piece is roll'd,
And little eagles wave their wings in gold.

The medal, faithful to its charge of fame,
Through climes and ages bears each form and name:
In one short view subjected to our eye,
Gods, emperors, heroes, sages, beauties, lie.
With sharpen'd sight pale antiquaries pore,
Th' inscription value, but the rust adore.

Epistle.

This the blue varnish, that the green endears,
The sacred rust of twice ten hundred years:
To gain Pescennius one employs his schemes,
One grasps a Cæcrops in ecstasie dreams.
Poor Vadius, long with learned spleen devour'd,
Can taste no pleasure since his shield was scour'd:
And Curio, restless by the fair one's side,
Sighs for an Otho, and neglects his bride.

Their's is the vanity, the learning thine:
Touch'd by thy hand, again Rome's glories shine;
Her gods and god-like heroes rise to view,
And all her faded garlands bloom anew.
Nor blush these studies thy regard engage;
These pleas'd the fathers of poetic rage;
The verse and sculpture bore an equal part,
And art reflected images to art.

Oh when shall Britain, conscious of her claim,
Stand emulous of Greek and Roman fame?
In living medals see her wars enroll'd,
And vanquish'd realms supply recording gold?
Here, rising bold, the patriot's honest face;
There, warriors frowning in historic brass?
Then future ages with delight shall see
How Plato's, Bacon's, Newton's, looks agree;
Or in fair series laurell'd bards be shown,
A Virgil there, and here an Addison.
Then shall thy CRAGGS (and let me call him mine)
On the cast ore, another Pollio shine;
With aspect open shall erect his head,
And round the orb in lasting notes be read,
"Statefman, yet friend to truth! of soul sincere,
"In action faithful, and in honour clear;
"Who broke no promise, serv'd no private end,
"Who gain'd no title, and who lost no friend;
"Ennobled by himself, by all approv'd,
"Prais'd, wept, and honour'd, by the muse he lov'd."

We have already observed, that the essential, and indeed the true characteristic of epistolary writing, is ease; and on this account, as well as others, the following letter from Mr Pope to Miss Blount is to be admired.

To Miss BLOUNT, on her leaving the Town after the Coronation.

As some fond virgin, whom her mother's care
Drags from the town to wholesome country air;
Just when she learns to roll a melting eye,
And hear a spark, yet think no danger nigh;
From the dear man unwilling she must sever,
Yet takes one kiss before she parts for ever;
Thus from the world fair Zephalinda flew,
Saw others happy, and with sighs withdrew:
Not that their pleasures caus'd her discontent;
She sigh'd, not that they stay'd, but that she went.
She went, to plain-work, and to purling brooks,
Old-fashion'd halls, dull aunts, and croaking rooks:
She went from op'ra, park, assembly, play,
To morning-walks, and pray'rs three hours a-day;
To part her time 'twixt reading and bohea,
To muse, and spill her solitary tea,
Or o'er cold coffee trifle with the spoon,
Count the slow clock, and dine exact at noon;

Divert

Epistle. Divert her eyes with pictures in the fire,
 Hum half a tune, tell stories to the 'squire;
 Up to her godly garret after seven,
 There starve and pray, for that's the way to heav'n.
 Some 'squire, perhaps, you take delight to rack;
 Whose game is whiff, whose treat's a toast in sack;
 Who visits with a gun, presents you birds,
 Then gives a smacking bus, and cries,—no words!
 Or with his hound comes hollowing from the stable,
 Makes love with nods, and knees beneath a table;
 Whose laughs are hearty, tho' his jests are coarse,
 And loves you best of all things—but his horse.

In some fair ev'ning, on your elbow laid,
 You dream of triumphs in the rural shade;
 In pensive thought recal the fancy'd scene,
 See coronations rise on every green;
 Before you pass th' imaginary fights
 Of lords, and earls, and dukes, and garter'd knights,
 While the spread fan o'er shades your closing eyes:
 Then give one flirt, and all the vision flies.
 Thus vanish sceptres, coronets, and balls,
 And leave you in lone woods, or empty walls!

So when your slave, at some dear idle time,
 (Not plagu'd with headaches, or the want of rhyme)
 Stands in the streets, abstracted from the crew,
 And while he seems to study, thinks of you;
 Just when his fancy points your sprightly eyes,
 Or sees the blush of soft Parthenia rise,
 Gay pats my shoulder, and you vanish quite,
 Streets, chairs, and coxcombs, rush upon my sight;
 Vex'd to be still in town, I knit my brow,
 Look sour, and hum a tune, as you may now.

SECT. VII. Of Descriptive Poetry.

155
Descriptive
poetry.

DESCRIPTIVE poetry is of universal use, since there is nothing in nature but what may be described. As poems of this kind, however, are intended more to delight than to instruct, great care should be taken to make them agreeable. Descriptive poems are made beautiful by families properly introduced, images of feigned persons, and allusions to ancient fables or historical facts; as will appear by a perusal of the best of these poems, especially Milton's *L'Allegro* and *Il Penseroso*, Denham's *Cooper Hill*, and Pope's *Windsor Forest*. Every body being in possession of Milton's works, we forbear inserting the two former; and the others are too long for our purpose. That inimitable poem, *The Seasons*, by Mr Thomson, notwithstanding some parts of it are didactic, may be also with propriety referred to this head.

SECT. VIII. Of Allegorical Poetry.

156
Origin of
allegorical
poetry.

COULD truth engage the affections of mankind in her native and simple dress, she would require no ornaments or aid from the imagination; but her delicate light, though lovely in itself, and dear to the most discerning, does not strike the senses of the multitude so as to secure their esteem and attention: the poets therefore dressed her up in the manner in which they thought she would appear the most amiable, and called in allegories and airy disguises as her auxiliaries in the cause of virtue.

An allegory is a fable or story, in which, under the

disguise of imaginary persons or things, some real action or instructive moral is conveyed to the mind. Every allegory therefore has two senses, the one literal and the other mystical; the first has been aptly enough compared to a dream or vision, of which the last is the true meaning or interpretation.

From this definition of allegorical poetry the reader will perceive that it gives great latitude to genius, and affords such a boundless scope for invention, that the poet is allowed to soar beyond all creation; to give life and action to virtues, vices, passions, diseases, and natural and moral qualities; to raise floating islands, enchanted palaces, castles, &c. and to people them with the creatures of his own imagination.

The poet's eye, in a fine frenzy rolling,
 Doth glance from heav'n to earth, from earth to heav'n;
 And, as imagination bodies forth
 The forms of things unknown, the poet's pen
 Turns them to shape, and gives to airy nothing
 A local habitation and a name. SHAKESPEARE.

But whatever is thus raised by the magic of his mind must be visionary and typical, and the mystical sense must appear obvious to the reader, and inculcate some moral or useful lesson in life; otherwise the whole will be deemed rather the effects of a distempered brain, than the productions of real wit and genius. The poet, like Jason, may sail to parts unexplored, but will meet with no applause if he returns without a golden fleece; for these romantic reveries would be unpardonable but for the mystical meaning and moral that is thus artfully and agreeably conveyed with them, and on which account only the allegory is indulged with a greater liberty than any other sort of writing.

The ancients justly considered this sort of allegory as the most essential part of poetry; for the power of raising images of things not in being, giving them a sort of life and action, and presenting them as it were before the eyes, was thought to have something in it like creation: but then, in such compositions, they always expected to find a meaning couched under them of consequence; and we may reasonably conclude, that the allegories of their poets would never have been handed down to us, had they been deficient in this respect.

As the *fable* is the part immediately offered to the reader's consideration, and intended as an agreeable vehicle to convey the moral, it ought to be bold, lively, and surprising, that it may excite curiosity and support attention; for if the fable be spiritless and barren of invention, the attention will be disengaged, and the moral, however useful and important in itself, will be little regarded.

There must likewise be a justness and propriety in the fable, that is, it must be closely connected with the subject on which it is employed; for notwithstanding the boundless compass allowed the imagination in these writings, nothing absurd or useless is to be introduced. In epic poetry some things may perhaps be admitted for no other reason but to surprise, and to raise what is called the *wonderful*, which is as necessary to the epic as the *probable*; but in allegories, however wild and extravagant the fable and the persons introduced, each must correspond with the subject they are applied to, and, like the members of a well-written simile, bear a due proportion and relation to each other: for we are

to.

Allegorical. to consider, that the allegory is a sort of extended or rather multiplied simile, and therefore, like that, should never lose the subject it is intended to illustrate. Whence it will appear, that genius and fancy are here insufficient without the aid of taste and judgement: these first, indeed, may produce a multitude of ornaments, a wilderness of sweets; but the last must be employed to accommodate them to reason, and to arrange them so as to produce pleasure and profit.

But it is not sufficient that the fable be correspondent with the subject, and have the properties above described; for it must also be consistent with itself. The poet may invent what story he pleases, and form any imaginary beings that his fancy shall suggest; but here, as in dramatic writings, when persons are once introduced, they must be supported to the end, and all speak and act in character: for notwithstanding the general licence here allowed, some order must be observed; and however wild and extravagant the characters, they should not be absurd. To this let me add, that the whole must be clear and intelligible; for the "fable (as Mr Hughes observes) being designed only to clothe and adorn the moral, but not to hide it, should resemble the draperies we admire in some of the ancient statues, in which the folds are not too many nor too thick, but so judiciously ordered, that the shape and beauty of the limbs may be seen through them."—But this will more obviously appear from a perusal of the best compositions of this class; such as Spenser's *Fairy Queen*, Thomson's *Castle of Indolence*, Addison and Johnson's beautiful allegories in the *Spectator* and *Rambler*, &c. &c.

The word *allegory* has been used in a more extensive sense than that in which we have here applied it: for all writings, where the moral is conveyed under the cover of borrowed characters and actions, by which other characters and actions (that are real) are represented, have obtained the name of *allegories*; though the fable or story contains nothing that is visionary or romantic, but is made up of real or historical persons, and of actions either probable or possible. But these writings should undoubtedly be distinguished by some other name, because the literal sense is consistent with right reason, and may convey an useful moral, and satisfy the reader, without putting him under the necessity of seeking for another.

Some of the ancient critics, as Mr Addison observes, were fond of giving the works of their poets this second or concealed meaning, though there was no apparent necessity for the attempt, and often but little show of reason in the application. Thus the *Iliad* and *Odyssey* of Homer are said to be fables of this kind, and that the gods and heroes introduced are only the affections of the mind represented in a visible shape and character. They tell us, says he, that Achilles in the first *Iliad* represents anger, or the irascible part of human nature: that upon drawing his sword against his superior, in a full assembly, Pallas (which, say they, is another name for reason) checks and advises him on the occasion, and at her first appearance touches him upon the head; that part of the man being looked upon as the seat of reason. In this sense, as Mr Hughes has well observed, the whole *Æneis* of Virgil may be said to be an allegory, if you suppose *Æneas* to represent Augustus Cæsar, and that his conducting the remains of his countrymen

Allegorical. from the ruins of *Troy*, to a new settlement in Italy, is an emblem of Augustus's forming a new government out of the ruins of the aristocracy, and establishing the Romans, after the confusion of the civil war, in a peaceable and flourishing condition. However ingenious this coincidence may appear, and whatever design Virgil had in view, he has avoided a particular and direct application, and so conducted his poem, that it is perfect without any allegorical interpretation; for whether we consider *Æneas* or Augustus as the hero, the morals contained are equally instructive. And indeed it seems absurd to suppose, that because the epic poets have introduced some allegories into their works, every thing is to be understood in a mystical manner, where the sense is plain and evident without any such application. Nor is the attempt that Tasso made to turn his *Jerusalem* into a mystery, any particular recommendation of the work: for notwithstanding he tells us, in what is called the *allegory*, printed with it, that the Christian army represents man, the city of *Jerusalem* civil happiness, Godfrey the understanding, Rinaldo and Tancred the other powers of the soul, and that the body is typified by the common soldiers and the like; yet the reader will find himself as little delighted as edified by the explication: for the mind has little pleasure in an allegory that cannot be opened without a key made by the hand of the same artist; and indeed every allegory that is so dark, and, as it were, inexplicable, loses its very essence, and becomes an enigma or riddle, that is left to be interpreted by every crude imagination.

This last species of writing, whether called an *allegory*, or by any other name, is not less eminent and useful; for the introducing of real or historical persons may not abridge or lessen either our entertainment or instruction. In these compositions we often meet with an uncommon moral conveyed by the fable in a new and entertaining manner; or with a known truth so artfully decorated, and placed in such a new and beautiful light, that we are amazed how any thing so charming and useful should so long have escaped our observation. Such, for example, are many of Johnson's pieces published in the *Rambler* under the title of *Eastern Stories*, and by Hawkesworth in the *Advertiser*.

The ancient parables are of this species of writing: and it is to be observed, that those in the New Testament have a most remarkable elegance and propriety; and are the most striking, and the most instructive, for being drawn from objects that are familiar.—The more striking, because, as the things are seen, the moral conveyed becomes the object of our senses, and requires little or no reflection:—the more instructive, because every time they are seen, the memory is awakened, and the same moral is again exhibited with pleasure to the mind, and accustoms it to reason and dwell on the subject. So that this method of instruction improves nature, as it were, into a book of life; since every thing before us may be so managed, as to give lessons for our advantage. Our Saviour's parables of the sower and the seed, of the tares, of the mustard-seed, and of the leaven (*Matthew xiii.*), are all of this kind, and were obviously taken from the harvest just ripening before him; for *his disciples plucked the ears of corn and did eat, rubbing them in their hands.* See the articles ALLEGORY, and METAPHOR and Allegory, in the general alphabet.

SECT. IX. *Of Fables.*

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The apolo-
goue or
fable.

No method of instruction has been more ancient, more universal, and probably none more effectual, than that by apologue or fable. In the first ages, amongst a rude and fierce people, this perhaps was the only method that would have been borne; and even since the progress of learning has furnished other helps, the fable, which at first was used through necessity, is retained from choice, on account of the elegant happiness of its manner, and the refined address with which, when well conducted, it insinuates its moral.

As to the actors in this little drama, the fabulist has authority to press into his service every kind of existence under heaven; not only beasts, birds, insects, and all the animal creation; but flowers, shrubs, trees, and all the tribe of vegetables. Even mountains, fossils, minerals, and the inanimate works of nature, discourse articulately at his command, and act the part which he assigns them. The virtues, vices, and every property of beings, receive from him a local habitation and a name. In short, he may personify, bestow life, speech, and action, on whatever he thinks proper.

It is easy to imagine what a source of novelty and variety this must open to a genius capable of conceiving and of employing these ideal persons in a proper manner; what an opportunity it affords him to diversify his images, and to treat the fancy with changes of objects, while he strengthens the understanding, or regulates the passions, by a succession of truths. To raise beings like these into a state of action and intelligence, gives the fabulist an undoubted claim to that first character of the poet, a *creator*.

When these persons are once raised, we must carefully enjoin them proper tasks, and assign them sentiments and language suitable to their several natures and respective properties. A raven should not be extolled for her voice, nor a bear be represented with an elegant shape. It were a very obvious instance of absurdity, to paint a hare cruel, or a wolf compassionate. An ass were but ill qualified to be general of an army, though he may well enough serve, perhaps, for one of the trumpeters. But so long as popular opinion allows to the lion magnanimity, rage to the tiger, strength to the mule, cunning to the fox, and buffoonery to the monkey; why may not they support the characters of an Agamemnon, Achilles, Ajax, Ulysses, and Thersites? The truth is, when moral actions are with judgement attributed to the brute creation, we scarce perceive that nature is at all violated by the fabulist. He appears at most to have only translated their language. His lions, wolves, and foxes, behave and argue as those creatures would, had they originally been endowed with the human faculties of speech and reason.

But greater art is yet required whenever we personify inanimate beings. Here the copy so far deviates from the great lines of nature, that, without the nicest care, reason will revolt against the fiction. However, beings of this sort, managed ingeniously and with address, recommend the fabulist's invention by the grace of novelty and of variety. Indeed the analogy between things natural and artificial, animate and inanimate, is often so very striking, that we can, with seeming propriety, give

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passions and sentiments to every individual part of existence. Appearance favours the deception. The vine may be enamoured of the elm; her embraces testify her passion. The swelling mountain may, naturally enough, be delivered of a mouse. The gourd may reproach the pine, and the sky-rocket insult the stars. The axe may solicit a new handle of the forest; and the moon, in her female character, request a fashionable garment. Here is nothing incongruous; nothing that shocks the reader with impropriety. On the other hand, were the axe to desire a periwig, and the moon petition for a new pair of boots, probability would then be violated, and the absurdity become too glaring.

The most beautiful fables that ever were invented may be disfigured by the language in which they are clothed. Of this poor Æsop, in some of his English dresses, affords a melancholy proof. The ordinary style of fable should be familiar, but also elegant.

The familiar, says Mr La Motte, is the general tone or accent of fable. It was thought sufficient, on its first appearance, to lend the animals our most common language. Nor indeed have they any extraordinary pretensions to the sublime; it being requisite they should speak with the same simplicity that they behave.

The familiar also is more proper for insinuation than the elevated; this being the language of reflection, as the former is the voice of sentiment. We guard ourselves against the one, but lie open to the other; and instruction will always the most effectually sway us, when it appears least jealous of its rights and privileges.

The familiar style, however, that is here required, notwithstanding that appearance of ease which is its character, is perhaps more difficult to write than the more elevated or sublime. A writer more readily perceives when he has risen above the common language, than he perceives, in speaking this language, whether he has made the choice that is most suitable to the occasion: and it is nevertheless, upon this happy choice that all the charms of the familiar depend. Moreover, the elevated style deceives and seduces, although it be not the best chosen; whereas the familiar can procure itself no sort of respect, if it be not easy, natural, just, delicate, and unaffected. A fabulist must therefore bestow great attention upon his style; and even labour it so much the more, that it may appear to have cost him no pains at all.

The authority of Fontaine justifies these opinions in regard to style. His fables are perhaps the best examples of the genteel familiar, as Sir Roger l'Esrange affords the grossest of the indelicate and low. When we read, that "while the frog and the mouse were disputing it at swords-point, down comes a kite powdering upon them in the interim, and gobbets up both together to part the fray;" and "where the fox reproaches a bevy of jolly gossiping wenches making merry over a dish of pullets, that if he but peeped into a hen-roost, they always made a bawling with their dogs and their bastards; while you yourselves (says he) can lie stuffing your guts with your hens and capons, and not a word of the pudding." This may be familiar; but it is also coarse and vulgar, and cannot fail to disgust a reader that has the least degree of taste or delicacy.

The style of fable then must be simple and familiar; and it must likewise be correct and elegant. By the

E

former,

161
Rules for
its con-
struction.

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The pro-
per style
of fable.

^{Of Fables.} former, we mean, that it should not be loaded with figure and metaphor; that the disposition of words be natural, the turn of sentences easy, and their construction unembarrassed. By elegance, we would exclude all coarse and provincial terms; all affected and puerile conceits; all obsolete and pedantic phrases. To this we would adjoin, as the word perhaps implies, a certain finishing polish, which gives a grace and spirit to the whole; and which, though it have always the appearance of nature, is almost ever the effect of art.

But notwithstanding all that has been said, there are some occasions on which it is allowable, and even expedient, to change the style. The language of a fable must rise or fall in conformity to the subject. A lion, when introduced in his regal capacity, must hold discourse in a strain somewhat more elevated than a country-mouse. The lioness then becomes his queen, and the beasts of the forest are called his subjects; a method that offers at once to the imagination both the animal and the person he is designed to represent. Again, the buffoon-monkey should avoid that pomp of phrase, which the owl employs as her best pretence to wisdom. Unless the style be thus judiciously varied, it will be impossible to preserve a just distinction of character.

Descriptions, at once concise and pertinent, add a grace to fable; but are then most happy when included in the action: whereof the fable of Boreas and the Sun affords us an example. An epithet well chosen is often a description in itself; and so much the more agreeable, as it the less retards us in our pursuit of the catastrophe.

Lastly, little strokes of humour when arising naturally from the subject, and incidental reflections when kept in due subordination to the principal, add a value to these compositions. These latter, however, should be employed very sparingly, and with great address; be very few, and very short: it is scarcely enough that they naturally spring out of the subject; they should be such as to appear necessary and essential parts of the fable. And when these embellishments, pleasing in themselves, tend to illustrate the main action, they then afford that nameless grace remarkable in Fontaine and some few others, and which persons of the best discernment will more easily conceive than they can explain.

SECT. X. *Of Satire.*

¹⁶³
Origin of
satire.

THIS kind of poem is of very ancient date, and (if we believe Horace) was introduced, by way of interlude, by the Greek dramatic poets in their tragedies, to relieve the audience, and take off the force of those strokes which they thought too deep and affecting. In these satirical interludes, the scene was laid in the country; and the persons were rural deities, satyrs, country peasants, and other rustics.

The first Tragedians found that serious style
Too grave for their uncultivated age,
And so brought wild and naked satyrs in
(Whose motion, words, and shape, were all a farce)
As oft as decency would give them leave;
Because the mad, ungovernable rout,
Full of confusion and the fumes of wine,
Lov'd such variety and antic tricks.

RASCAMMON'S *Horace.*

The satire we now have is generally allowed to be of Roman invention. It was first introduced without the decorations of scenes and action; but written in verses of different measures by Ennius, and afterwards moulded into the form we now have it by Lucilius, whom Horace has imitated, and mentions with esteem. This is the opinion of most of the critics, and particularly of Boileau, who says,

Lucilius led the way, and bravely bold,
To Roman vices did the mirror hold;
Protected humble goodness from reproach,
Show'd worth on foot, and rascals in a coach.
Horace his pleasing wit to this did add,
That none, unceasur'd might be fools or mad:
And Juvenal, with rhetorician's rage,
Scourg'd the rank vices of a wicked age;
Tho' horrid truths thro' all his labours shine,
In what he writes there's something of divine.

Our satire, therefore, may be distinguished into two kinds; the *jocose*, or that which makes sport with vice and folly, and sets them up to ridicule; and the *serious*, or that which deals in asperity, and is severe and acrimonious. Horace is a perfect master of the first, and Juvenal much admired for the last. The one is facetious, and smiles: the other is angry, and storms. The foibles of mankind are the object of one; but crimes of a deeper dye have engaged the other. They both agree, however, in being pungent and biting: and from a due consideration of the writings of these authors, who are our masters in this art, we may define satire to be, ¹⁶⁴ A free, (and often jocose), witty, and sharp poem, wherein the follies and vices of men are lashed and ridiculed in order to their reformation. Its subject is whatever deserves our contempt or abhorrence, (including every thing that is ridiculous and absurd, or scandalous and repugnant to the golden precepts of religion and virtue). Its manner is *investive*; and its end, *shame*. So that satire may be looked upon as the physician of a distempered mind, which it endeavours to cure by bitter and unfavoury, or by pleasant and salutary, applications.

A good satirist ought to be a man of wit and address, sagacity and eloquence. He should also have a ¹⁶⁵ great deal of good-nature, as all the sentiments which are beautiful in this way of writing must proceed from that quality in the author. It is good-nature produces that disdain of all baseness, vice, and folly, which prompts the poet to express himself with such smartness against the errors of men, but without bitterness to their persons. It is this quality that keeps the mind even, and never lets an offence unreasonably throw the satirist out of his character.

In writing satire, care should be taken that it be true and general; that is, levelled at abuses in which numbers are concerned: for the personal kind of satire, or lampoon, which exposes particular characters, and affects the reputation of those at whom it is pointed, is scarcely to be distinguished from scandal and defamation. The poet also, whilst he is endeavouring to correct the guilty, must take care not to use such expressions as may corrupt the innocent: he must therefore avoid all obscene words and images that tend to debase and mislead the mind. Horace and Juvenal, the chief satirists among

Of Satire. among the Romans, are faulty in this respect, and ought to be read with caution.

166
Proper
style of
satire.

The style proper for satire is sometimes grave and animated, inveighing against vice with warmth and earnestness; but that which is pleasant, sportive, and, with becoming raillery, banters men out of their bad dispositions, has generally the best effect, as it seems only to play with their follies, though it omits no opportunity of making them feel the lash. The verses should be smooth and flowing, and the language manly, just, and decent.

Of well-chosē words some take not care enough,
And think they should be as the subject rough:
But satire must be more exactly made,
And sharpest thoughts in smoothest words convey'd.

DUKE OF BUCKS'S *Essay*.

Satires, either of the *jocose* or *serious* kind, may be written in the epistolary manner, or by way of dialogue. Horace, Juvenal, and Persius, have given us examples of both. Nay, some of Horace's satires may, without incongruity, be called *epistles*, and his epistles *satires*. But this is obvious to every reader.

Of the facetious kind, the second satire of the second book of Horace imitated by Mr Pope, and Swift's verses on his own death, may be referred to as examples.

As to those satires of the serious kind, for which Juvenal is so much distinguished, the characteristic properties of which are, morality, dignity, and severity; a better example cannot be mentioned than the poem entitled *London*, written in imitation of the third satire of Juvenal, by Dr Johnson, who has kept up to the spirit and force of the original.

Nor must we omit to mention Dr Young's *Love of Fame the Universal Passion*, in seven satires; which, though characteristic, abound with morality and good sense. The characters are well selected, the ridicule is high, and the satire well pointed and to the purpose.

We have already observed, that personal satire approaches too near defamation, to deserve any countenance or encouragement. Dryden's *Mack Flecknoe* is for this reason exceptionable, but as a composition it is inimitable.

167
Benefits of
well-con-
ducted sa-
tire.

We have dwelt thus long on the present subject, because there is reason to apprehend, that the benefits arising from well-conducted satire have not been sufficiently considered. A satire may often do more service to the cause of religion and virtue than a sermon; since it gives pleasure, at the same time that it creates fear or indignation, and conveys its sentiments in a manner the most likely to captivate the mind.

Of all the ways that wisest men could find
To mend the age and mortify mankind,
Satire well writ has most successful prov'd,
And cures, because the remedy is lov'd.

DUKE OF BUCKS'S *Essay*.

But to produce the desired effect, it must be *jocose*, free, and impartial, though severe. The satirist should always preserve good-humour; and, however keen he cuts, should cut with kindness. When he loses temper, his weapons will be inverted, and the ridicule he threw at others will retort with contempt upon himself: for

the reader will perceive that he is angry and hurt, and consider his satire as the effect of malice, not of judgement; and that it is intended rather to wound persons than reform manners.

Of Satire.

Rage you must hide, and prejudice lay down:
A satyr's smile is sharper than his frown.

The best, and indeed the only, method to expose vice and folly effectually, is to turn them to ridicule, and hold them up for public contempt; and as it most offends these objects of satire, so it least hurts ourselves. One passion frequently drives out another; and as we cannot look with indifference on the bad actions of men (for they must excite either our wrath or contempt), it is prudent to give way to that which most offends vice and folly, and least affects ourselves; and to sneer and laugh, rather than be angry and scold.

Burlesque poetry, which is chiefly used by way of burlesque drollery and ridicule, falls properly to be spoken of under the head of satire. An excellent example of this kind is a poem in blank verse, intitled *The Splendid Shilling*, written by Mr John Philips, which, in the opinion of one of the best judges of the age, is the finest burlesque in the English language. In this poem the author has handled a low subject in the lofty style and numbers of Milton; in which way of writing Mr Philips has been imitated by several, but none have come up to the humour and happy turn of the original. When we read it, we are betrayed into a pleasure that we could not expect; though, at the same time, the sublimity of the style, and gravity of the phrase, seem to chastise that laughter which they provoke.

168
Burlesque
poetry.—
Splendid
shilling—
Hudibras.

There is another sort of verse and style, which is most frequently made use of in treating any subject in a ludicrous manner, viz. that which is generally called *Hudibrastic*, from Butler's admirable poem intitled *Hudibras*. Almost every one knows, that this poem is a satire upon the authors of our civil dissensions in the reign of King Charles I. wherein the poet has, with abundance of wit and humour, exposed and ridiculed the hypocrisy or blind zeal of those unhappy times. In short, it is a kind of burlesque epic poem, which, for the oddity of the rhymes, the quaintness of the similes, the novelty of the thoughts, and that fine raillery which runs through the whole performance, is not to be paralleled.

SECT. XI. Of the Epigram.

169
Character
of the epi-
gram.

THE epigram is a little poem, or composition in verse, treating of one thing only, and whose distinguishing characters are, brevity, beauty, and point.

The word *epigram* signifies "inscription;" for epigrams derive their origin from those inscriptions placed by the ancients on their statues, temples, pillars, triumphal arches, and the like; which, at first, were very short, being sometimes no more than a single word; but afterwards, increasing their length, they made them in verse, to be the better retained by the memory. This short way of writing came at last to be used upon any occasion or subject; and hence the name of *epigram* has been given to any little copy of verses, without regard to the original application of such poems.

Its usual limits are from two to 20 verses, though sometimes it extends to 50; but the shorter, the better it is, and the more perfect, as it partakes more of the

Epigram. nature and character of this kind of poem: besides, the epigram, being only a single thought, ought to be expressed in a little compass, or else it loses its force and strength.

The beauty required in an epigram is an harmony and apt agreement of all its parts, a sweet simplicity and polite language.

The point is a sharp, lively, unexpected turn of wit, with which an epigram ought to be concluded. There are some critics, indeed, who will not admit the point in an epigram; but require that the thought be equally diffused through the whole poem, which is usually the practice of Catullus, as the former is that of Martial. It is allowed there is more delicacy in the manner of Catullus; but the point is more agreeable to the general taste, and seems to be the chief characteristic of the epigram.

170
Of what
subjects it
admits.

This sort of poem admits of all manner of subjects, provided that brevity, beauty, and point, are preserved; but it is generally employed either in praise or satire.

Though the best epigrams are said to be such as are comprised in two or four verses, we are not to understand it as if none can be perfect which exceed those limits. Neither the ancients nor moderns have been so scrupulous with respect to the length of their epigrams; but, however, brevity in general is always to be studied in these compositions.

171
Examples
of English
epigrams
remarkable
for their
delicacy,
and

For examples of good epigrams in the English language, we shall make choice of several in the different tastes we have mentioned; some remarkable for their delicate turn and simplicity of expression; and others for their salt and sharpness, their equivocating pun, or pleasant allusion. In the first place, take that of Mr Pope, said to be written on a glass with the earl of Chesterfield's diamond-pencil.

Accept a miracle, instead of wit;
See two dull lines by Stanhope's pencil writ.

The beauty of this epigram is more easily seen than described; and it is difficult to determine, whether it does more honour to the poet who wrote it, or to the nobleman for whom the compliment is designed.—The following epigram of Mr Prior is written in the same taste, being a fine encomium on the performance of an excellent painter.

On a Flower, painted by VARELST.

When fam'd Varelst this little wonder drew,
Flora vouchsaf'd the growing work to view;
Finding the painter's science at a stand,
The goddess snatch'd the pencil from his hand,
And, finishing the piece, she smiling said,
Behold one work of mine which ne'er shall fade.

Another compliment of this delicate kind he has made Mr Howard in the following epigram.

VENUS Mislaken.

When Chloe's picture was to Venus shown;
Surpris'd, the goddess took it for her own.
And what, said she, does this bold painter mean?
When was I bathing thus, and naked seen?
Pleas'd Cupid heard, and check'd his mother's pride:
And who's blind now, mamma? the urchin cry'd.

'Tis Chloe's eye, and cheek, and lip, and breast:
Friend Howard's genius fancy'd all the rest.

Epigram.

Most of Mr Prior's epigrams are of this delicate cast, and have the thought, like those of Catullus, diffused through the whole. Of this kind is his address

To CHLOE Weeping.

See, whilst thou weep'st, fair Chloe, see
The world in sympathy with thee.
The cheerful birds no longer sing,
Each drops his head, and hangs his wing.
The clouds have bent their bosom lower,
And shed their sorrow in a shower.
The brooks beyond their limits flow,
And louder murmurs speak their wo:
The nymphs and swains adopt thy cares;
They heave thy sighs, and weep thy tears.
Fantastic nymph! that grief should move
Thy heart obdurate against love.
Strange tears! whose pow'r can soften all
But that dear breast on which they fall.

The epigram written on the leaves of a fan by Dr Atterbury, late bishop of Rochester, contains a pretty thought, expressed with ease and conciseness, and closed in a beautiful manner.

On a FAN.

Flavia the least and slightest toy
Can with resistless art employ.
This fan in meaner hands would prove
An engine of small force in love:
Yet she, with graceful air and mien,
Not to be told or safely seen,
Directs its wanton motion so,
That it wounds more than Cupid's bow,
Gives coolness to the matchless dame,
To ev'ry other breast a flame.

We shall now select some epigrams of the biting and satirical kind, and such as turn upon the *pun* or *equi-point*,¹⁷² as the French call it: in which sort the point is more conspicuous than in those of the former character.

The following distich is an admirable epigram, having all the necessary qualities of one, especially point and brevity.

On a Company of bad DANCERS to good Music.

How ill the motion with the music suits!
So Orpheus fiddled, and so danc'd the brutes.

This brings to mind another epigram upon a bad fiddler, which we shall venture to insert merely for the humour of it, and not for any real excellence it contains.

To a bad FIDDLER.

Old Orpheus play'd so well, he mov'd Old Nick;
But thou mov'st nothing but thy fiddle stick.

One of Martial's epigrams, where he agreeably rallies the foolish vanity of a man who hired people to make verses for him, and published them as his own, has been thus translated into English.

Paul, so fond of the name of a poet is grown,
With gold he buys verses, and calls them his own.

Epigram.

Go on, master Paul, nor mind what the world says,
They are surely his own for which a man pays.

Some bad writer having taken the liberty to censure
Mr Prior, the poet very wittily lashed his impertinence
in this epigram:

While faster than his costive brain indites
Philo's quick hand in flowing letters writes,
His case appears to me like honest Teague's
When he was run away with by his legs.
Phœbus, give Philo o'er himself command ;
Quicken his senses, or restrain his hand :
Let him be kept from paper, pen, and ink ;
So he may cease to write, and learn to think.

Mr Wesley has given us a pretty epigram, alluding
to a well-known text of Scripture on the setting up a
monument in Westminster Abbey, to the memory of the
ingenious Mr Butler, author of *Hudibras*.

While Butler, needy wretch, was yet alive,
No generous patron would a dinner give.
See him when starv'd to death, and turn'd to dust,
Presented with a monumental bust !
The poet's fate is here in emblem shown ;
He asked for *Bread*, and he receiv'd a *Stone*.

We shall close this section with an epigram written
on the well-known story of Apollo and Daphne, by Mr
Smart.

When Phœbus was am'rous and long'd to be rude,
Miss Daphne cry'd Pish ! and ran swift to the wood ;
And rather than do such a naughty affair,
She became a fine laurel to deck the god's hair.
The nymph was, no doubt, of a cold constitution ;
For sure, to turn tree was an odd resolution !
Yet in this she behav'd like a true modern spouse,
For she fled from his arms to distinguish his brows.

SECT. XII. *Of the Epitaph.*

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Character
of the epi-
taph.

THESE compositions generally contain some eulogium
of the virtues and good qualities of the deceased, and
have a turn of seriousness and gravity adapted to the
nature of the subject. Their elegance consists in a
nervous and expressive brevity ; and sometimes they are
closed with an epigrammatic point. In these composi-
tions, no mere epithet (properly so called) should be
admitted ; for here illustration would impair the
strength, and render the sentiment too diffuse and
languid. Words that are synonymous are also to be
rejected.

Though the true characteristic of the epitaph is se-
riousness and gravity, yet we may find many that are
jocose and ludicrous : some likewise have true metre
and rhyme ; while others are between prose and verse,
without any certain measure, though the words are truly
poetical ; and the beauty of this last sort is generally
heightened by an apt and judicious antithesis. We
shall give examples of each.

The following epitaph on Sir Philip Sydney's sister,
the countess of Pembroke, said to be written by the fa-
mous Ben Jonson, is remarkable for the noble thought
with which it concludes.

On MARY Countess-dowager of PEMBROKE.

Underneath this marble hearse,
Lies the subject of all verse,
Sidney's sister, Pembroke's mother :
Death, ere thou hast kill'd another
Fair, and learn'd, and good as she,
Time shall throw a dart at thee.

Take another epitaph of Ben Jonson's, on a beauti-
ful and virtuous lady, which has been deservedly admir-
ed by very good judges.

Underneath this stone doth lie
As much virtue as could die ;
Which when alive did vigour give
To as much beauty as could live.

The following epitaph by Dr Samuel Johnson, on a
musician much celebrated for his performance, will bear
a comparison with these, or perhaps with any thing of
the kind in the English language.

Philips ! whose touch harmonious could remove
The pangs of guilty pow'r and hapless love,
Rest here, distress'd by poverty no more ;
Find here that calm thou gav'st so oft before ;
Sleep undisturb'd within this peaceful shrine,
Till angels wake thee with a note like thine.

It is the just observation of an eminent critic, that
the best subject for epitaphs is private virtue ; virtue
exerted in the same circumstances in which the bulk of
mankind are placed, and which, therefore, may admit
of many imitators. He that has delivered his country
from oppression, or freed the world from ignorance and
error, besides that he stands in no need of monumental
panegyric, can excite the emulation of a very small
number. The bare name of such men answers every
purpose of a long inscription, because their achievements
are universally known, and their fame is immortal.—
But the virtues of him who has repelled the tempta-
tions of poverty, and disdain'd to free himself from dis-
tress at the expence of his honour or his conscience, as
they were practis'd in private, are fit to be told, because
they may animate multitudes to the same firmness of
heart and steadiness of resolution. On this account,
there are few epitaphs of more value than the following,
which was written by Pope on Mrs Corbet, who died
of a cancer in her breast.

Here rests a woman, good without pretence,
Blest with plain reason, and with sober sense ;
No conquest she, but o'er herself desir'd ;
No arts essay'd, but not to be admir'd.
Passion and pride were to her soul unknown ;
Convinc'd that virtue only is our own.
So unaffected, so compos'd a mind,
So firm, yet soft, so strong, yet so refin'd,
Heav'n, as its purest gold, by tortures try'd ;
The faint sustain'd it, but the woman dy'd.

This epitaph, as well as the second quoted from Ben
Jonson, has indeed one fault ; the name is omitted.
The end of an epitaph is to convey some account of the
dead ; and to what purpose is any thing told of him
whose

Epitaph.
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Epitaphs
in verse,
with re-
marks up-
on them.

Epitaph. whose name is concealed? The name, it is true, may be inscribed by itself upon the stone; but such a shift of the poet is like that of an unskilful painter, who is obliged to make his purpose known by adventitious help.

Amongst the epitaphs of a punning and ludicrous cast, we know of none prettier than that which is said to have been written by Mr Prior on himself, wherein he is pleasantly satirical upon the folly of those who value themselves upon account of the long series of ancestors through which they can trace their pedigree.

Nobles and heralds, by your leave,
Here lie the bones of Matthew Prior,
The son of Adam and of Eve:
Let Bourbon or Nassau go higher.

The following epitaph on a miser contains a good caution and an agreeable raillery.

Reader, beware immoderate love of self:
Here lies the worst of thieves, who robb'd himself.

But Dr Swift's epitaph on the same subject is a masterpiece of the kind.

Beneath this verdant hillock lies
Demer, the wealthy and the wife.
His heirs, that he might safely rest,
Have put his carcase in a chest:
The very chest, in which, they say,
His other Self, his money, lay.
And if his heirs continue kind
To that dear self he left behind,
I dare believe that four in five
Will think his better half alive.

We shall give but one example more of this kind, which is a merry epitaph on an old fiddler, who was remarkable (we may suppose) for beating time to his own music.

On STEPHEN the Fiddler.

Stephen and time are now both even;
Stephen beat time, now time's beat Stephen.

We are come now to that sort of epitaph which rejects rhyme, and has no certain and determinate measure; but where the diction must be pure and strong, every word have weight, and the antithesis be preferred in a clear and direct opposition. We cannot give a better example of this sort of epitaph than that on the tomb of Mr Pulteney in the cloisters of Westminster-abbey.

Reader,
If thou art a BRITON,
Behold this Tomb with Reverence and Regret:
Here lie the Remains of
DANIEL PULTENEY,
The kindest Relation, the truest Friend,
The warmest Patriot, the worthiest Man.
He exercised Virtues in this Age,
Sufficient to have distinguish'd him even in the best.
Sagacious by Nature,
Industrious by Habit,
Inquisitive with Art;
He gain'd a complete Knowledge of the State of Britain,
Foreign and domestic;

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In most the backward Fruit of tedious Experience,
In him the early acquisition of undissipated Youth.
He serv'd the Court several Years:
Abroad, in the auspicious Reign of Queen Anne;
At home, in the Reign of that excellent prince K. George I.
He serv'd his Country always,
At Court independent,
In the Senate unbiass'd,
At every Age, and in every Station:
This was the bent of his generous Soul,
This the business of his laborious Life.
Public Men, and Public Things,
He judg'd by one constant Standard.
The True Interest of Britain:
He made no other Distinction of Party,
He abhorred all other.
Gentle, humane, disinterested, beneficent,
He created no Enemies on his own Account:
Firm, determin'd, inflexible,
He feared none he could create in the Cause of Britain.
Reader,
In this Misfortune of thy Country lament thy own:
For know,
The Loss of so much private Virtue
Is a public calamity.

That poignant satire, as well as extravagant praise,¹⁷⁶ may be convey'd in this manner, will be seen by the following epitaph written by Dr Arbuthnot on Francis Chartres; which is too well known, and too much admired, to need our commendation.

HERE continueth to rot
The Body of FRANCIS CHARTRES,
Who with an INFLEXIBLE CONSTANCY,
And INIMITABLE UNIFORMITY of Life,
PERSISTED,
In spite of AGE and INFIRMITIES,
In the Practice of EVERY HUMAN VICE,
Excepting PRODIGALITY and HYPOCRISY:
His insatiable AVARICE exempted him from the first,
His matchless IMPUDENCE from the second.
Nor was he more singular
In the undeviating *Pravity* of his *Manners*,
Than successful
In *Accumulating WEALTH*:
For, without TRADE or PROFESSION,
Without TRUST of PUBLIC MONEY,
And without BRIBE-WORTHY Service,
He acquired, or more properly created,
A MINISTERIAL ESTATE.
He was the only Person of his Time
Who could CHEAT without the Mask of HONESTY;
Retain his Primæval MEANNESS
When possessed of TEN THOUSAND a-year;
And having daily deserved the GIBBET for what he *did*,
Was at last condemn'd to it for what he *could not do*.
Oh indignant reader!
Think not his Life useless to Mankind;
PROVIDENCE conniv'd at his execrable designs,
To give to After-ages
A conspicuous PROOF and EXAMPLE
Of how small Estimation is EXORBITANT WEALTH
In the Sight of GOD,
By His bestowing it on the most UNWORTHY of ALL
MORTALS.

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in prose
encomiastic
and

Epitaph.

We shall conclude this species of poetry with a droll and satirical epitaph written by Mr Pope, which was transcribed from a monument in Lord Cobham's gardens at Stow in Buckinghamshire.

To the Memory
of
SIGNIOR FIDO,
An Italian of good extraction;
Who came into *England*,
Not to bite us, like most of his Countrymen,
But to gain an honest Livelihood.
He hunted not after Fame,
Yet acquir'd it;
Regardless of the Praise of his Friends,
But most sensible of their Love,
Though he liv'd amongst the Great,
He neither learnt nor flatter'd any Vice.
He was no Bigot,
Though he doubted of none of the 39 Articles.

Epitaph.

And, if to follow Nature,
And to respect the laws of Society,
Be Philosophy,
He was a perfect Philosopher,
A faithful Friend,
An agreeable Companion,
A loving Husband
Distinguish'd by a numerous offspring,
All which he liv'd to see take good Courses.
In his old Age he retired
To the house of a Clergyman in the country,
Where he finished his earthly Race,
And died an Honour and an Example to the whole Species.
Reader,
This Stone is guiltless of Flattery;
For he to whom it is inscrib'd
Was not a MAN,
But a
GRE-HOUND.

PART III. ON VERSIFICATION.

ON this subject it is meant to confine our inquiry to Latin or Greek hexameters, and to French and English heroic verse; as the observations we shall have occasion to make, may, with proper variations, be easily transferred to the composition of other sorts of verse.

Before entering upon particulars, it must be premised in general, that to verse of every kind five things are of importance. 1st, The number of syllables that compose a line. 2d, The different lengths of syllables, i. e. the difference of time taken in pronouncing. 3d, The arrangement of these syllables combined in words. 4th, The pauses or stops in pronouncing. 5th, Pronouncing syllables in a high or a low tone. The three first mentioned are obviously essential to verse: if any of them be wanting, there cannot be that higher degree of melody which distinguisheth verse from prose. To give a just notion of the fourth, it must be observed, that pauses are necessary for three different purposes: one, to separate periods, and members of the same period, according to the sense: another, to improve the melody of verse: and the last, to afford opportunity for drawing breath in reading. A pause of the first kind is variable, being long or short, frequent or less frequent, as the sense requires. A pause of the second kind, being determined by the melody, is in no degree arbitrary. The last sort is in a measure arbitrary, depending on the reader's command of breath. But as one cannot read with grace, unless, for drawing breath, opportunity be taken of a pause in the sense or in the melody, this pause ought never to be distinguished from the others; and for that reason shall be laid aside. With respect then to the pauses of sense and of melody, it may be affirmed without hesitation, that their coincidence in verse is a capital beauty: but as it cannot be expected, in a long work especially, that every line should be so perfect; we shall afterward have occasion to see, that, unless the reader be uncommonly skilful, the pause necessary for the sense must often, in some degree, be sacrificed to the verse-pause, and the latter sometimes to the former.

The pronouncing syllables in a high or low tone con-

tributes also to melody. In reading, whether verse or prose, a certain tone is assumed, which may be called the *key-note*; and in that tone the bulk of the words are founded. Sometimes to humour the sense, and sometimes the melody, a particular syllable is founded in a higher tone, and this is termed *accenting a syllable*, or gracing it with an accent. Opposed to the accent is the cadence, which, however, being entirely regulated by the sense, hath no peculiar relation to verse. The cadence is a falling of the voice below the key-note at the close of every period; and so little is it essential to verse, that in correct reading the final syllable of every line is accented, that syllable only excepted which closes the period, where the sense requires a cadence.

Though the five requisites above mentioned enter the composition of every species of verse, they are however governed by different rules, peculiar to each species. Upon quantity only, one general observation may be premised, because it is applicable to every species of verse. That syllables, with respect to the time taken in pronouncing, are long or short; two short syllables, with respect to time, being precisely equal to a long one. These two lengths are essential to verse of all kinds; and to no verse, it is believed, is a greater variety of time necessary in pronouncing syllables. The voice indeed is frequently made to rest longer than usual upon a word that bears an important signification; but this is done to humour the sense, and is not necessary for melody. A thing not more necessary for melody occurs with respect to accenting, similar to that now mentioned: A word signifying any thing humble, low, or dejected, is naturally, in prose as well as in verse, pronounced in a tone below the key-note.

We are now sufficiently prepared for particulars; beginning with Latin or Greek hexameter, which are the same. The observations upon this species of verse will come under the four following heads; number, arrangement, pause, and accent; for as to quantity, what is observed above may suffice.

I. HEXAMETER

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tion
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verses of
the Greeks
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mans con-
sist of what
feet.

I. HEXAMETER LINES, as to time, are all of the same length; being equivalent to the time taken in pronouncing twelve long syllables or twenty-four short. An hexameter line may consist of seventeen syllables; and when regular and not spondaic it never has fewer than thirteen; whence it follows, that where the syllables are many, the plurality must be short; where few, the plurality must be long.

This line is susceptible of much variety as to the succession of long and short syllables. It is, however, subjected to laws that confine its variety within certain limits: and for ascertaining these limits, grammarians have invented a rule by dactyles and spondees, which they denominate *feet*.

Among the ancient Greeks and Romans, these feet regulated the pronunciation, which they are far from doing among us; of which the reason will be discovered from the explanation that we shall give of the English accent. We shall at present content ourselves with pointing out the difference between our pronunciation and that of the Romans in the first line of Virgil's eclogues, where it is scarcely credible how much we pervert the quantity.

Tit'yre tú pat'ulæ rec'ubans sub teg'mine fâgi.

It will be acknowledged by every reader who has an ear, that we have placed the accentual marks upon every syllable, and the letter of every syllable, that an Englishman marks with the *ictus* of his voice when he recites the line. But, as will be seen presently, a syllable which is pronounced with the stress of the voice upon a consonant is uttered in the shortest time possible. Hence it follows, that in this verse, as recited by us, there are but two long syllables, *tú* and *fâ*; though it is certain, that, as recited by a Roman, it contained no fewer than eight long syllables.

Títÿrē | tú pātū|lāē recū|bāns sūb | tēgmīnē | fāgī.

But though to pronounce it in this manner with the voice dwelling on the vowel of each long syllable would undoubtedly be correct, and preserve the true movement of the verse, yet to an English ear, prejudiced in behalf of a different movement, it sounds so very uncouth, that Lord Kames has pronounced the true feet of the Greek and Roman verses extremely artificial and complex; and has substituted in their stead the following rules, which he thinks more simple and of more easy application. 1st, The line must always commence with a long syllable, and close with two long preceded by two short. 2d, More than two short can never be found together, nor fewer than two. And, 3d, Two long syllables which have been preceded by two short cannot also be followed by two short. These few rules fulfil all the conditions of a hexameter line with relation to order or arrangement. For these again a single rule may be substituted, which has also the advantage of regulating more affirmatively the construction of every part. To put this rule into words with perspicuity, a hint is taken from the twelve long syllables that compose an hexameter line, to divide it into twelve equal parts or portions, being each of them one long syllable or two short. The rule then is: "The 1st, 3d, 5th, 7th, 9th, 11th, and 12th portions, must each of them be one long syllable; the 10th must always be two short syllables; the 2d, 4th, 6th, and 8th, may either be one

long or two short." Or to express the thing still more shortly, "The 2d, 4th, 6th, and 8th portions may be one long syllable or two short; the 10th must be two short syllables; all the rest must consist each of one long syllable." This fulfils all the conditions of an hexameter line, and comprehends all the combinations of dactyles and spondees that this line admits.

Next in order comes the pause. At the end of every hexameter line, every one must be sensible of a complete close or full pause; the cause of which follows. The two long syllables preceded by two short, which always close an hexameter line, are a fine preparation for a pause: for long syllables, or syllables pronounced slow, resembling a slow and languid motion tending to rest, naturally incline the mind to rest, or, which is the same, to pause; and to this inclination the two preceding short syllables contribute, which, by contrast, make the slow pronunciation of the final syllables the more conspicuous. Beside this complete close or full pause at the end, others are also requisite for the sake of melody; of which two are clearly discoverable, and perhaps there may be more. The longest and most remarkable succeeds the 5th portion: the other, which, being shorter and more faint, may be called the *semipause*, succeeds the 8th portion. So striking is the pause first mentioned, as to be distinguished even by the rudest ear: the monkish rhymes are evidently built upon it; in which, by an invariable rule, the final word always chimes with that which immediately precedes the pause:

De planctu cudo || metrum cum carmine nudo
Mingere cum bumbis || res est saluberrima lumbis.

The difference of time in the pause and semipause occasions another difference not less remarkable; that it is lawful to divide a word by a semipause, but never by a pause, the bad effect of which is sensibly felt in the following examples:

Effusus labor, at||que inmitis rupta Tyranni

Again:

Observans nido im||plumes detraxit; at illa

Again:

Loricam quam De||moleo detraxerat ipse

The dividing a word by a semipause has not the same bad effect:

Jamque pedem referens || casus evaserat omnes.

Again:

Qualis populea || mœrens Philo|mela sub umbra

Again:

Ludere quæ vellem || calamo per|misit agresti.

Lines, however, where words are left entire, without being divided even by a semipause, run by that means much the more sweetly.

Nec gemere ærea || cessabit | turtur ab ulmo.

Again:

Quadrupedante putrem || sonitu quatit | ungula campum.

Again:

Eurydicen toto || referebant | flumine ripæ.

The reason of these observations will be evident upon the slightest reflection. Between things so intimately connected

Elem. of
Criticism,
chap. xviii.
sect. 4.

Verfifica-
tion.

connected in reading aloud as are sense and sound, every degree of discord is unpleasant; and for that reason it is a matter of importance to make the musical pauses coincide as much as possible with those of sense; which is requisite more especially with respect to the pause, a deviation from the rule being less remarkable in a semi-pause. Considering the matter as to melody solely, it is indifferent whether the pauses be at the end of words or in the middle; but when we carry the sense along, it is disagreeable to find a word split into two by a pause, as if there were really two words: and though the disagreeableness here be connected with the sense only, it is by an easy transition of perceptions transferred to the sound; by which means we conceive a line to be harsh and grating to the ear, when in reality it is only so to the understanding.

To the rule that fixes the pause after the 5th portion there is one exception and no more. If the syllable succeeding the 5th portion be short, the pause is sometimes postponed to it:

Pupillis quos dura || premit custodia matrum

Again:

In terras oppressa || gravi sub religione

Again:

Et quorum pars magna || fui; quis talia fando

This contributes to diversify the melody; and, where the words are smooth and liquid, is not ungraceful; as in the following examples:

Formosam resonare || doces Amaryllida sylvas

Again:

Agricolas, quibus ipsa || procul discordibus armis

If this pause, placed as aforesaid after the short syllable, happen also to divide a word, the melody by these circumstances is totally annihilated. Witness the following line of Ennius, which is plain prose:

Romæ mœnia terru||it impiger | Hannibal armis.

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Sense.

Hitherto the arrangement of the long and short syllables of an hexameter line, and its different pauses, have been considered with respect to melody: but to have a just notion of hexameter verse, these particulars must also be considered with respect to sense. There is not perhaps in any other sort of verse such latitude in the long and short syllables; a circumstance that contributes greatly to that richness of melody which is remarkable in hexameter verse, and which made Aristotle pronounce that an epic poem in any other verse would not succeed*. One defect, however, must not be dissimulated, that the same means which contribute to the richness of the melody render it less fit than several other sorts for a narrative poem. There cannot be a more artful contrivance, as above observed, than to close an hexameter line with two long syllables preceded by two short: but unhappily this construction proves a great embarrassment to the sense; which will thus be evident. As in general there ought to be a strict concordance between the thought and the words in which it is dressed; so, in particular, every close in the sense ought to be accompanied with a close in the sound. In prose this law may be strictly observed, but in verse the same strictness would

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occasion insuperable difficulties. Willing to sacrifice to the melody of verse some share of the concordance between thought and expression, we freely excuse the separation of the musical pause from that of the sense during the course of a line; but the close of an hexameter line is too conspicuous to admit this liberty: for which reason there ought always to be some pause in the sense at the end of every hexameter line, were it but such a pause as is marked by a comma; and for the same reason there ought never to be a full close in the sense but at the end of a line, because there the melody is closed. An hexameter line, to preserve its melody, cannot well admit any great relaxation; and yet, in a narrative poem, it is extremely difficult to adhere strictly to the rule even with these indulgences. Virgil, the chief of poets for versification, is forced often to end a line without any close in the sense, and as often to close the sense during the running of a line; though a close in the melody during the movement of the thought, or a close in the thought during the movement of the melody, cannot be agreeable.

The accent, to which we proceed, is not less essential than the other circumstances above noticed. By a good ear it will be discerned, that in every line there is one syllable distinguishable from the rest by a capital accent: That syllable, being the seventh portion, is invariably long.

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Observations on the
accent.

Nec bene promeritis || capitur nec | tangitur ira

Again:

Non sibi sed toto || genitum se | credere mundo

Again:

Qualis spelunca || subito com'mota columba

In these examples the accent is laid upon the last syllable of a word; which is favourable to the melody in the following respect, that the pause, which for the sake of reading distinctly must follow every word, gives opportunity to prolong the accent. And for that reason, a line thus accented has a more spirited air than when the accent is placed on any other syllable. Compare the foregoing lines with the following.

Alba neque Assyrio || fucatur | lana veneno

Again:

Panditur interea || domus omnipo|tentis Olympi

Again:

Olli sedato || respondit | corde Latinus.

In lines where the pause comes after the short syllable succeeding the 5th portion, the accent is displaced, and rendered less sensible: it seems to be split into two, and to be laid partly on the 5th portion, and partly on the 7th, its usual place; as in

Nuda genu, nodoque || sinus collecta fluentes.

Again:

Formosam resonare || docēs Amar|yllida sylvas.

Beside this capital accent, slighter accents are laid upon other portions; particularly upon the 4th, unless where it consists of two short syllables; upon the 9th, which is always a long syllable; and upon the 11th, where

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tion.

where the line concludes with a monofyllable. Such conclusion, by the by, impairs the melody, and for that reason is not to be indulged unless where it is expreffive of the fenfe. The following lines are marked with all the accents.

Ludere quæ vèllem calamò permîfit agreffi

Again :

Et duræ quærcus sudâbunt rôfcida mella

Again :

Parturiunt môntes, nâcîtar rîdiculûs mus.

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Order and
arrange-
ment do
not consti-
tute the
whole me-
lody of an
hexameter
verfe.

Reflecting upon the melody of hexameter verfe, we find, that order or arrangement doth not conftitute the whole of it : for when we compare different lines, equally regular as to the fucceffion of long and ſhort ſyllables, the melody is found in very different degrees of perfection ; which is not occaſioned by any particular combination of dactyles and ſpondees, or of long and ſhort ſyllables, becauſe we find lines where dactyles prevail, and lines where ſpondees prevail, equally melodious. Of the former take the following inſtance :

Æneadum genitrix hominum divumque voluptas.

Of the latter :

Molli paulatim flavescet campus arista.

What can be more different as to melody than the two following lines, which, however, as to the ſucceffion of long and ſhort ſyllables, are conſtructed precisely in the ſame manner ?

Spond. Dact. Spond. Spond. Dact. Spond.
Ad talos ſtola dimiſſa et circumdata palla. HOR.

Spond. Dact. Spond. Spond. Dact. Spond.
Placatumque nitet diſſuſo lumine cœlum. LUCRET.

In the former, the pauſe falls in the middle of a word, which is a great blemiſh, and the accent is diſturbed by a harſh elifion of the vowel *a* upon the particle *et*. In the latter, the pauſes and the accent are all of them diſtinct and full : there is no elifion : and the words are more liquid and ſounding. In theſe particulars conſiſts the beauty of an hexameter line with reſpect to melody ; and by neglecting theſe, many lines in the ſatires and epiſtles of Horace are leſs agreeable than plain proſe ; for they are neither the one nor the other in perfection. To draw melody from theſe lines, they muſt be pronounced without relation to the ſenſe : it muſt not be regarded that words are divided by pauſes, nor that harſh elifions are multiplied. To add to the account, proſaic low-ſounding words are introduced ; and, which is ſtill worſe, accents are laid on them. Of ſuch faulty lines take the following inſtances.

Candida rectaque fit, munda hæcenus fit neque longa.

Jupiter exclamat ſimul atque audivit ; at in ſe

Cuſtodes, lætica, cinifiones, paraſitæ

Optimus eſt modulator, ut Alfenus Vaſer omni

Nunc illud tantum quæram, meritone tibi fit.

Theſe obſervations on pauſes and ſemi-pauſes, and on the ſtructure of an hexameter line, are doubtleſs ingeni-

ous ; but it is by no means certain that a ſtrict attention to them would aſſiſt any man in the writing of ſuch verſes as would have been pleaſing to a Roman ear. Many of his lordſhip's rules have no other foundation than what reſts on our improper mode of accenting Latin words ; which to Virgil or Lucretius would probably have been as offenſive as the Scotch accent is to a native of Middleſex.

II. Next in order comes ENGLISH HEROIC VERSE ; which ſhall be examined under the heads of *number*, *accent*, *quantity*, *movement*, and *pause*. Theſe have been treated in ſo clear and maſterly a manner by Sheridan in his Art of Reading, that we ſhall have little more to do than abridge his doctrine, and point out the few inſtances in which attachment to a ſyſtem and partiality to his native tongue ſeem to have betrayed him into error, or at leaſt made him carry to an extreme what is juſt only when uſed with moderation.

“ Numbers, in the ſtrict ſenſe of the word *, whether with regard to poetry or muſic, conſiſt in certain impreſſions made on the ear at ſtated and regular diſtances. The loweſt ſpecies of numbers is a *double* ſtroke of the ſame note or ſound, repeated a certain number of times, at equal diſtances. The repetition of the ſame *ſingle* note in a continued ſeries, and exactly at equal diſtances, like the ticking of a clock, has in it nothing numerous ; but the ſame note, *twice* ſtruck a certain number of times, with a pauſe between each *repetition* of double the time of that between the *ſtrokes*, is numerous. The reaſon is, that the pleaſure ariſing from *numbers*, conſiſts in the obſervation of *proportion* ; now the repetition of the ſame note, in exactly the *ſame intervals*, will admit of no proportion. But the ſame note *twice* ſtruck, with the pauſe of *one* between the two ſtrokes, and repeated again at the diſtance of a pauſe equal to *two*, admits of the proportional meafurement in the pauſes of *two* to *one*, to which time can be beaten, and is the loweſt and ſimpleſt ſpecies of numbers. It may be exemplified on the drum, as tu'm-tu'm--tu'm-tu'm--tu m-tu'm, &c.

“ The next progreſſion of numbers is, when the ſame note is repeated, but in ſuch a way as that one makes a more ſenſible impreſſion on the ear than the other, by being more forcibly ſtruck, and therefore having a greater degree of loudneſs ; as ti-tu m--ti-tu'm ; or, tu'm-ti--tu'm-ti : or when two weak notes precede a more forcible one, as ti-ti-tu'm--ti-ti-tu m ; or when the weak notes follow the forcible one, tu m-ti-ti--tu'm-ti-ti.

“ In the firſt and loweſt ſpecies of numbers which we have mentioned, as the notes are exactly the ſame in every reſpect, there can be no proportion obſerved but in the time of the pauſes. In the ſecond, which riſes in a degree juſt above the other, though the notes are ſtill the ſame, yet there is a diverſity to be obſerved in their reſpective loudneſs and ſoftneſs, and therefore a meaſurable proportion of the quantity of ſound. In them we muſt likewiſe take into conſideration the order of the notes, whether they proceed from ſtrong to weak, or from weak to ſtrong ; for this diverſity of order occaſions a great difference in the impreſſions made upon the ear, and in the effects produced upon the mind. To expreſs the diverſity of order in the notes in all its ſeveral kinds, the common term *movement* may be uſed, as the term *meaſure* will properly enough expreſs the different proportions of time both in the pauſes and in the notes.”

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For it is to be observed, that all notes are not of the same length or on the same key. In poetry, as well as in music, notes may be high or low, flat or sharp; and some of them may be prolonged at pleasure. "Poetic numbers are indeed founded upon the very same principles with those of the musical kind, and are governed by similar laws (see MUSIC). Proportion and order are the sources of the pleasure which we receive from both; and the beauty of each depends upon a due observation of the laws of measure and movement. The essential difference between them is, that the matter of the one is articulate, that of the other inarticulate sounds: but syllables in the one correspond to notes in the other; poetic feet to musical bars; and verses to strains; in a word, they have all like properties, and are governed by laws of the same kind.

"From what has been said, it is evident, that the *essence* of numbers consists in certain impressions made on the mind through the ear at stated and regular distances of time, with an observation of a relative proportion in those distances; and that the other circumstances of long or short in syllables, or diversity of notes in uttering them, are *not* essentials but only *accidents* of poetic numbers. Should this be questioned, the objector might be silenced by having the experiment tried on a drum, on which, although it is incapable of producing long or short, high or low notes, there is no kind of metre which may not be beat. That, therefore, which regulates the series and movement of the impressions given to the ear by the recitation of an English verse, must, when properly disposed, constitute the essence of English poetic numbers; but it is the accent which particularly impresses the sound of certain syllables or letters upon the ear; for in every word there is a syllable or letter accented. The necessity and use of the accent, as well in prose as in verse, we shall therefore proceed to explain.

* Art of
Reading,
vol. i.

"As words may be formed of various numbers of syllables, from one up to eight or nine *, it was necessary that there should be some peculiar mark to distinguish words from disjointed syllables, otherwise speech would be nothing but a continued succession of syllables conveying no ideas. This distinction of one word from another might be made by a perceptible pause at the end of each in speaking, analogous to the distance made between them in writing and in printing. But these pauses would make discourse disgustingly tedious; and though they might render words sufficiently distinct, they would make the meaning of sentences extremely confused. Words might also be distinguished from each other, and from a collection of detached syllables, by an *elevation* or *depression* of the voice upon one syllable of each word; and this, as is well known to the learned, was the practice of the Greeks and Romans. But the English tongue has for this purpose adopted a mark of the easiest and simplest kind, which is called *accent*. By accent is meant, a certain stress of the voice, upon a particular letter of a syllable, which distinguishes it from the rest, and at the same time distinguishes the syllable itself to which it belongs from the other syllables which compose the word. Thus, in the word *hab'it*, the accent upon the *b* distinguishes that letter from the others, and the first syllable from the last; add more syllables to it, and it will still do the same, as *hab'itable*. In the word *ac-cep't*, the *p* is the distinguished letter, and the syllable

which contains it the distinguished syllable; but if we add more syllables to it, as in the word *accept'able*, the seat of the accent is changed to the first syllable, of which *c* is the distinguished letter. Every word in our language of more syllables than one has one of the syllables distinguished from the rest in this manner, and every monosyllable has a letter. Thus, in the word *hab'* the *t* is accented, in *hát'e* the vowel *a*, in *cu'b'* the *b*, and in *cúbe* the *u*: so that as articulation is the essence of syllables, accent is the essence of words; which without it would be nothing more than a mere succession of syllables."

We have said, that it was the practice of the Greeks and Romans to elevate or depress their voice upon one syllable of each word. In this elevation or depression consisted their accent; but the English accent consists in the mere stress of the voice, without any change of note. "Among the Greeks, all syllables were pronounced either in a high, low, or middle note; or else in a union of the high and low by means of the intermediate. The middle note, which was exactly at an equal distance between the high and the low, was that in which the unaccented syllables were pronounced. But every word had one letter, if a monosyllable; or one syllable, if it consisted of more than one, distinguished from the rest; either by a note of the voice perceptibly higher than the middle note, which was called the *acute accent*; or by a note perceptibly, and in an equal proportion, lower than the middle one, which was called the *grave accent*; or by an union of the acute and grave on one syllable, which was done by the voice passing from the acute, through the middle note, in continuity down to the grave, which was called the *circumflex*."

"Now in pronouncing English words, it is true that one syllable is always distinguished from the rest; but it is not by any perceptible elevation or depression of the voice, any high or low note, that it is done, but merely by dwelling longer upon it, or by giving it a more forcible stroke. When the stress or accent is on the vowel, we dwell longer on that syllable than on the rest; as, in the words *glóry*, *fáther*, *lòdy*. When it is on the consonant, the voice, passing rapidly over the vowel, gives a smarter stroke to the consonant, which distinguishes that syllable from others, as in the words *bat'tle*, *hab'it*, *bar'row*."

Having treated so largely of *accent* and *quantity*, the next thing to be considered in verse will be quickly discussed; for in English it depends wholly on the seat of the accent. "When the accent or stress is on the vowel, the syllable is necessarily long, because the accent cannot be made without dwelling on the vowel a longer time than usual. When it is on the consonant, the syllable is short; because the accent is made by passing rapidly over the vowel, and giving a smart stroke of the voice to the following consonants. Thus the words *ad'd*, *led'*, *bid'*, *cu'b'*, are all short, the voice passing quickly over the vowel to the consonant; but for the contrary reason, the words *áll*, *láid*, *bíde*, *cúbe*, are long; the accent being on the vowels, on which the voice dwells some time before it takes in the sound of the consonant."

"Obvious as this point is, it has wholly escaped the observation of many an ingenious and learned writer. Lord Kames affirms *, that accenting is confined in * *Et. of English heroic verse* to the long syllables; for a short syllable

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† *Art of
Reading,*
vol. ii.

syllable (says he) is not capable of an accent: and Dr Forster, who ought to have understood the nature of the English accent better than his Lordship, asks, whether we do not employ more time in uttering the first syllables of *heavily, hastily, quickly, slowly*; and the second in *solicit, mistaking, researches, delusive*, than in the others? To this question Mr Sheridan replies †, that “in some of these words we certainly do as the Doctor supposes; in *hastily, slowly, mistaking, delusive*, for instance; where the accent being on the vowels renders their sound long; but in all the others *heavily, quickly, solis-it, re-sear-ches*, where the accent is on the consonant, the syllables *heav’, quick’, lis’, ser’*, are pronounced as rapidly as possible, and the vowels are all short. In the Scotch pronunciation (continues he) they would indeed be all reduced to an equal quantity, as thus; *hái-vily, háis-tily, quéek-ly, slów-ly, so-lée-cit, re-sáir-ches, de-lú-síoe*. But here we see that the four short syllables are changed into four long ones of a different sound, occasioned by their placing the seat of the accent on the vowels instead of the consonants: thus instead of *heav’* they say *háiv*; for *quick’, quéek*; for *lis’, léece*; and for *ser’*, *sáir*.

“It appears therefore, that the quantity of English syllables is adjusted by one easy and simple rule; which is, that when the seat of the accent is on a vowel, the syllable is long; when on a consonant, short; and that all unaccented syllables are short. Without a due observation of quantity in reciting verses there will be no poetic numbers; yet in composing English verses the poet need not pay the least attention to the quantity of his syllables, as measure and movement will result from the observation of other laws, which are now to be explained.

‡ *Lord
Kames.*

It has been affirmed by a writer ‡ of great authority among the critics, that in English heroic verse every line consists of ten syllables, five short and five long; from which there are but two exceptions, both of them rare. The first is, where each line of a couplet is made eleven syllables, by an additional short syllable at the end.

Thère heroes wit’s are kep’t in pond’rous váses,
And beaux’ in snuff-boxes and tweezer-cafes.

The other exception, he says, concerns the second line of a couplet, which is sometimes stretched out to twelve syllables, termed an *Alexandrine line*.

A needless Alexandrine ends the song,
That, like a wounded snake, drags its slow length
along.

After what has been just said, it is needless to stop for the purpose of pointing out the ingenious author’s mistake respecting long and short syllables. Every attentive reader of what has been already laid down, must perceive, that in the first line of the former couplet, though there are no fewer than six accented syllables when it is properly read, yet of these there are but three that are long, viz. those which have the accent on the vowel. Our business at present is, to show the falsity of the rule which restrains the heroic line to ten syllables; and this we shall do by producing lines of a greater number.

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And the shrill sounds ran echoing through the wood.

This line, though it consists of eleven syllables, and has the last of those accented, or, as Lord Kames would say, long, is yet undoubtedly a heroic verse of very fine sound. Perhaps the advocates for the rule may contend, that the vowel *o* in echoing ought to be struck out by an apostrophe; but as no one reads,

And the shrill sounds ran ech’ing through the wood,
it is surely very absurd to omit in writing what cannot be omitted in utterance. The two following lines have each eleven syllables, of which not one can be suppressed in recitation.

Their glittering textures of the filmy dew,
The great hierarchal standard was to move.

Mr Sheridan quotes as a heroic line,

O’er many a frozen, many a fiery Alp;

and observes what a monstrous line it would appear, if pronounced,

O’er man’ a frozen, man’ a fi’ry Alp,

instead of that noble verse, which it certainly is, when all the thirteen syllables are distinctly uttered. He then produces a couplet, of which the former line has fourteen, and the latter twelve syllables.

And many an amorous, many a humorous lay,
Which many a bard had chaunted many a day.

That this is a couplet of very fine sound cannot be controverted; but we doubt whether the numbers of it or of the other quoted line of thirteen syllables be truly heroic. To our ears at least there appears a very perceptible difference between the movement of these verses and that of the verses of Pope or Dryden; and we think, that, though such couplets or single lines may, for the sake of variety or expression, be admitted into a heroic poem, yet a poem wholly composed of them would not be considered as heroic verse. It has a much greater resemblance to the verse of Spenser, which is now broke into two lines, of which the first has eight and the second six syllables. Nothing, however, seems to be more evident, from the other quoted instances, than that a heroic line is not confined to the syllables, and that it is not by the number of syllables that an English verse is to be measured.

But if a heroic verse in our tongue be not composed, as in French, of a certain number of syllables, how is it formed? We answer by feet, as was the hexameter line of the ancients; though between their feet and ours there is at the same time a great difference. The poetic feet of the Greeks and Romans are formed by quantity, those of the English by stress or accent. “Though these terms are in continual use, and in the mouths of all who treat of poetic numbers, very confused and erroneous ideas are sometimes annexed to them. Yet as the knowledge of the peculiar genius of our language with regard to poetic numbers and its characteristic difference from others in that respect, depends upon our having clear and precise notions of those terms, it will be necessary to have them fully explained. The general nature of them has been already sufficiently laid open,

and

and we have now only to make some observations on their particular effects in the formation of metre.

“No scholar is ignorant that quantity is a term which relates to the length or the shortness of syllables, and that a long syllable is double the length of a short one. Now the plain meaning of this is, that a long syllable takes up double the time in sounding that a short one does; a fact of which the ear alone can be the judge. When a syllable in Latin ends with a consonant, and the subsequent syllable commences with one, every school-boy knows that the former is long, to use the technical term, by the law of *position*. This rule was in pronunciation strictly observed by the Romans, who always made such syllables long by dwelling on the vowels; whereas the very reverse is the case with us, because a quite contrary rule takes place in English words so constructed, as the accent or stress of the voice is in such cases always transferred to the consonant, and the preceding vowel being rapidly passed over, that syllable is of course short.

“The Romans had another rule of prosody, that when one syllable ending with a vowel, was followed by another beginning with a vowel, the former syllable was pronounced short; whereas in English there is generally an accent in that case on the former syllable, as in the word *pious*, which renders the syllable long. Pronouncing Latin therefore by our own rule, as in the former case, we make those syllables short which were sounded long by them; so in the latter we make those syllables long which with them were short. We say *ar'ma* and *virum'que*, instead of *arma* and *virumque*; *sci'o* and *tius*, instead of *sci'o* and *tius*'.

“Having made these preliminary observations, we proceed now to explain the nature of poetic feet. Feet in verse correspond to bars in music: a certain number of syllables connected form a foot in the one, as a certain number of notes make a bar in the other. They are called feet, because it is by their aid that the voice as it were steps along through the verse in a measured pace; and it is necessary that the syllables which mark this regular movement of the voice should in some measure be distinguished from the others. This distinction, as we have already observed, was made among the ancient Romans, by dividing their syllables into long and short, and ascertaining their quantity by an exact proportion of time in sounding them; the long being to the short as two to one; and the long syllables, being thus the more important, marked the movement of the verse. In English, syllables are divided into accented and unaccented; and the accented syllables being as strongly distinguished from the unaccented, by the peculiar stress of the voice upon them, are as capable of marking the movement, and pointing out the regular

paces of the voice, as the long syllables were by their quantity among the Romans. Hence it follows, that our accented syllables corresponding to their long ones, and our unaccented to their short, in the structure of poetic feet, an accented syllable followed by one unaccented in the same foot will answer to their *trochee*; and preceded by an unaccented one, to their *iambus*; and so with the rest.

“All feet used in poetry consist either of two or three syllables; and the feet among the ancients were denominated from the number and quantity of their syllables. The measure of quantity was the short syllable, and the long one in time was equal to two short. A foot could not consist of less than two times, because it must contain at least two syllables; and by a law respecting numbers, which is explained elsewhere (see Music), a poetic foot would admit of no more than four of those times. Consequently the poetic feet were necessarily reduced to eight; four of two syllables, and four of three. Those of two syllables must either consist of two short, called a *pyrrhic*; two long, called a *spondee*; a long and a short, called a *trochee*; or a short and a long, called an *iambus*. Those of three syllables were, either three short, a *tribrach*; a long and two short, a *dactyl*; a short, long, and short, an *amphibrach*; or two short and a long, an *anapest* (γ).

We are now sufficiently prepared for considering what feet enter into the composition of an English heroic verse.

The Greeks and Romans made use of but two feet in the structure of their hexameters; and the English heroic may be wholly composed of one foot, viz. the *iambic*, which is therefore the foot most congenial to that species of verse. Our poetry indeed abounds with verses into which no other foot is admitted. Such as,

The pow'rs | gave éar | and grán|ted hálf | his práy'r,
The rest' | the winds | dispérs'd | in emp'ty áir.

Our heroic line, however, is not wholly restrained to the use of this foot. In the opinion of Mr Sheridan it admits all the eight before enumerated; and it certainly excludes none, unless perhaps the *tribrach*. It is known to every reader of English poetry, that some of the finest heroic verses in our language begin with a *trochee*; and that Pope, the smoothest of all our versifiers, was remarkable for his use of this foot, as is evident from the following example, where four succeeding lines out of six have a trochaic beginning.

Her lively looks a sprightly mind disclose,
Quick as | her eyes | and as unfix'd as those :
Favours | to none | to all the smiles extend,
Oft she | rejects | but never once offends.
Bright as | the sun | her eyes the gazers strike,
And like the sun she shines on all alike.

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(γ) For the convenience of the less learned reader we shall here subjoin a scheme of poetic feet, using the marks (-o) in use among the Latin grammarians to denote the genuine feet by quantity; and the following marks ('o) to denote the English feet by accent, which answer to those.

	Roman	English		Roman	English
Trochee	- o	' o	Dactyl	- o o	' o o
Iambus	o -	o '	Amphibrach	o - o	o ' o
Spondée	- -	' '	Anapest	o o -	o o '
Pyrrhic	o o	o o	Tibrach	o o o	o o o

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The use of this foot, however, is not necessarily confined to the beginning of a line. Milton frequently introduces it into other parts of the verse; of which take the following instances:

That áll | was lost' | back' to | the thick' | et slunk—
Of E've | whose ey'e | darted contá|gious fire.

The last line of the following couplet begins with a *pyrrhic*:

She fáid, | and mé|ting as in tears she lay,
In ä | soft sil'ver stream dissolv'd away;

But this foot is introduced likewise with very good effect into other parts of the verse, as

Pánt on | thy lip' | and tō | thy héart | be prest. |
The phantom flies me | ás un|kind as you.
Leaps o'er the fence with ease | intō | the fold.

And thē | shrill' sounds | ran echoing through the wood.

In this last line we see that the first foot is a *pyrrhic*, and the second a *spondee*; but in the next the two first feet are *spondees*.

Hill's peép | o'ér hill's | and Alps | on Alps | arise.

In the following verse a trochee is succeeded by two spondees, of which the former is a genuine spondee by quantity, and the latter equivalent to a spondee by accent.

Séc thē | böld yōuth | stráin up' | the threat'ning steep.

We shall now give some instances of lines containing both the *pyrrhic* and the *spondee*, and then proceed to the consideration of the other four feet.

Thät ön | wēak wings | from far pursues your flight.
Thrō'thē | fáir scēne | rōll slōw | the ling'ring streams.
Ön hēr | whīte breast' | a sparkling cross the wore.

Of the four trisyllabic feet, the first, of which we shall give instances in heroic lines, is the *dactyl*; as

Mur'muring, | and with | him' fled | the shades | of night.
Hóvering | on wing | un'der | the cápe | of hell.
Tím'orous | and slothful yet he pleas'd the ear.
Of trúth | in word | mightier | than they | in arms.

Of the *anapest* a single instance shall suffice; for except by Milton it is not often used.

The great | hĭérár|chal standard was to move.

The *amphibrach* is employed in the four following verses, and in the three last with a very fine effect.

With wheels | yet hóvering o'er the ocean brim.
Rous'd from their slumber on | thät fiē|ry | couch.
While the | prōmis'cū'ous crowd stood yet aloof.
Throws his steep flight | in mány | än aī|ry whirl.

Having thus sufficiently proved that the English heroic verse admits of all the feet except the *tribrach*, it may be proper to add, that from the nature of our accent we have duplicates of these feet, viz. such as are formed by quantity, and such as are formed by the mere *ictus* of the voice; an opulence peculiar to our tongue, and which may be the source of a boundless variety. But as feet formed of syllables which have the *accent* or *ictus* on the consonant are necessarily pronounced in less time than similar feet formed by quantity, it may be objected, that the

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measure of a whole line, constructed in the former manner, must be shorter than that of another line constructed in the latter; and that the intermixture of verses of such different measures in the same poem must have a bad effect on the melody, as being destructive of proportion. This objection would be well-founded, were not the time of the short accented syllables compensated by a small pause at the end of each word to which they belong, as is evident in the following verse:

Then rus'|tling crack'ling crash'ing thun'der down.

This line is formed of iambs by accent upon consonants, except the last syllable; and yet by means of these soft pauses or rests, the measure of the whole is equal to that of the following, which consists of pure iambs by quantity.

O'er hēāps | of rū|in stālk'd | the state|ly hīnd.

Movement, of so much importance in versification, regards the order of syllables in a foot, measure their quantity. The order of syllables respects their progress from short to long or from long to short, as in the Greek and Latin languages; or from strong to weak or weak to strong, *i. e.* from accented or unaccented syllables, as in our tongue. It has been already observed, that an English heroic verse may be composed wholly of iambs; and experience shows that such verses have a fine melody. But as the stress of the voice in repeating verses of pure iambs, is regularly on every second syllable, such uniformity would disgust the ear in any long succession, and therefore such changes were sought for as might introduce the pleasure of variety without prejudice to melody; or which might even contribute to its improvement. Of this nature was the introduction of the trochee to form the first foot of an heroic verse, which experience has shown us is so far from spoiling the melody, that in many cases it heightens it. This foot, however, cannot well be admitted into any other part of the verse without prejudice to the melody, because it interrupts and stops the usual movement by another directly opposite. But though it be excluded with regard to pure melody, it may often be admitted into any part of the verse with advantage to expression, as is well known to the readers of Milton.

"The next change admitted for the sake of variety, without prejudice to melody, is the intermixture of pyrrhics and spondees; in which two impressions in the one foot make up for the want of one in the other; and two long syllables compensate two short, so as to make the sum of the quantity of the two feet equal to two iambs. That this may be done without prejudice to the melody, take the following instances:

Ön hēr | whīte brēäst | a sparkling cross the wore.—
Nör thē | dēēp tráct | of hell—say first what cause.—

This intermixture may be employed *ad libitum*, in any part of the line; and sometimes two spondees may be placed together in one part of the verse, to be compensated by two pyrrhics in another; of which Mr Sheridan quotes the following lines as instances:

Stōöd rül'd | stōöd väst, | inf'ñ|titude | confined.
Shē äll | nīght lōng | hēr ämō'rōus descant sung.

That the former is a proper example, will not perhaps be questioned; but the third foot in the latter is certainly

ly no pyrrhic. As it is marked here and by him, it is a tribrach; but we appeal to our English readers, if it ought not to have been marked an amphibrach by accent, and if the fourth foot be not an iambus. To us the feet of the line appear to be as follow:

Shē āll | nīght lōng | hēr am'ō'rōus des'cānt sun'g.

It is indeed a better example of the proper use of the amphibrach than any which he has given, unless perhaps the two following lines:

Up to | thē fīēry con'cāve tow'er'jīng high

Thrōws hīs | stēep flīght | īn man'y | ān āīry whīrl.

That in these three lines the introduction of the amphibrach does not hurt the melody, will be acknowledged by every person who has an ear; and those who have not, are not qualified to judge. But we appeal to every man of taste, if the two amphibrachs succeeding each other in the last line do not add much to the expression of the verse. If this be questioned, we have only to change the movement to the common iambic, and we shall discover how feeble the line will become.

Throws his | steep flight | in man'y airy whirls.

This is simple description, instead of that magical power of numbers which to the imagination produces the object itself, *whirling* as it were round an axis.

Having thus shown that the iambus, spondee, pyrrhic, and amphibrach, by accent, may be used in our measure with great latitude; and that the trochee may at all times begin the line, and in some cases with advantage to the melody; it now remains only to add, that the dactyl, having the same movement, may be introduced in the place of the trochee; and the anapaest in the place of the iambus. In proof of this, were not the article swelling in our hands, we could adduce many instances which would show what an inexhaustible fund of riches, and what an immense variety of materials, are prepared for us, "to build the lofty rhyme." But we hasten to the next thing to be considered in the art of versifying, which is known by the name of *pauses*.

"Of the poetic pauses there are two sorts, the *cesural* and the *final*. The cesural divides the verse into equal or unequal parts; the final closes it. In a verse there may be two or more cesural pauses, but it is evident that there can be but one final. As the final pause concerns the reader more than the writer of verses, it has been seldom treated of by the critics. Yet as it is this final pause which in many cases distinguishes verse from prose, it cannot be improper in the present article to show how it ought to be made. Were it indeed a law of our versification, that every line should terminate with a stop in the sense, the boundaries of the measure would be fixed, and the nature of the final pause could not be mistaken. But nothing has puzzled the bulk of readers, or divided their opinions, more than the manner in which those verses ought to be recited, where the sense does not close with the line; and whose last words have a necessary connection with those that begin the subsequent verse. "Some (says Mr Sheridan) who see the necessity of pointing out the metre, pronounce the last word of each line in such a note as usually accompanies a comma, in marking the smallest member of a sentence. Now this is certainly improper, because it makes that appear to be a complete member of a sentence

which is an incomplete one; and by disjoining the sense as well as the words, often confounds the meaning. Others again, but these fewer in number, and of the more absurd kind, drop their voice at the end of every line, in the same note which they use in marking a full stop; to the utter annihilation of the sense. Some readers (continues our author) of a more enthusiastic kind, elevate their voices at the end of all verses to a higher note than is ever used in the stops which divide the meaning. But such a continued repetition of the same high note becomes disgusting by its monotony, and gives an air of chanting to such recitation. To avoid these several faults, the bulk of readers have chosen what they think a safer course, which is that of running the lines one into another without the least pause, where they find none in the sense; but by this mode of recitation they reduce poetry to something worse than prose, to verse run mad.

But it may be asked, if this final pause must be marked neither by an elevation nor by a depression of the voice, how is it to be marked at all? To which Mr Sheridan replies, by making no change whatever in the voice before it. This will sufficiently distinguish it from the other pauses, the comma, semicolon, &c. because some change of note, by raising or depressing the voice, always precedes them, whilst the voice is here only suspended.

Now this pause of suspension is the very thing wanting to preserve the melody at all times, without interfering with the sense. For it perfectly marks the bound of the metre: and being made only by a suspension, not by a change of note in the voice, it never can affect the sense; because the sentential stops, or those which affect the sense, being all made with a change of note, where there is no such change the sense cannot be affected. Nor is this the only advantage gained to numbers by this stop of suspension. It also prevents the monotony at the end of lines; which, however pleasing to a rude, is disgusting to a delicate ear. For as this stop has no peculiar note of its own, but always takes that which belongs to the preceding word, it changes continually with the matter, and is as various as the sense.

Having said all that is necessary with regard to the final, we proceed now to consider the cesural, pause. To these two pauses it will be proper to give the denomination of *musical*, to distinguish them from the comma, semicolon, colon, and full stop, which may be called *sentential pauses*; the office of the former being to mark the melody, as that of the latter is to point out the sense. The cesural, like the final pause, sometimes coincides with the sentential; and sometimes takes place where there is no stop in the sense. In this last case, it is exactly of the same nature, and governed by the same laws with the pause of suspension, which we have just described.

The cesure, though not essential, is however a great ornament to verse, as it improves and diversifies the melody, by a judicious management in varying its situation; but it discharges a still more important office than this. Were there no cesure, verse could aspire to no higher ornament than that of simple melody; but by means of this pause there is a new source of delight opened in poetic numbers, correspondent in some sort to harmony in music. This takes its rise from that act of the mind which compares the relative proportions

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that the members of a verse thus divided bear to each other, as well as to those in the adjoining lines. In order to see this matter in a clear light, let us examine what effect the cesure produces in single lines, and afterwards in comparing contiguous lines with each other.

With regard to the place of the cesure, Mr Pope and others have expressly declared, that no line appeared musical to their ears, where the cesure was not after the fourth, fifth, or sixth syllable of the verse. Some have enlarged its empire to the third and seventh syllables; whilst others have asserted that it may be admitted into any part of the line.

“There needs but a little distinguishing (says Mr Sheridan), to reconcile these different opinions. If melody alone is to be considered, Mr Pope is in the right when he fixes its seat in or as near as may be to the middle of the verse. To form lines of the first melody, the cesure must either be at the end of the second or of the third foot, or in the middle of the third between the two. Of this movement take the following examples:

1. Of the cesure at the end of the second foot.

Our plenteous streams || a various race supply;
The bright-ey'd per'ch || with fins of Tyrian dye;
The silver eel || in shining volumes roll'd;
The yellow carp' || in scales bedrop'd with gold.

2. At the end of the third foot.

With tender billet-doux || he lights the pyre,
And breathes three amorous sighs || to raise the fire.

3. Between the two, dividing the third foot.

The fields are ravish'd || from the industrious swains,
From men their cities, || and from gods their fanes.

These lines are certainly all of a fine melody, yet they are not quite upon an equality in that respect. Those which have the cesure in the middle are of the first order; those which have it at the end of the second foot are next; and those which have the pause at the end of the third foot the last. The reason of this preference it may not perhaps be difficult to assign.

In the pleasure arising from comparing the proportion which the parts of a whole bear to each other, the more easily and distinctly the mind perceives that proportion, the greater is the pleasure. Now there is nothing which the mind more instantaneously and clearly discerns, than the division of a whole into two equal parts, which alone would give a superiority to lines of the first order over those of the other two. But this is not the only claim to superiority which such lines possess. The cesure being in them always on an unaccented, and the final pause on an accented syllable, they have a mixture of variety and equality of which neither of the other orders can boast, as in these orders the cesural and final pauses are both on accented syllables.

In the division of the other two species, if we respect quantity only, the proportion is exactly the same, the one being as two to three, and the other as three to two; but it is the order or movement which here makes the difference. In lines where the cesure bounds the second foot, the smaller portion of the verse is first in order, the greater last; and this order is reversed in lines which have the cesure at the end of the third foot. Now, as

the latter part of the verse leaves the strongest and most lasting impression on the ear, where the larger portion belongs to the latter part of the line, the impression must in proportion be greater; the effect in sound being the same as that produced by a climax in sense, where one part rises above another.

Having shown in what manner the cesure improves and diversifies the melody of verse, we shall now treat of its more important office, by which it is the chief source of harmony in numbers. But, first, it will be necessary to explain what we mean by the term *harmony*, as applied to verse.

Melody in music regards only the effects produced by successive sounds; and harmony, strictly speaking, the effects produced by different co-existing sounds, which are found to be in concord. Harmony, therefore, in this sense of the word, can never be applied to poetic numbers, of which there can be only one reciter, and consequently the sounds can only be in succession. When therefore we speak of the harmony of verse, we mean nothing more than an effect produced by an action of the mind in comparing the different members of verse already constructed according to the laws of melody with each other, and perceiving a due and beautiful proportion between them.

The first and lowest perception of this kind of harmony arises from comparing two members of the same line with each other, divided in the manner to be seen in the three instances already given; because the beauty of proportion in the members, according to each of these divisions, is founded in nature. But there is a perception of harmony in versification, which arises from the comparison of two lines, and observing the relative proportion of their members; whether they correspond exactly to each other by similar divisions, as in the couplets already quoted; or whether they are diversified by cesures in different places. As,

See the bold youth || strain up the threatening sleep,
Rush thro' the thickets || down the valleys sweep.

Where we find the cesure at the end of the second foot of the first line, and in the middle of the third foot of the last.

Hang o'er their courfers heads || with eager speed,
And earth rolls back || beneath the flying steed.

Here the cesure is at the end of the third foot in the former, and of the second in the latter line.—The perception of this species of harmony is far superior to the former; because, to the pleasure of comparing the members of the same line with each other, there is superadded that of comparing the different members of the different lines with each other; and the harmony is enriched by having four members of comparison instead of two. The pleasure is still increased in comparing a greater number of lines, and observing the relative proportion of the couplets to each other in point of similarity and diversity. As thus,

Thy forests, Windsor, || and thy green retreats,
At once the monarch's || and the muse's seats,
Invite my lays. || Be present sylvan maids,
Unlock your springs || and open all your shades.

Here we find that the cesure is in the middle of the verse in each line of the first couplet, and at the end of the

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the second foot in each line of the last; which gives a similarity in each couplet distinctly considered, and a diversity when the one is compared with the other, that has a very pleasing effect. Nor is the pleasure less where we find a diversity in the lines of each couplet, and a similarity in comparing the couplets themselves. As in these,

Not half so swift || the trembling doves can fly,
When the fierce eagle || cleaves the liquid sky;
Not half so swiftly || the fierce eagle moves,
When thro' the clouds || he drives the trembling doves.

There is another mode of dividing lines well suited to the nature of the couplet, by introducing semipauses, which with the cesure divide the line into four portions. By a semipause, we mean a small rest of the voice, during a portion of time equal to half of that taken up by the cesure; as will be perceived in the following fine couplet:

Warms | in the sun || refreshes | in the breeze,
Glows | in the stars || and blossoms | in the trees.

That the harmony, and of course the pleasure, resulting from poetic numbers, is increased as well by the semipause as by the cesure, is obvious to every ear; because lines so constructed furnish a greater number of members for comparison: but it is of more importance to observe, that by means of the semipauses, lines which, separately considered, are not of the finest harmony, may yet produce it when opposed to each other, and compared in the couplet. Of the truth of this observation, the following couplet, especially as it succeeds that immediately quoted, is a striking proof:

Lives | thro' all life || extends | thro' all extent,
Spreads | undivided || operates | unspent.

What we have advanced upon this species of verse, will contribute to solve a poetical problem thrown out by Dryden as a crux to his brethren: it was to account for the peculiar beauty of that celebrated couplet in Sir

John Denham's *Cooper's Hill*, where he thus describes the Thames:

Tho' deep | yet clear || tho' gentle | yet not dull.
Strong | without rage || without o'erflowing | full.

This description has great merit independent of the harmony of the numbers; but the chief beauty of the versification lies in the happy disposition of the pauses and semipauses, so as to make a fine harmony in each line when its portions are compared, and in the couplet when one line is compared with the other.

Having now said all that is necessary upon pauses and semipauses, we have done the utmost justice to our subject which the limits assigned us will permit. *Feet* and *pauses* are the constituent parts of verse; and the proper adjustment of them depends upon the poet's knowledge of *numbers*, *accent*, *quantity*, and *movement*, all of which we have endeavoured briefly to explain. In conformity to the practice of some critics, we might have treated separately of rhyme and of blank verse; but as the essentials of all heroic verses are the same, such a division of our subject would have thrown no light upon the art of English versification. It may be just worth while to observe, that the pause at the end of a couplet ought to coincide, if possible, with a slight pause in the sense, and that there is no necessity for this coincidence of pauses at the end of any particular blank verse. We might likewise compare our heroic line with the ancient hexameter, and endeavour to appreciate their respective merits; but there is not a reader capable of attending to such a comparison who will not judge for himself; and it may perhaps be questioned, whether there be two who will form precisely the same judgment. Mr Sheridan, and all the mere English critics, give a high degree of preference to our heroic, on account of the vast variety of feet which it admits: whilst the readers of Greek and Latin poetry prefer the hexameter, on account of its more musical notes and majestic length.

P O G

POGGE, the MAILED or ARMED GURNARD, or COTTUS CATAPHRACTUS. See COTTUS, ICHTHYOLOGY, p. 89.

POGGIUS BRACCIOLINUS, a man of great parts and learning, who contributed much to the revival of knowledge in Europe, was born at Terranuova, in the territories of Florence, in 1380. His first public employment was that of writer of the apostolic letters, which he held 10 years, and was then made apostolic secretary, in which capacity he officiated 40 years, under seven popes. In 1453, when he was 72 years of age, he accepted the employment of secretary to the republic of Florence, to which place he removed, and died in 1459. He visited several countries, and searched many monasteries, to recover ancient authors, numbers of which he brought to light: his own works consist of moral pieces, orations, letters, and A History of Florence from 1350 to 1455, which is the most considerable of them.

POGGY ISLANDS, otherwise called Nassau islands, Vol. XVII. Part I.

P O G

form part of a chain of islands which stretch along the whole length of Sumatra, in the East Indies, and lie at the distance of twenty or thirty leagues from the west coast of that island.

The northern extremity of the northern Pogy lies in latitude 2° 18' S., and the southern extremity of the southern island in latitude 3° 16' S. The two are separated from each other by a very narrow passage called the strait of See Cockup, in latitude 2° 40' S. and longitude about 100° 38' east from Greenwich.—The number of inhabitants in these islands amounts to no more than 1400. Mr Crisp, who staid about a month among them, carefully collected many particulars respecting their language, customs, and manners. He adverts to one circumstance relative to this people, which may be considered as a curious fact in the history:

“From the proximity of the islands, (says he,) to Sumatra, which, in respect to them, may be considered as a continent, we should naturally expect to find their inhabitants to be a set of people originally derived from

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the Sumatra stock, and look for some affinity in their language and manners; but, to our no small surprise, we find a race of men, whose language is totally different, and whose customs and habits of life indicate a very distinct origin, and bear a striking resemblance to those of the inhabitants of the late discovered islands in the great Pacific ocean."

There is safe riding for ships of any size in the straits, which have no other defect as a harbour than the depth of the water (25 fathoms close in shore). The face of the country, and its vegetable and animal productions, are described in the following words:

"The mountains are covered with trees to their summits, among which are found species of excellent timber; the tree, called by the Malays, *lintangoor*, and which, on the other India, is called *pohoon*, abounds here. Of this tree are made masts, and some are found of sufficient dimensions for the lower mast of a first-rate ship of war. During my stay here I did not discover a single plant which we have not on Sumatra. The sago tree growing in plenty, and constitutes the chief article of food to the inhabitants, who do not cultivate rice; the cocoa-nut tree and the bamboo, two most useful plants, are found here in great plenty. They have a variety of fruits, common in these climates, such as mangoes, pine-apples, plantains, *buah*, *chupah*, &c. The woods, in their present state, are impervious to man; the species of wild animals which inhabit them are but few; the large red deer, some hogs, and several kinds of monkeys are to be found here, but neither buffaloes, nor goats; nor are these forests infested, like those of Sumatra, with tigers or any other beast of prey. Of domestic poultry, there is only the common fowl, which probably has been originally brought from Sumatra; but pork and fish constitute the favourite animal food of the natives. Fish are found here in considerable plenty, and very good."

The stature of the inhabitants of these islands seldom exceeds five feet and a half; their colour is like that of the Malays; they practise tattooing, and file their teeth to a point; and though of a mild disposition, they have some of the filthy customs of savages, particularly that of picking vermin from their heads and eating them.

Their mode of tattooing, as well as the treatment of their dead, is represented to be very similar to the practices of the Otahaitians.

"The religion of this people, (says Mr Crisp), if it can be said that they have any, may truly be called the religion of nature. A belief of the existence of some powers more than human cannot fail to be excited among the most uncultivated of mankind, from the observations of various striking natural phenomena, such as the diurnal revolution of the sun and moon; thunder and lightning; earthquakes, &c. &c.: nor will there ever be wanting among them some, of superior talents and cunning, who will acquire an influence over weak minds, by assuming to themselves an interest with, or a power of controuling those super-human agents; and such notions constitute the religion of the inhabitants of the Poggys. Sometimes a fowl, and sometimes a hog, is sacrificed to avert sickness, to appease the wrath of the offended power, or to render it propitious to some projected enterprise; and Mr Best was informed that omens of good or ill fortune were drawn from certain appear-

ances in the entrails of the victim. But they have no form of religious worship, nor do they appear to have the most distant idea of a future state of rewards and punishments. They do not practise circumcision."—*Asiatic Researches*.

POGO, is the name by which the inhabitants of the Philippine islands distinguish their quail, which, though smaller than ours, is in every other respect very like it.

POICTIERS, an ancient, large, and considerable town of France, capital of Poictou. It was a bishop's see, and contained four abbeys, a mint, an university famous for law, 22 parishes, 9 convents for men, and 12 nunneries. There are here several Roman antiquities, and particularly an amphitheatre, but partly demolished, and hid by the houses. There is also a triumphal arch, which serves as a gate to the great street. It is not peopled in proportion to its extent. Near this place Edward the Black Prince gained a decisive victory over the French, taking King John and his son Philip prisoners, in 1356, whom he afterwards brought over into England. See France, N° 71, &c.—It is seated on a hill on the river Clain, 52 miles south-west of Tours, and 120 north by east of Bourdeaux. E. Long. 0. 25. N. Lat. 46. 35.

POICTOU, a province of France, bounded on the north by Bretagne, Anjou, and part of Touraine: on the east by Touraine, Berry, and Manche; on the south by Angoumois, Saintonge, and the territory of Aunis; and on the west by the sea of Gascony. It is divided into the Upper and Lower; and is fertile in corn and wine, and feeds a great number of cattle, particularly mules. It was in possession of the kings of England for a considerable time, till it was lost by the unfortunate Henry VI. Poitiers is the capital town.

Colic of POICTOU. See MEDICINE, N° 303.

POINCIANA, BARBADOES FLOWER-FENCE; a genus of plants belonging to the decandria class; and in the natural method ranking under the 33d order, *Lomentaceae*. See BOTANY Index.—Of this genus there is only one species, the *pulcherrima*, which is a native of both Indies, and grows to the height of 10 or 12 feet, producing flowers of a very agreeable odour. In Barbadoes it is planted in hedges to divide the lands, whence it has the name of *flower-fence*. In the West Indies, its leaves are made use of as a purgative instead of senna; and in Jamaica it is called *senna*.

POINT, a term used in various arts.

POINT, in Grammar, a character used to mark the divisions of discourse. (See COMMA, COLON, &c. A point proper is what we otherwise call a *full stop* or *period*. See PUNCTUATION.

POINT, in Geometry, according to Euclid, is that which has neither parts nor magnitude.

POINT, in Music, a mark or note anciently used to distinguish the tones or sounds: hence we still call it *simple counter-point*, when a note of the lower part answers exactly to that of an upper; and *figurative counter-point*, when any note is syncopated, and one of the parts makes several notes or inflexions of the voice, while the other holds on one.

We still use a point, to raise the value of a note, and prolong its time by one half, e. g. a point added to a semibreve instead of two minims, makes it equal to three; and so of the other notes. See the article TIME.

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POINT, in *Astronomy*, a term applied to certain points or places marked in the heavens, and distinguished by proper epithets.

The four grand points or divisions of the horizon, viz. the east, west, north, and south, are called the *cardinal points*.

The zenith and nadir are the vertical points; the points wherein the orbits of the planets cut the plane of the ecliptic are called the *nodes*: the points wherein the equator and ecliptic intersect are called the *equinoctial points*: particularly, that whence the sun ascends towards the north pole, is called the *vernal point*; and that by which he descends to the south pole, the *autumnal point*. The points of the ecliptic, where the sun's ascent above the equator, and descent below it, terminate, are called the *solstitial points*; particularly the former of them, the *estival* or *summer-point*; the latter, the *brumal* or *winter-point*.

POINT is also used for a cape or headland jutting out into the sea: thus seamen say, two points of land are in one another, when they are so in a right line against each other, as that the innermost is hindered from being seen by the outermost.

POINT, in *Perspective*, is used for various poles or places, with regard to the perspective plane. See *PERSPECTIVE*.

POINT is also an iron or steel instrument, used with some variety in several arts. Engravers, etchers, cutters in wood, &c. use points to trace their designs on the copper, wood, stone, &c. See the articles *ENGRAVING*, &c.

POINT, in the *Manufactories*, is a general term, used for all kinds of laces wrought with the needle; such are the point de Venice, point de France, point de Genoa, &c. which are distinguished by the particular economy and arrangement of their points.—*Point* is sometimes used for lace woven with bobbins; as English point, point de Malines, point d'Havre, &c.

POINT, in *Poetry*, denotes a lively brisk turn or conceit, usually found or expected at the close of an epigram. See *POETRY*, n^o 169.

POINT-Blank, in *Gunnery*, denotes the shot of a gun levelled horizontally, without either mounting or sinking the muzzle of the piece.—In shooting point-blank, the shot or bullet is supposed to go directly forward in a straight line to the mark; and not to move in a curve, as bombs and highly elevated random-shots do.—When a piece stands upon a level plane, and is laid level, the distance between the piece and the point where the shot touches the ground first, is called the *point-blank* range of that piece; but as the same piece ranges more or less, according to a greater or less charge, the point-blank range is taken from that of a piece loaded with such a charge as is used commonly in action. It is therefore necessary that these ranges of all pieces should be known, since the gunner judges from thence what elevation he is to give to his piece when he is either farther from or nearer to the object to be fired at; and this he can do pretty nearly by sight, after considerable practice.

POINTING, in *Grammar*, the art of dividing a discourse, by points, into periods and members of periods, in order to show the proper pauses to be made in reading, and to facilitate the pronunciation and understanding thereof. See the article *PUNCTUATION*.

POINTS, in *Heraldry*, are the several different parts

of an escutcheon, denoting the local positions of any figure. See *HERALDRY*.

POINTS, in *Electricity*, are those acute terminations of bodies which facilitate the passage of the electrical fluid from or to such bodies. See *ELECTRICITY*.

POINTS, or *Vowel Points*, in the Hebrew language. See *PHILOLOGY*, Sect. I. n^o 31, &c.

POISON, is any substance which proves destructive to the life of animals in a small quantity, either taken by the mouth, mixed with the blood, or applied to the nerves. See *MEDICINE*, n^o 261, 269, 303, 322, 408, &c. &c.

Of poisons there are many different kinds, which are exceedingly various in their operations. The mineral poisons, as arsenic and corrosive mercury, seem to attack the solid parts of the stomach, and to produce death by eroding its substance: the antimonials seem rather to attack the nerves, and to kill by throwing the whole system into convulsions; and in this manner also most of the vegetable poisons seem to operate. All of these, however, seem to be inferior in strength to the poisons of some of the more deadly kinds of serpents, which operate so suddenly that the animal bit by them will be dead before another that had swallowed arsenic would be affected.

Much has been written concerning a poison made use of by the African negroes, by the Americans, and by the East Indians. To this very strange effects have been ascribed. It has been said, that by this poison, a man might be killed at any certain time; as, for instance, after the interval of a day, a week, a month, a year, or even several years. These wonderful effects, however, do not seem worthy of credit; as the Abbé Fontana has given a particular account of an American poison called *ticunas*, which in all probability is the same with that used in Africa and the East Indies; and from his account it is extremely improbable that any such effects could be produced with certainty.

With this poison the Abbé was furnished by Dr Herberden. It was closed and sealed up in an earthen pot inclosed in a tin-case. Within the tin-case was a note containing the following words: "Indian poison, brought from the banks of the river of the Amazons by Don Pedro Maldonado. It is one of the sorts mentioned in the Philosophical Transactions, vol. xlvii. n^o 12." In the volume of the Philosophical Transactions here quoted, mention is made of two poisons little different in their activity; the one called the *poison of lamas*, and the other of *ticunas*. The poison in the earthen vessel used by the Abbé Fontana was that of the *ticunas*; he was also furnished with a number of American arrows dipped in poison, but whether that of the *lamas* or *ticunas* he could not tell.

Our author begins his account of the nature of this poison with detecting some of the mistakes which had been propagated concerning it.—It had been asserted, that the *ticunas* poison proves noxious by the mere effluvia, but much more by the steam which exhales from it in boiling or burning: that, among the Indians, it is prepared only by women condemned to die; and that the mark of its being sufficiently prepared, is when the attendant is killed by its steam. All these assertions are by the Abbé refuted in the clearest manner. He exposed a young pigeon to the smell of the poison when the vessel was opened, to the steam of it when boiling,

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Poison.

Poison.

and to the vapour of it when burning to the sides of the vessel, without the animal's being the least injured; on which, concluding that the vapours of this poison were not to be dreaded, he exposed himself to them without any fear.

This poison dissolves very readily even in cold water, and likewise in the vegetable and mineral acids. With oil of vitriol it becomes as black as ink, but not with the rest of the acids. In oil of vitriol it also dissolves more slowly than in any of the rest. It does not effervesce with acids or alkalies; neither does it alter milk, nor tinge it, except with the natural colour of the poison; nor does it tinge the vegetable juices either red or green. When examined by the microscope, there is no appearance of regularity or crystallization; but it for the most part appears made up of very small, irregular, roundish bodies, like vegetable juices. It dries without making any noise, and has an extremely bitter taste when put upon the tongue.

The ticunas poison is harmless when put into the eyes; nor is it fatal when taken by the mouth, unless the quantity is considerable. Six grains of the solid poison, dissolved in water, killed a young pigeon which drank it in less than 20 minutes. Five grains killed a small Guinea-pig in 25 minutes. Eight grains killed a rabbit in an hour and eight minutes, &c. In those experiments it was observed, that much less poison was required to kill an animal whose stomach was empty than one that had a full stomach. Three rabbits and two pigeons were killed in less than 35 minutes, by taking a dose of three grains each on an empty stomach; but when the experiment was repeated on five animals with full stomachs, only one of them died.

The most fatal operation of this poison is when mixed with the blood. The smallest quantity, injected into the jugular vein, killed the animal as if by a stroke of lightning. When applied to wounds in such a manner that the flowing of the blood could not wash it away, the animal fell into convulsions and a train of fatal nervous symptoms, which put an end to its life in a few minutes. Yet, notwithstanding these seeming affections of the nerves, the poison proved harmless when applied to the naked nerves themselves, or even to the medullary substance of them slit open.

The strength of this poison seems to be diminished, and even destroyed, by mineral acids, but not at all by alkalies or ardent spirits; but if the fresh poison was applied to a wound, the application of mineral acids immediately after could not remove the pernicious effects.

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So far, indeed, was this from being the case, that the application of nitrous acid to the wounded muscle of a pigeon, killed the animal in a short time without any poison at all.—The effects of the arrows were equally fatal with those of the poison itself (A).

The poison of the viper is analogous in its effects to that of ticunas, but inferior in strength; the latter killing more instantaneously when injected into a vein than even the poison of the most venomous rattlesnake.

The Abbé has, however, observed a difference in the action of the two poisons upon blood taken out of the body. He cut off the head of a pigeon, and received its blood into warm conical glasses, to the amount of about 80 drops into each. Into the blood contained in one porringer, he put four drops of water; and into the other four drops of the poison dissolved in water as usual. The event of this experiment was, that the blood, with which the water only was mixed, coagulated in a short time; but that in which the poison was mixed did not coagulate at all. The poison of the viper also hinders the blood from coagulating, but gives it a much blacker tinge than the poison of the ticunas. The poison of the viper also proves certainly fatal when injected into the veins, even in very small quantity; but it produces a kind of grumous coagulation and blackness in the blood when drawn from a vein, though it prevents the proper coagulation of that fluid, and its separation into crassamentum and serum as usual.

In the Philosophical Transactions, N^o 335. we have a number of experiments which show the effects of many different poisons upon animals; from whence it appears, that many substances which are not at all accounted poisonous, yet prove as certainly fatal when mixed with the blood as even the poison of rattlesnakes, or the ticunas itself.—An ounce of emetic wine, being injected into the jugular vein of a large dog, produced no effect for a quarter of an hour. At the expiration of that space he became sick, had a continual vomiting, and evacuation of some hard excrements by stool. By these evacuations he seemed to be somewhat relieved; but soon grew uneasy, moved from place to place, and vomited again. After this he laid himself down on the ground pretty quietly; but his rest was disturbed by a return of his vomiting, and his strength greatly decreased. An hour and a half after the operation he appeared half dead, but was greatly revived by having some warm broth poured down his throat with a funnel. This, however, proved only a temporary relief; for in

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(A) Mr Pateron, in his travels in Africa, in the years 1777-8-9, fell in with an European woman who had been wounded with a poisoned arrow. Great pains had been taken to cure her, but in vain; for at different periods of the year an inflammation came on which was succeeded by a partial mortification. She told him that the wound was easily healed up; but in two months afterwards there was a certainty of its breaking out again, and this had been the case for many years. The Hottentots poison their arrows with a species of euphorbia. The amaryllis disticha, a large bulbous plant growing about the Cape of Good Hope, called *mad poison*, is used for the same purpose. The natives take the bulbs when they are putting out their leaves, cut them transversely, extract a thick fluid, and keep it in the sun till it acquires the consistence of gum, when it is fit for use. With arrows poisoned with this gum, they kill antelopes and other small animals intended for food. After they are wounded, the animals generally run for several miles, and are frequently not found till next day. When the leaves of this plant are young, the cattle are very fond of them, though they occasion instant death. Mr Pateron mentions another shrubby plant producing a nut, called by the Dutch *woolf gift* or *wolf poison*, the only poison useful to the European inhabitants. The nuts are roasted like coffee, pulverized, and stuffed into some pieces of meat or a dead dog, which are thrown into the fields. By this means the voracious hyenas are generally killed.

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a short time the vomiting returned, he made urine in great quantity, howled miserably, and died in convulsions.—A dram and a half of sal ammoniac dissolved in an ounce and a half of water, and injected into the jugular vein of a dog, killed him with convulsions almost instantly.—The same effect followed from injecting a dram of salt of tartar dissolved in an ounce of warm water; but a dram and a half of common salt injected into the jugular produced little other bad consequence than a temporary thirst.—A dram of purified white vitriol, injected into the crural vein of a dog, killed him immediately.—Fifteen grains of salt of urine dissolved in an ounce of water, and injected into the crural vein of a dog, threw him into such violent convulsions that he seemed to be dying; nevertheless he recovered from a second dose, though not without a great deal of difficulty: but an ounce of urine made by a man fasting produced no bad effect. Diluted aquafortis injected into the jugular and crural vein of a dog killed him immediately by coagulating the blood. Oil of sulphur (containing some quantity of the volatile vitriolic acid) did not kill a dog after repeated trials. On the contrary, as soon as he was let go, he ran into all the corners of the room searching for meat; and having found some bones, he fell a gnawing them with strange avidity, as if the acid, by injection into his veins, had given him a better appetite.—Another dog who had oil of tartar injected into his veins, swelled and died, after suffering great torment. His blood was found florid, and not coagulated.—A dram and a half of spirit of salt diluted with water, and injected into the jugular vein of a dog, killed him immediately. In the right ventricle of the heart the blood was found partly grumous and concreted into harder clots than ordinary, and partly frothy. Warm vinegar was injected without doing any manifest harm.—Two drams of sugar dissolved in an ounce of water were injected into the jugular vein of a dog without any hurt.

These are the results of the experiments where saline substances were injected into the veins. Many acrids proved equally fatal. A decoction of two drams of white hellebore, injected into the jugular vein of a dog, killed him like a stroke of lightning. Another dog was killed in a moment by an injection of an ounce of rectified spirit of wine in which a dram of camphor was dissolved.—Ten drams of highly rectified spirit of wine, injected into the crural vein of a dog, killed him in a very short time: he died quietly, and licking his jaws with his tongue, as if with pleasure. In the vena cava and right ventricle of the heart the blood was coagulated into a great many little clots.—Three drams of rectified spirit of wine injected into the crural vein of a small dog made him apoplectic, and as it were half dead. In a little time he recovered from the apoplexy, and became giddy; and, when he endeavoured to go, reeled and fell down. Though his strength increased by degrees, yet his drunkenness continued. His eyes were red and fiery; and his sight so dull that he scarce seemed to take notice of any thing: and when he was beat, he would scarce move. However, in four hours he began to recover, and would eat bread when offered him; the next day he was out of danger.—Five ounces of strong white wine injected into the crural vein of a dog made him very drunk for a few hours, but did not produce any other consequences. An ounce of strong de-

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coction of tobacco injected into a vein killed a dog in a very short time in terrible convulsions. Ten drops of oil of sage rubbed with half a dram of sugar, and thus dissolved in water, did no harm by being injected into the blood.

Mercury, though seemingly void of all acrimony, proves also fatal when injected into the blood. Soon after the injection of half an ounce of this mineral into the jugular vein of a dog, he was seized with a dry short cough which came by intervals. About two days after, he was troubled with a great difficulty of breathing, and made a noise like that of a broken-winded horse. There was no tumour about the root of the tongue or the parotid glands, nor any appearance of a salivation. In four days he died; having been for two days before so much troubled with an orthopnoea, that he could sleep only when he leaned his head against something. When opened, about a pint of bloody serum was found in the thorax, and the outside of the lungs in most places was blistered. Some of the blisters were larger and others smaller than a pea, but most of them contained mercurial globules. Several of them were broken; and upon being pressed a little, the mercury ran out with a mixture of a little sanies; but upon stronger pressure, a considerable quantity of sanies issued out. In the right ventricle of the heart some particles of quicksilver were found in the very middle of the coagulated blood lodged there, and the same thing also was observed in the pulmonary artery. Some blood also was found coagulated in a very strange and unusual manner between the columnæ of the right ventricle of the heart, and in this a greater quantity of quicksilver than anywhere else. In the left ventricle was found a very tenacious blood, coagulated, and sticking to the great valve, including the tendons of it, and a little resembling a polypus. No mercury could be found in this ventricle by the most diligent search; whence it appears, that the mercury had passed no farther than the extremities of the pulmonary artery, where it had stuck, and occasioned fatal obstructions.—In another dog, which had mercury injected into the jugular, it appears to have passed the pulmonary artery, as part of it was found in the cavity of the abdomen, and part also in some other cavities of the body. All the glandules were very turgid and full of liquor, especially in the ventricles of the brain, and all round there was a great quantity of serum.

In like manner, oil of olives proves certainly fatal when injected into the blood. Half an ounce of this, injected into the crural vein of a dog, produced no effect in half a quarter of an hour: but after that, the animal barked, cried, looked dejected, and fell into a deep apoplexy; so that his limbs were deprived of all sense and motion, and were flexible any way at pleasure. His respiration continued very strong, with a snorting and wheezing, and a thick humour sometimes mixed with blood flowing out of his mouth. He lost all external sense: the eyes, though they continued open, were not sensible of any objects that were put to them; and even the cornea could be touched and rubbed, without his being the least sensible of it; his eyelids, however, had a convulsive motion. The hearing was quite lost; and in a short time the feeling became so dull, that his claws and ears could be bored with red-hot pincers without his expressing the least sense of pain.

Sometimes.

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Sometimes he was seized with a convulsive motion of the diaphragm and muscles subservient to respiration; upon which he would bark strongly, as if he had been awake: but this waking was only in appearance; for all the time of this barking he continued as insensible as ever. In three hours he died; and on opening his body, the bronchiæ were filled with a thick froth.—An ounce of oil of olives injected into the jugular of another dog killed him in a moment; but a third lived an hour after it. He was seized with great sleepiness, snoring, and wheezing, but did not bark like the first. In all of them a great quantity of thick froth was found in the lungs.

We come now to speak of those poisons which prove mortal (B) when taken by the mouth. The principal of these are, arsenic, corrosive sublimate or muriate of mercury, glass of antimony, and lead. What the effects of these substances are when injected into the blood, cannot be related, as no experiments seem to have been made with them in that way, excepting antimony, whose effects have been already mentioned. The effects of opium, when injected into the veins, seem to be similar to its effects when taken by the mouth. Fifty grains of opium, dissolved in an ounce of water, were injected into the crural vein of a cat. Immediately after the operation she seemed much dejected, but did not cry; only made a low, interrupted, and complaining noise. This was succeeded by trembling of the limbs, convulsive motions of the eyes, ears, lips, and almost all parts of the body, with violent convulsions of the breast. Sometimes she would raise up her head, and seem to look about her; but her eyes were very dull, and looked dead. Though she was let loose, and had nothing tied about her neck, yet her mouth was so filled with froth, that she was almost strangled. At last, her convulsive motions continuing, and being seized with stretching of her limbs, she died in a quarter of an hour. Upon opening the body, the blood was found not to be much altered from its natural state.—A dram and a half of opium was dissolved in an ounce and a half of water, and then injected into the crural vein of a lusty strong dog. He struggled violently; made a loud noise, though his jaws were tied; had a great difficulty of breathing, and palpitation of the heart, with convulsive motions of almost all parts of his body. These symptoms were succeeded by a profound and apoplectic sleep. Having untied him, he lay upon the ground without moving or making any noise, though severely beaten. About half an hour after he began to recover some sense, and would move a little when beaten. The sleepiness still decreased; so that in an hour and a half he would make

a noise and walk a little when beat. However, he died in four days, after having voided a quantity of fetid excrements, in colour resembling the diluted opium he had swallowed.

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The oil of tobacco has generally been reckoned a very violent poison when introduced into the blood; but from the abbé Fontana's experiments, it appears to be far inferior in strength to the poison of tiguas, or to the bite of a viper. A drop of oil of tobacco was put into a small incision in the right thigh of a pigeon, and in two minutes the animal could not stand on its right foot. The same experiment was repeated on another pigeon, and produced exactly the same effect. In another case, the oil was applied to a slight wound in the breast; three minutes after which, the animal could not stand on the left foot. This experiment was also repeated a second time, with the same success. A tooth-pick, steeped in oil of tobacco, and introduced into the muscles of the breast, made the animal fall down in a few seconds as if dead. Applied to two others, they threw up several times all the food they had eaten. Two others treated in the same manner, but with empty stomachs, made many efforts to vomit.—In general, the vomiting was found to be a constant effect of this poison: but the loss of motion in the part to which the poison is applied, was found to be only accidental. None of the animals died by the application of oil of tobacco. Dr Leake however asserts the contrary; saying, that this oil, which is used by the Indians in poisoning arrows, when infused into a fresh wound, besides sickness and vomiting, occasions convulsions and death. See *Practical Essay on Diseases of the Viscera*, p. 67.

The pernicious effects of laurel-water are taken notice of under the article MEDICINE, n^o 261. The account is confirmed by the experiments of the Abbé Fontana; who tells us, that it not only kills in a short time, when taken by the mouth, but that, when given in small doses, the animal writhes so that the head joins the tail, and the vertebræ arch out in such a manner as to strike with horror every one who sees it. In order to ascertain the effects of this water when taken into the blood, our author opened the skin of the lower belly of a pretty large rabbit, and made a wound in it about an inch long; and having slightly wounded the muscles under it in many parts, applied two or three tea spoonfuls of laurel-water. The animal fell down convulsed in less than three minutes, and died soon after. The experiment was repeated with similar success in other animals: but was always found to act most powerfully, and in the shortest time, when taken by the mouth, or injected

* See Leake's *Practical Treatise on Diseases of the Viscera*.

(B) Of all poisons * those which may be called culinary are perhaps the most destructive, because they are generally the least suspected. † All copper vessels, therefore, and vessels of bell-metal, which contains copper, should be laid aside. Even the common earthen-ware, when they contain acids, as in pickling, become very pernicious, as they are glazed with lead, which in the smallest quantity when dissolved is very fatal; and even tin, the least exceptionable of the metals for culinary purposes except iron, is not always quite free of poisonous qualities, it having been found to contain a small portion of arsenic. Mushrooms and the common laurel are also very fatal. The bitter almond contains a poison, and its antidote likewise. The cordial dram *ratafia*, much used in France, is a slow poison, its flavour being procured from the kernels of peach, black cherry stones, &c.—The spirit of *lauro-cerasus* is peculiarly fatal. The adulteration of bread, beer, wine, porter, &c. produces very fatal consequences, and merits exemplary punishment. Next to culinary poisons, the abuse of medicines deserves particular attention.

† See *Poison of Copper*.

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injected by way of clyster. From these experiments, however, he concluded, that laurel-water would kill by being injected into the blood: but in this he was deceived; for two rabbits had each of them a large teaspoonful injected into the jugular vein, without any inconvenience, either at the time of injection or afterwards. It proved innocent also when applied to the bare nerves, and even when introduced into the medullary substance.

We ought now to give some account of the proper antidotes for each kind of poison; but from what has been related concerning the extreme activity of some of them, it is evident that in many cases there can be but very little hope. People are most apt to be bit by serpents in the legs or hands; and as the poison, from the Abbé Fontana's experiments, appears to act only in consequence of being absorbed into the blood, it is plain, that to prevent this absorption is the chief indication of cure. We have recommended several methods for this purpose under the article *MEDICINE*, n^o 408.; but the Abbé Fontana proposes another not mentioned there, namely, ligature. This, if properly applied between the wounded part and the heart, must certainly prevent the bad effects of the poison: but then it tends to produce a disease almost equally fatal; namely, a gangrene of the part; and our author gives instances of animals being thus destroyed after the effects of the poison were prevented; for which reason he prefers amputation. But the good effects of either of these methods, it is evident, must depend greatly on the nature of the part wounded, and the time when the ligature is applied, or the amputation performed. If the teeth of the serpent, or the poisoned arrow, happens to strike a large vein, the only possibility of escaping instant death is to compress the trunk of the vein above the wounded place, and to enlarge the wound, that the blood may flow freely, and in large quantity, in order to wash away the poison, and discharge the infected parts of the blood itself. If this is neglected, and the person falls into the agonies of death, perhaps strongly stimulating medicines given in large doses, and continued for a length of time, may enable nature to counteract the virulence of the poison. For this purpose volatile alkalies seem most proper, as acting soonest, (see *MEDICINE*); and perhaps a combination of them with ether might be advantageous, as by the volatility of that medicine the activity of the alkali would probably be increased. In the Philosophical Transactions, we have an account of the recovery of a dog seemingly by means of the volatile alkali, when probably he was in a dying condition. This dog indeed seems to have had a remarkable strength of constitution. The poor creature had first got two ounces of the juice of nightshade, which he bore without any inconvenience. An equal quantity of the juice of hemlock was then given him without effect. He then got a large dose of the root of wolfsbane with the same success. Two drams of white hellebore root were next given. These caused violent vomitings and purgings, but still he outlived the operation. He was then made to swallow five roots of the colchicum, or meadow-saffron, dug fresh out of the earth. The effect of these was similar to that of the white hellebore, but still he did not die. Lastly, he got two drams of opium; and he even outlived this dose. He was first cast into a deep sleep by it; but soon awaked, and was seized with violent

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vomitings and purgings, which carried off the effect of the opium. Seeing then that the animal had resisted the most violent poisons, it was resolved to try the effects of the bite of a viper; and he was accordingly bit three or four times on the belly a little below the navel by one enraged. The immediate consequence of this was an incipient gangrene in the parts adjoining to the wound, as appeared by the rising of little black bladders filled with a sanious matter, and a livid colour which propagated itself all around. The motion of the heart became very faint and irregular, and the animal lay without strength or sensation, as if he had been seized with a lethargy or apoplexy. In this condition his wound was cupped and scarified, and Venice treacle (a famous antidote) applied to it. In two hours after this all the symptoms were increased, and he seemed to be nearly dead; upon which half a dram of volatile salt of hartshorn mixed with a little broth was poured down his throat; and the consequence was, that in a short time he was able to stand on his feet and walk. Another dose entirely dispelled his lethargy, and the heart began to recover its strength. However, he continued very weak; and though he ate no solid meat for three days, yet at the end of that time his strength was evidently increased. The first day he drank water plentifully and greedily, and on the second day he drank some broth. On the third day he began to eat solid meat, and seemed out of danger; only some large and foul ulcers remained on that part of the belly which was bit, and before these were healed he was killed by another dog.

From comparing this with some other observations, indeed, it would seem that volatile alkali is the best antidote against all poisons which suddenly kill by a mixture with the blood, and even of some others. Indeed, its effects in curing the bite of snakes seems to be put beyond all doubt, by a paper in the 2d volume of the Asiatic Researches, p. 323. "From the effect of a ligature applied between the bitten part and the heart (says Mr Williams, the author of the paper,) it is evident that the poison diffuses itself over the body by the returning venous blood; destroying the irritability, and rendering the system paralytic. It is therefore probable, that the volatile caustic alkali, in resisting the disease of the poison, does not act so much as a specific in destroying its quality, as by counteracting the effect on the system, by stimulating the fibres, and preserving that irritability which it tends to destroy."

But whatever be the mode of its operation, the medicine is unquestionably powerful. Mr Williams used either the volatile caustic alkali, or eau-de-luce; the former of which he seems to have preferred. Of it he gave 60 drops as a dose in water, and of the eau-de-luce he gave 40, at the same time applying some of the medicine to the part bitten, and repeating the dose as he found occasion. Of seven cases, some of which were apparently very desperate, only one died, and that appears to have been occasioned by bad treatment after the cure. Many of the patients were perfectly recovered in seven or eight minutes, and none of them required more than two hours: On the whole, Mr Williams says that he "never knew an instance of the volatile caustic alkali failing in its effect, where the patient has been able to swallow it." Dr Mead asserts, that the alkali counteracts the deadly effects of laurel-water; we have seen its effects in curing the bite of a viper, and of snakes; and from

Poison. from Dr Wolfe's experiments on hydrophobous patients, it may even claim some merit there. Still, however, there is another method of attempting a cure in such deplorable cases; and that is, by injecting into the veins any thing which will not destroy life, but will destroy the effects of the poison. It is much to be regretted, that in those cruel experiments which we have already related, the intention seems almost always to have been to kill the animal at all events; whereas, it ought to have been to preserve him alive, and to ascertain what medicines could be safely injected into the blood, and what could not, with the effects which followed the injection of different quantities, none of which were sufficient to destroy life. But in the way they were managed, scarce any conclusion can be drawn from them. Indeed it appears that little good is to be expected from this mode; it is mere speculation, and future experiments must show whether it ever shall be used for the cure of poisons, or for any other purposes: its being now totally laid aside, seems to militate strongly against the efficacy of it; besides, the extreme cruelty of the operation will ever be a strong bar to its general introduction. See INJECTION.

There still remains another method of cure in desperate cases, when there is a certainty that the whole mass of blood is infected; and that is, by the bold attempt of changing the whole diseased fluid for the blood of a sound animal. Experiments of this kind have also been tried; and the method of making them, together with the consequences of such as are recorded in the Philosophical Transactions, we shall notice under the article TRANSFUSION.

Dr Mead, finding that many pretenders to philosophy have called the goodness of the Creator in question, for having created substances whose manifest and obvious qualities are noxious and destructive, remarks, by way of answer, that they have also salutary virtues. But, besides their physical effects, they are likewise food for animals which afford us good nourishment, goats and quails being fattened by hellebore, starlings by hemlock, and hogs innocently eating henbane; besides, some of those vegetables, which were formerly thought poisonous, are now used in medicine, and future discoveries may probably increase the number. The poison of many vegetables is their only defence against the ravages of animals; and by means of them we are often enabled to defend useful plants from the destroying insect; such as by sprinkling them with essential oil of turpentine; and by means of some substances poisonous to them, we are enabled to destroy those insects which infest the human body, and the bodies of domestic animals, &c.—As for poisonous minerals, arsenic for example, Dr Mead observes, that it is not a perfect mineral, but only an active substance, made use of by nature in preparing several metals in the earth, which are of great service to mankind; and, after confirming this by several instances, he concludes by saying, the case will be found much the same in all natural productions of this kind. As for poisonous animals, &c. their noxious qualities may easily be accounted for, by reflecting that it is their only mode of self-defence.

POISON of Copper. This metal, though when in an undissolved state it produces no sensible effects, becomes exceedingly active when dissolved; and such is the facility with which the solution is effected, that it becomes

Poison. a matter of some consequence to prevent the metal from being taken into the human body even in its proper form. It doth not, however, appear that the poison of copper is equally pernicious with those of arsenic or lead; much less with some others treated of in the last article. The reason of this is, that it excites vomiting so speedily as to be expelled, even though taken in considerable quantity, before it has time to corrode the stomach. Roman vitriol, which is a solution of copper in the vitriolic acid, has been used as a medicine in some diseases with great success. Verdigrise also, which is another very active preparation of the metal, has been by some physicians prescribed as an emetic, especially in cases where other poisons had been swallowed, in order to procure the most speedy evacuation of them by vomit. Where copper is not used with this view, it has been employed as a tonic and antispasmodic, with which it has been admitted into the Edinburgh Dispensatory under the title of *Cuprum Ammoniacale*. The effects of the metal, however, when taken in a pretty large quantity, and in a dissolved state, or when the stomach abounds with acid juices sufficient to dissolve it, are very disagreeable and even dangerous; as it occasions violent vomitings, pains in the stomach, faintings, and sometimes convulsions and death. The only cure for these symptoms is to expel the poison by vomiting as soon as possible, and to obtund its acrimony; for which purpose drinking warm milk will probably be found the most efficacious remedy. In order to prevent the entrance of the poison into the body, no copper vessels should be used in preparing food but such as are either well tinned or kept exceedingly clean. The practice of giving a fine blue or green colour to pickles, by preparing them in copper vessels, ought not to be tolerated; for Dr Falconer, in a treatise on this subject, assures us, that these are sometimes so strongly impregnated by this method of preparing them, that a small quantity of them will produce a slight nausea.—Mortars of brass or bell-metal ought for the same reason to be avoided, as by this means a considerable quantity of the pernicious metal may be mixed with our food, or with medicines. In other cases, an equal caution ought to be used. The custom of keeping pins in the mouth, of giving copper halfpence to children to play with, &c. ought to be avoided; as thus a quantity of the metal may be insensibly taken into the body, after which its effects must be uncertain.—It is proper to observe, however, that copper is much more easily dissolved when cold than when hot; and therefore the greatest care should be taken never to let any thing designed for food, even common water, remain long in copper vessels when cold; for it is observed, that though the confectioners can safely prepare the most acid syrups in clean copper vessels without their receiving any detriment whilst hot, yet if the same syrups are allowed to remain in the vessels till quite cold, they become impregnated with the pernicious qualities of the metal.

To what has now been said relative to the effects of mineral poisons, we shall add an account of some experiments, showing that a mineral poison may produce sudden and violent death, although the noxious matter cannot be detected by chemical tests in the contents of the stomach. As the subject of this investigation is of great importance in many points of view, we shall make no apology for laying the whole detail before our readers without

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without abridgement. The experiments were made by Dr Bostock of Liverpool, and the account of them is given by the author in a letter to the editor of the *Edinburgh Med. and Surg. Journal*, v. 14.

"In compliance with your request, I send you an account of some of the experiments which I made to illustrate the question, which was proposed to me at the late memorable trial at Lancaster, whether it was possible that a mineral poison might produce a sudden and violent death, and yet be afterwards incapable of detection in the contents of the stomach? You have already seen, in the pamphlet that was published by Drs Gerard and Rutter, Mr Hay, and myself, the effect was produced upon dogs by corrosive sublimate. We there relate the result of two experiments, in which it was given to dogs in solution; vomiting, purging, and the symptoms of violent pain ensued, which after some hours were terminated by death. The contents of the stomach, it is there stated, were analysed by me, but none of the sublimate could be detected. In the first experiment, $1\frac{3}{4}$ grains of the salt were given, and in the second 4 grains; this latter being the larger quantity, and also the one in which the process was conducted with the most accuracy, I shall confine myself to relate the circumstances of this alone.

"When the stomach of the dog was opened, a small quantity of water was added to wash out its contents more completely, making the whole somewhat less than one ounce. It was deeply tinged with blood, and I let it remain at rest for 30 hours, in order that the colouring matter might subside from it. It had then acquired a very foetid smell, and not being much clearer than at first, I added to it about an equal quantity of water, and passed it, first through a linen strain, and afterwards through a paper filter. It was now nearly transparent, but slightly tinged with blood.

"A solution of corrosive sublimate was prepared, containing $\frac{1}{4000}$ of its weight of the salt. Into a quantity of this solution the recently prepared muriate of tin was dropped, which produced an immediate and very copious precipitation. Caustic potash also threw down a precipitate, although in small quantity. The same tests were then added to the fluid taken from the stomach, but no effect was produced by the muriate of tin for some hours, when at length it became, in some degree, opaque. The effect here, both as to time and the nature of the appearance, was quite different from the precipitate in the solution of corrosive sublimate, and I considered it as depending upon the action of the muriate of tin upon the mucus. In proof of this, when the stomach fluid had potash added to it, instead of having a precipitate thrown down, it was rendered more transparent than before the experiment. The solution of corrosive sublimate was subjected to the action of galvanism, by having a piece of gold placed in it, clasped by zinc wire; in an hour the gold was obviously whitened by the precipitation of the mercury upon it. The fluid taken from the stomach was submitted to the same process for three hours, but no effect was produced (c). The fluid from the stomach did not exhibit either acid or alkaline properties; it was copiously precipitated

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by the nitrate of silver, shewing that it contained muriatic acid.

"On the following day, a slight brown precipitate had subsided from the stomach fluid, and the whole was become very opaque. The precipitate was dissolved by potash, at the time same that the fluid was rendered more transparent. It was become extremely putrid. The putridity increased: and, in two days more, a scum was formed on the surface, and the sides of the glass were also encrusted with a gray matter. The experiments were performed between the 17th and 22d of August.

"The following experiments were then made on the corrosive sublimate, with every possible attention to accuracy. Two grains of the salt were dissolved in 600 grains of distilled water. This I call solution N^o 1. Ten grains of N^o 1. were then added to 90 grains of water, forming solution N^o 2. in which the fluid would contain $\frac{1}{10000}$ of its weight of the sublimate. Into 10 drops of N^o 2. two drops of the muriate of tin were added, and caused a very obvious precipitate. Ten grains of N^o 2. were added to 90 grains of distilled water, making the fluid to contain $\frac{1}{3000000}$ of its weight of the salt. Into 10 drops of this solution, two drops of the muriate of tin were added, and an immediate gray cloud was perceptible in the fluid, although no precipitate was thrown down. The galvanic process was repeated with the solution N^o 3.; it remained six hours, and I thought I perceived a whiteness on one part of the gold; but it was not very distinctly visible.

"From these experiments, we may draw the following conclusions:—

"1. The fluid taken from the dog's stomach contained muriatic acid, probably in the form of common salt, and animal matter, probably mucus, in considerable quantity.

"2. The tests that were employed to discover the corrosive sublimate, were capable of detecting it in a fluid, when it composed only $\frac{1}{10000000}$ of its weight.

"3. These tests did not detect any corrosive sublimate in the fluid taken from the dog's stomach; it may therefore be concluded,

"4. That an animal may be suddenly killed by receiving a metallic poison into the stomach, and yet that the nicest tests may not be able to detect any portion of the poison after death, in the contents of the stomach.

"This conclusion appears incontrovertible; and though some analogous facts had occasionally been noticed*, it is so different from the generally received

Hoffmännus de Veneni dati Accusatione.

POISON of Lead. See MEDICINE, N^o 303.

POISON-Tree. See RHUS, BOTANY Index.

POISON-Tree of Java, called in the Malayan language *bohun upas*, is a tree which has often been described by naturalists; but its existence has been very generally doubted, and the descriptions given of it, containing much of the marvellous, have been often treated as idle fictions. N. P. Foersch, however, in an account of it, written in Dutch, asserts that it does exist; and

H

tells

(c) This experiment was performed at the suggestion of Dr Wollaston.

Poison.

tells us, that he once doubted it as much as any person ; but, determined not to trust general opinions, he made the most particular inquiries possible ; the result of which was, that he found that it is situated in the island of Java, about 27 leagues from Batavia, 14 from Soura Charta, the emperor's seat, and about 19 from Tinkjoe, the residence of the sultan of Java. It is surrounded on all sides by hills and mountains, and the adjacent country for 12 miles round the tree is totally barren. Our author says he has gone all round the spot at about 18 miles from the centre, and on all sides he found the country equally dreary, which he ascribes to its noxious effluvia. The poison procured from it is a gum, issuing from between the bark and the tree ; and it is brought by malefactors who have been condemned to death, but who are allowed by this alternative to have a chance for their life. An old ecclesiastic, our author informs us, dwelt on the outside of the surrounding hills, whose business it was to prepare the criminals for their fate, if death should be the consequence of their expedition. And indeed so fatal are its effluvia, that he acknowledged that scarcely two out of 20 returned from above 700 whom he had dismissed.

Mr Foersch farther tells us, that he had seen several of the criminals who had returned, and who told him, that the tree stands on the borders of a rivulet, is of a middling size, and that five or six young ones of the same kind stand close to it. They could not however, see any other plant or shrub near it ; and the ground was of brownish sand, full of stones and dead bodies, and difficult to pass. The Malaysans think this tract was thus rendered noxious and uninhabitable by the judgement of God, at Mahomet's desire, on account of the sins of the inhabitants. No animal whatever is ever seen there ; and such as get there by any means never return, but have been brought out dead by such of the criminals as have themselves escaped death.

Our author relates a circumstance which happened in the year 1775, to about 400 families (1600 souls), who refused to pay some duty to the emperor, and who were in consequence declared rebels and banished ; they petitioned for leave to settle in the uncultivated parts round Upas: the consequence of which was, that in less than two months their number was reduced to about 300 souls, who begged to be reconciled to the emperor, and were again received under his protection. Many of these survivors Mr Foersch saw, and they had just the appearance of persons tainted with an infectious disorder.

With the juice of this tree arrows, lancets, and other offensive weapons, are poisoned. With lancets thus poisoned, Mr Foersch observes, that he saw 13 of the emperor's concubines executed for infidelity to his bed in February 1776. They were lanced in the middle of their breasts; in five minutes after which they were seized with a tremor and *subtus tendinum*, and in 15 minutes they were dead. Their bodies were full of livid spots, like those of *petechiæ*, their faces swelled, colour blue, and eyes yellow, &c. Soon after he saw seven Malaysans executed in the same way, and saw the same effects follow ; on which he resolved to try it on other animals, and found the operation similar on three puppies, a cat and, a fowl, none of which survived more than 13 minutes. He also tried its effects

internally on a dog seven months old ; the animal became delirious, was seized with convulsions, and died in half an hour. From all which our author concludes, that it is the most violent of all vegetable poisons, and that it contributes greatly to the unhealthiness of the island in which it grows. By means of it many cruel and treacherous murders are perpetrated. He adds, that there exists a sort of cajoe-upas on the coast of Macassar, the poison of which, though not near so violent or malignant, operates nearly in the same manner.

Most of our readers will probably consider this whole account as highly incredible ; but we have to add, that it has been directly controverted in all its parts in a memoir of Lambert Nolst, M. D. fellow of the Batavian Experimental Society at Rotterdam, (see *Gentleman's Mag.* May 1794, p. 433). This memoir was procured from John Matthew a Rhyn, who had been 23 years, from 1763 to 1786, resident in the island, and therefore had every opportunity of informing himself on the spot. In this memoir we are told, that Foersch's account of the tree is extremely suspicious, from a variety of circumstances: 1. Though he had letters of introduction, he went to no considerable house, and afterwards privately withdrew among the English. 2. When the emperor was asked respecting Foersch, and the facts he relates, he answered, that he had never heard either of him or of the tree. 3. The distances given to mark the situation of the tree are not accurate. 4. The execution of criminals is different from what he represents. 5. The circumstance of several criminals returning when Foersch was there has a suspicious appearance. 6. There exists no such tradition, as that the tree was placed there by Mahomet. 7. There were no such disturbances in 1775 as Foersch represents, the tract to which he alludes having submitted to the Dutch East India Company as early as 1756. 8. The island is not unhealthy, as Foersch asserts ; nor are violent or premature deaths frequent. 9. The Javanese are a curious and intelligent people, and of course could not be so ignorant of this tree if it had any existence. 10. The assertions and pretended facts of Foersch have no collateral evidence ; and every thing which we gather from the accounts of others, or from the history of the people, invalidates them. For these and other reasons, Dr Nolst concludes, that very little credit is due to the representations of Foersch, and that the island of Java produces no such tree, which, if it really grew there, would be the most remarkable of all trees.

We must notice also, that the account of this very remarkable tree has been still farther controverted by Sir George Staunton, who, during his stay at Batavia, made the most particular inquiries concerning it, and found, that the existence of such a tree had never been known there. (*Embassy to China*). The fabulous history of this tree, however, has produced a most beautiful description from the muse of Dr Darwin, whose harmonious verses on the subject we shall present to our readers.

Where seas of glass with gay reflections smile
Round the green coasts of Java's palmy isle,
A spacious plain extends its upland scene,
Rocks rise on rocks, and fountains gush between ;

Soft

Poison.

Poison
||
Poland.

Soft zephyrs blow, eternal summers reign,
And showers prolific bless the soil,—in vain!
—No spicy nutmeg scents the vernal gales,
Nor towering plantain shades the mid-day vales;
No grassy mantle hides the sable hills,
No flowery chaplet crowns the trickling rills;
Nor tufted moss, nor leathery lichen creeps
In russet tapestry o'er the crumbling steep.
—No step retreating, on the sand imprels'd,
Invites the visit of a second guest;
No refluxing fin the unpeopled stream divides,
No revolant pinion cleaves the airy tides;
Nor handed moles, nor beaked worms return,
That mining pass the irremovable bourn.—
Fierce in dread silence on the blasted heath
Fell UPAS sits, the HYDRA-TREE of death.
Lo! from one root, the envenom'd soil below,
A thousand vegetative serpents grow;
In shining rays the scaly monster spreads
O'er ten square leagues his far-diverging heads;
Or in one trunk entwists his tangled form,
Looks o'er the clouds, and hisses in the storm.
Steep'd in fell poison, as his sharp teeth part,
A thousand tongues in quick vibration dart;
Snatch the proud eagle towering o'er the heath,
Or pounce the lion, as he stalks beneath;
Or strew, as marshall'd hoits contend in vain,
With human skeletons the whiten'd plain.
—Chain'd at his root two scion-demons dwell,
Breathe the faint hiss, or try the shriller yell;
Rise fluttering in the air on callow wings,
And aim at insect-prey their little stings.

Loves of the Plants, canto iii.

POLACRE, a ship with three masts, usually navigated in the Levant and other parts of the Mediterranean. These vessels are generally furnished with square sails upon the mainmast, and *lateen* sails upon the foremast and mizenmast. Some of them, however, carry square sails upon all the three masts, particularly those of Provence in France. Each of their masts is commonly formed of one piece, so that they have neither topmast nor top-gallant-mast; neither have they any *horses* to their yards, because the men stand upon the top-sail-yard to loose or furl the top-gallant-sail, and on the lower yard to *reef*, to loose, or furl, the top-sail, whose yard is lowered sufficiently down for that purpose.

POLAND, a country of Europe, in its largest extent bounded by Pomerania, Brandenburg, Silesia, and Moravia, to the west; and, towards the east, by part of Russia and the Lesser Tartary; on the north, it has the Baltic, Russia, the grand province of Livonia, and Samogitia; and on the south, it is bounded by Bessarabia, Transylvania, Moldavia, and Hungary. Geographers generally divide it into the provinces of Poland Proper, Lithuania, Samogitia, Courland, Prussia, Masovia, Polesia, Little Russia, called likewise *Russia Rubra* or *Red Russia*, Podolia, and the Ukraine. Now, however, it is very considerably reduced in extent, as will appear in the course of its history. For a map of Poland, Lithuania, and Prussia, see Pl. CCCCXXXIV.

With regard to the history of Poland, we are not to gather the earlier part of it from any accounts transmitted to us by the natives. The early histories of all na-

tions indeed are involved in fable; but the Poles never had even a fabulous history of their own nation. The reason of this is, that it was not the custom with that nation to entertain itinerant poets for the amusement of the great; for to the songs of these poets entertained among other nations we are obliged for the early part of their history; but this assistance being deficient in Poland, we must have recourse to what is recorded concerning it by the historians of other nations.

The sovereigns of Poland at first had the title of *duces*, Polish sovereigns or generals, as if their office had been only to lead the armies into the field. The first of these is universally allowed to have been Lechus or Lecht; and to render him more illustrious, he is said to have been a lineal descendant from Japhet the son of Noah. According to some writers, he migrated at the head of a numerous body of the descendants of the ancient Sclavi from some of the neighbouring nations; and, to this day, Poland is called by the Tartars the kingdom of *Lechus*. Buching, however, gives a different account of the origin of the Poles. Sarmatia, he observes, was an extensive country, inhabited by a variety of nations of different names. He supposes the Poles to be the descendants of the ancient Lazi, a people who lived in Colchis near the Pontus Euxinus; whence the Poles are sometimes called *Polazi*. Crossing several rivers, they entered Polesania, and settled on the borders of the Warta, while their neighbours the Zechi settled on the Elbe, in the 550th year of Christ. As to the name of *Poland*, or *Polska*, as it is called by the natives, it comes from the Sclavonic word *Pole*, or *Poln*, which signifies a country adapted to hunting, because the whole country was formerly covered with vast forests, exceedingly proper for that employment.

Of the transactions of Lechus during the time that he enjoyed the sovereignty, we have no certain account. His successor was named *Viscimer*, who is generally supposed to have been the nephew of Lechus. He was a warlike and successful prince, subduing many provinces of Denmark, and building the city of Wisnar, so called from the name of the sovereign. But the Danish historians take no notice of his wars with their country; nor do they even mention a prince of this name. However, he is said to have reigned for a long time with great glory; but to have left the people in great distress, on account of the disputes which arose about a successor.

After the death of Viscimer, the nobility were on the point of electing a sovereign, when the people, harassed by the grievous burdens occasioned by the wars of Viscimer, unanimously demanded another form of government, that they might no longer be liable to suffer from ambition and tyranny. At first the nobility pretended to yield to this humour of the people with great reluctance; however, they afterwards determined on such a form of government as threw all the power into their own hands. Twelve palatines, or vaivodes, were chosen; and the Polish dominions divided into as many provinces. These palatines exercised a despotic authority within their several jurisdictions, and aggravated the misery of the people by perpetual wars among themselves; upon which the Poles, worn out with oppression, resolved to return to their old form of government. Many assemblies were held for this purpose; but, by reason of the opposition of the vaivodes, they

Poland.

Polish sovereigns first only styled dukes.

Lechus the first duke.

Derivation of the different names of Poland.

Viscimer the second duke.

Form of government changed into an aristocracy.

Poland.
6
The duke-
dom resto-
red.

came to nothing. At last, however, they cast their eyes upon Cracus, or Gracus, whose wealth and popularity had raised him to the highest honours among his countrymen. The Poles say that he was a native of Poland, and one of the 12 vaivodes; but the Bohemians affirm that he was a native of their country: however, both agree in maintaining, that he was descended from the ancient family of the Gracchi in Rome; who, they say, were banished to this country. He is said to have signalized himself against the Franks, whom he overthrew in some desperate engagements, and afterwards built the city of Cracow with their spoils. He did not enlarge his dominions, but made his subjects happy by many excellent regulations. At last, after a long and glorious reign, he expired, or, according to some, was assassinated by a nobleman who aspired to the crown.

Cracus left three children; Cracus, Lechus, and a daughter named *Vanda*. The first succeeded to the dukedom in virtue of his birthright; but was soon after murdered by his brother Lechus. However, it seems the thoughts of the crime which he had committed so disturbed his conscience, that the secret could not be kept. When it was known that he had been the murderer of his late sovereign, he was deposed with all possible marks of ignominy and contempt, and his sister *Vanda* declared duchess. She was a most beautiful and accomplished lady; and soon after she had been raised to the sovereignty, one *Rithogar*, a Teutonic prince, sent an ambassador demanding her in marriage, and threatening war if his proposals were refused. *Vanda* marched in person against him at the head of a numerous army, and the event proved fatal both to *Rithogar* and herself. The troops of *Rithogar* abandoned him without striking a blow, upon which he killed himself in despair; and *Vanda*, having become enamoured of him, was so much concerned for his death, that she drowned herself in the river *Vistula* or *Wesel*. From this unfortunate lady the country of *Vandalia* takes its name.

7
Again abo-
lished.

The family of Cracus having become extinct by the death of *Vanda*, the Poles were again left at liberty to choose a new sovereign or a new form of government. Through a natural levity, they changed the form of government, and restored the vaivodes notwithstanding all that they had formerly suffered from them. The consequences were the same as before: the vaivodes abused their power; the people were oppressed, and the state was distracted between foreign wars and civil contentions. At that time the Hungarians and Moravians had invaded Poland with a numerous army, and were opposed only by a handful of men almost ready to surrender at discretion, when one *Premislaus*, a private soldier, contrived a stratagem by which the numerous forces of the enemy were overthrown; and for his valour was rewarded with the dukedom. We are ignorant of the other transactions of his reign; but all historians inform us that he died deeply regretted, and without issue; so that the Poles had once more to choose a sovereign.

8
Restored
a second
time.

On the death of *Premislaus* several candidates appeared for the throne; and the Poles determined to prefer him who could overcome all his competitors in a race. A stone pillar was erected near the capital, on which were laid all the ensigns of the ducal authority;

and a herald proclaimed, that he who first arrived at that pillar from a river at some distance, named *Pouderic*, was to enjoy them. A Polish lord named *Lechus* was resolved to secure the victory to himself by a stratagem; for which purpose he caused iron spikes to be driven all over the course, reserving only a path for his own horse. The fraudulent design took effect in part, all the rest of the competitors being dismounted, and some severely hurt by their fall. *Lechus*, in consequence of this victory, was about to be proclaimed duke; when, unluckily for him, a peasant who had found out the artifice opposed the ceremony; and upon an examination of the fact, *Lechus* was torn in pieces, and the ducal authority conferred upon the peasant.

Poland.

The name of the new monarch was also *Lechus*. He attained the sovereignty in the year 774, and conducted himself with great wisdom and moderation. Though he possessed the qualities of a great warrior, and extended his dominions on the side of *Moravia* and *Bohemia*, yet his chief delight was to make his subjects happy by peace. In the decline of life he was obliged to engage in a war with *Charlemagne*, and is said by some to have fallen in battle with that powerful monarch; though others assert that he died a natural death, having lived so long that the springs of life were quite worn out.

Lechus III. was succeeded by his son *Lechus IV.* who inherited all his father's virtues. He suppressed an insurrection in the Polish provinces, by which he acquired great reputation; after which he led his army against the Greek and Italian legions who had overrun *Pannonia*. He gained a complete victory over his enemies. Nor was his valour more conspicuous in the battle than his clemency to the vanquished: for he dismissed all his prisoners without ransom; demanding no other conditions than that they should never again disturb the peace of Poland, or the allies of that kingdom. This duke is said to have been endowed with many virtues, and is charged only with the vice of incontinence. He left 20 natural children, and only one legitimate son, named *Popiel*, to whom he left the sovereignty. *Popiel* was also a virtuous and pacific prince, who never had recourse to arms but through necessity. He removed the seat of government from *Cracow* to *Gnesna*, and was succeeded by his nephew *Popiel II.* a minor.

The young king behaved with propriety as long as he was under the tuition of others; but as soon as he had got the reins of government into his own hands the face of affairs was altered. *Lechus III.* who, as hath been already mentioned, had 20 illegitimate children, had promoted them to the government of different provinces; and they had discharged the duties of their offices in such a manner as showed that they were worthy of the confidence reposed in them. But as soon as *Popiel* came of age, being seduced by the advice of his wife, an artful and ambitious woman, he removed them from their posts, treated them with the utmost contempt, and at last found means to poison them all at once at an entertainment. A dreadful punishment, however, according to the historians of those times, attended his treachery and cruelty. The bodies of the unhappy governors were left unburied; and from them issued a swarm of rats, who pursued *Popiel*, his wife, and children, wherever they went, and at last devoured them. The nation now became a prey to civil discord at the same

same

Poland.
Why the
sovereigns
of Poland
are called
Piaſtes.

same time that it was harassed by a foreign enemy; and, in short, the state seemed to be on the verge of dissolution, when Piaſtus was proclaimed duke in 830, from whom the natives of ducal or regal dignity were called *Piaſtes*. See *PIASTUS*. This excellent monarch died in 861, and was succeeded by his son *Ziemovitus*, who was of a more warlike disposition than his father, and who first introduced regular discipline among the Polish troops. He maintained a respectable army, and took great pains to acquire a perfect knowledge in the art of war. The consequence of this was, that he was victorious in all his battles; and retook from the Germans and Hungarians not only all that they had gained, but enlarged his dominions beyond what they had been. After his death nothing remarkable happened in Poland till the time of *Mieczslaus I.* who attained the ducal authority in 954. He was born blind, and continued so for seven years: after which he recovered his sight without using any medicine; a circumstance so extraordinary, that in those times of ignorance and superstition it was accounted a miracle. In his reign the Christian religion was introduced into Poland. The most probable account of the manner in which Christianity was introduced is, that *Mieczslaus* having by ambassadors made his addresses to *Daborwka* daughter to the duke of Bohemia, the lady rejected his offer unless he would suffer himself to be baptized. To this the duke consented, and was baptized, after having been instructed in the principles of Christianity. He founded the archbishoprics of *Gneſna* and *Cracow*; and appointed *St Adalbert*, sent by the pontiff to propagate Christianity in Poland, primate of the whole kingdom. On the birth of his son *Boleslaus* he redoubled his zeal; founding several bishoprics and monasteries; ordering likewise that, when any part of the Gospel was read, the hearers should half draw their swords, in testimony of their readiness to defend the faith. But he was too superstitious to attend to the duties of a sovereign; and therefore suffered his dominions to be ravaged by his barbarous neighbour the duke of *Russia*. Yet, with all his devotion, he could not obtain the title of king from the pope, though he had warmly solicited it. That title was afterwards conferred on his son, who succeeded to all his dominions.

11
Boleslaus
the first
king of Po-
land.

Boleslaus I. the first king of Poland, surnamed *Chrobry*, succeeded to the sovereignty in 999. He also professed and cherished Christianity, and was a man of great valour and prudence. However, the first transaction of his reign favoured very much of the ridiculous piety of those times. He removed from *Prague* to *Gneſna* the remains of a saint which he had purchased at a considerable price. The emperor *Otho III.* made a pilgrimage, on account of a vow, to the tomb of this saint. He was hospitably received by *Boleslaus*, whom, in return, he invested with the regal dignity; an act which was confirmed by the pope. This new dignity added nothing to the power of *Boleslaus*; though it increased his consequence with his own subjects. He now affected more state than before: his body-guards were considerably augmented; and he was constantly attended by a numerous and splendid retinue whenever he stirred out of his palace. Thus he inspired his people with an idea of his greatness, and consequently of their own importance; which no doubt was necessary for the accomplishment of a design he had formed, namely, an offensive

war with *Russia*: but when he was upon the point of setting out on this expedition, he was prevented by the breaking out of a war with the *Bohemians*. The elevation of *Boleslaus* to the regal dignity had excited the envy of the duke of *Bohemia*, who had solicited the same honour for himself, and had been refused. His jealousy was further excited by the connection between *Boleslaus* and the emperor, the former having married *Rixa* the emperor's niece. Without any provocation, therefore, or without giving the least intimation of his design, the duke of *Bohemia* entered Poland at the head of a numerous army, committing everywhere dreadful ravages. *Boleslaus* immediately marched against him, and the *Bohemians* retired with precipitation. Scarcity of provisions, and the inclemency of the season, prevented *Boleslaus* at that time from pursuing; but as soon as these obstacles were removed, he entered *Bohemia* at the head of a formidable army, with a full resolution of taking ample revenge. The *Bohemians* were altogether unable to resist; neither indeed had they courage to venture a battle, though *Boleslaus* did all in his power to force them to it. So great indeed was the cowardice of the duke or his army, that they suffered *Prague*, the capital of the duchy, to be taken after a siege of two years; having never, during all that time, ventured to relieve it by fighting the Polish army. The taking of this city was quickly followed by the reduction of all the places of inferior note: but though *Boleslaus* was in possession of almost all the fortified places in *Bohemia*, he could not believe his conquests to be complete until he became master of the duke's person. This unfortunate prince had shut himself up with his son in his only remaining fortress of *Wissogrod*, where he imagined that he should be able to foil all the attempts of the Polish monarch. In this, however, he found himself disappointed. *Boleslaus* invested the place, and made his approaches with such rapidity, that the garrison, dreading a general assault, resolved to capitulate, and persisted in their resolution notwithstanding all the entreaties and promises of the duke. The consequence was, that the unhappy prince fell into the hands of his enemies, and had his eyes put out by *Boleslaus*; after which, his son *Jaremir* was put into perpetual and close confinement.

From *Bohemia* *Boleslaus* marched towards *Moravia*; and no sooner did he arrive on the frontier than the whole province submitted without a blow. He then resumed his intention of invading *Russia*; for which he had now a very fair opportunity, by reason of a civil war which raged with violence among the children of *Duke Volodomir*. The chief competitors were *Jarislau* and *Suantepolk*. The latter, having been defeated by his brother, was obliged to take refuge in Poland, where he used all the arguments in his power with *King Boleslaus* in order to induce him to revenge his cause. *Boleslaus* having already an intention of invading that country, needed but little intreaty; and therefore moved towards *Russia* at the head of a very numerous army: giving out, that he had no other design than to revenge the injustice done to *Suantepolk*. He was met on the banks of the river *Bog* by *Jarislau* at the head of an army much superior in number to his own; and for some days the Polish army was kept at bay by the *Russians*. At last *Boleslaus*, growing impatient, resolved to pass the river at all events; and therefore forming his cavalry in the best manner for breaking the torrent, he exposed

12
He con-
quers Bo-
hemia

13
and Mora-
via.

14
Gains a
great vic-
tory over
the Rus-
sians.

¹⁴ Poland. exposed his own person to the utmost of its force. Encouraged by his example, the Poles advanced breast-high in the water to the opposite shore; from whence the enemy gave them all the annoyance in their power. In spite of all opposition, however, the Poles reached the bank, and soon gained a complete victory, Jarislaus being obliged to fly to Kiovia. This city was immediately invested; but Jarislaus retired farther into the country in order to recruit his army, leaving the city to its fate. The garrison made a brave defence, but were at last compelled to surrender at discretion. A vast treasure was found in the place; great part of which was distributed by Boleslaus among the soldiers.

¹⁵ Places
Suantepolk on the throne of Ruffia,

¹⁶ who attempts to cut him off with his whole army, but is defeated.

¹⁷ A dreadful battle between the Ruffians and Poles.

¹⁸ Saxony conquered by Boleslaus,

Though the king of Poland had now become master of the greatest part of Ruffia, he knew that the only possible means of keeping the country in subjection was by placing a natural sovereign over the inhabitants. For this reason he reinstated Suantepolk, though his pretensions were still disputed by Jarislaus. The latter had formed a flying camp, and meditated a scheme of surprising and carrying off his rival brother; but having failed in this attempt, he retired to Novogorod, where the attachment of the inhabitants enabled him to make some resistance, till at last he was attacked and defeated by Boleslaus, which seemed to give the finishing stroke to his affairs. The king of Poland, however, now met with a more dangerous enemy in the perfidious and ungrateful Suantepolk than he had experienced in Jarislaus. The Ruffian prince, imagining himself a dependent on Boleslaus, formed a conspiracy against him; by which he projected nothing less than the destruction of him and his whole army. The massacre was already begun when Boleslaus received intelligence. The urgency of the case admitted of no delay: the king therefore mounted his horse; and having with the utmost haste assembled part of his army, fell upon the traitors with such fury, that they were obliged to betake themselves to flight, and Boleslaus got safe into Poland. But in the mean time Jarislaus having assembled fresh forces, pursued the Polish army; and having come up with them just as one half had crossed the river Boristhenes, attacked them with the utmost fury. Boleslaus defended himself with the greatest resolution; but, by reason of his forces being divided, victory was dubious for a long time. At last, when the army had wholly crossed, the Ruffians were entirely put to the rout, and a terrible carnage ensued. The victory, however, though complete, was not decisive; for which reason Boleslaus thought proper to continue his retreat, without attempting to conquer a country too extensive for him ever to keep in subjection. Still, however, his martial inclination continued, and he led his army into Saxony. The inhabitants of this country had hitherto resisted all attempts that had been made on their freedom, and still made a violent struggle for liberty; though, in spite of their utmost efforts, they were obliged at last to submit to the yoke. On his withdrawing the troops from Saxony, however, the king thought proper to leave the people to their liberty, contenting himself with a rich booty. The boundaries of his empire he now fixed at the river Elbe; where he erected two iron columns, in order to transmit the memory of his conquest to posterity.

Boleslaus, still unsated with victory, now meditated

the conquest of Prussia and Pomerania; the latter of which provinces had, in the former civil wars, been dismembered from Poland. His arms were attended with equal success against both: indeed the very terror of his name seemed to answer all the purposes of a formidable army. These, however, he seems to have designed to be the last of his warlike enterprises; for he now applied himself wholly to the enacting of wholesome laws for the benefit of his people. But in the midst of this tranquillity Jarislaus assembled the most numerous army that had ever been heard of in Ruffia, with which he appeared on the frontiers of Poland. Boleslaus, though now advanced in years, marched out against his adversaries, and met them on the banks of the Boristhenes, rendered famous by the victory he had lately gained there. The Poles crossed the river by swimming; and attacked the enemy before they had time to draw up in order of battle with such impetuosity, that a total rout soon ensued. The Ruffians were seized with a panic, and Jarislaus was hurried away, and almost trampled to death by the fugitives. Many thousand prisoners were taken, but Boleslaus released them upon very easy conditions; contenting himself with an inconsiderable tribute, and endeavouring to engage the affections of the people by his kindness. This well-timed clemency produced such a happy effect, that the Ruffians voluntarily submitted to his jurisdiction, and again became his subjects. Soon after this he died in the year 1025, after having greatly extended his dominions, and rendered his subjects happy.

Boleslaus was succeeded by his son Mieczslaus II. but he possessed none of the great qualities of his father, being indolent and debauched in his behaviour. In the very beginning of his reign, the Ruffians, Bohemians, and Moravians, revolted. However, as the spirit and discipline introduced by Boleslaus still remained in the Polish army, Mieczslaus found no great difficulty in reducing them again to obedience: after which, devoting himself entirely to voluptuousness, he was seized with a frenzy, which put an end to his life in the year 1034. The bad qualities of this prince proved very detrimental to the interest of his son Casimir; though the latter had received an excellent education, and was possessed of many virtues. Instead of electing him king, they chose Rixa his mother queen-regent. She proved tyrannical, and so partial to her countrymen the Germans, that a rebellion ensued, and she was forced to fly to Germany; where she obtained the protection of the emperor by means of the immense treasures of Boleslaus, which she had caused to be transported thither before her. Her bad behaviour and expulsion proved still more fatal to the affairs of Casimir than even that of his father. He was immediately driven out of the kingdom; and a civil war taking place, a great many pretenders to the crown appeared at once. To the miseries occasioned by this were added those of a foreign war; for the Bohemians and Ruffians invaded the kingdom in different places, committing the most dreadful ravages. The consequence of these accumulated distresses was, that the nobility came at last to the resolution of recalling Casimir, and electing him sovereign. However, before they took this measure, it was thought proper to send to Rome to complain of the behaviour of the duke of Bohemia. The deputies were at first received favourably: but

Poland.
¹⁹ with Prussia and Pomerania.

²⁰ Gains another great victory over the Ruffians, on which the whole country submits.

²¹ Soon after this he died.

²² Rixa, a tyrannical regent, driven out with her son Casimir

²³ Poland distressed by foreign and domestic wars.

Poland. but the influence of the duke's gold prevailing, no redress was obtained; so that at last, without farther struggle, it was resolved to recal Casimir.

²⁴ Casimir recalled and elected king. The only difficulty was where to find the fugitive prince; for he had been gone five years from the kingdom, and nobody knew the place of his retreat. At last, by sending an embassy to his mother, it was found out that he had retired into France, where he applied closely to study at the university of Paris. Afterwards he went to Italy; where, for the sake of subsistence, he took upon him the monastic habit. At that time he had returned to France, and obtained some preferment in the abbey of Clugni. Nothing now obstructed the prince's return but the sacred function with which he was invested. However, a dispensation was obtained from the pope, by which he was released from his ecclesiastical engagements, on condition that he and all the kingdom should become subject to the capitation tax called *Peter-pence*. Some other conditions of less consequence were added; such as, that the Poles should shave their heads and beards, and wear a white linen robe at festivals, like other professors of the Catholic religion. Great preparations were made for the reception of the young prince: and he was met on the frontier by the nobility, clergy, and forces of the nation; by whom he was conducted to Gnesna, and crowned by the primate with more than usual solemnity. He proved a virtuous and pacific prince, as indeed the distracted situation of the kingdom would not admit of the carrying on of wars. However, Casimir proved his courage in subduing the banditti by which the country was overrun; and by marrying the princess Mary, sister to the duke of Russia, all quarrels with that nation were for the present extinguished. Upon the whole, the kingdom flourished during his reign; and became more respectable from the wisdom and stability of the administration than it could have been by many victories. After a happy reign of 16 years, he died beloved and regretted by all his subjects.

²⁵ Poland subjected to the tax called *Peter-pence*. By the happy administration of Casimir the kingdom recovered sufficient strength to carry on successful wars against its foreign enemies. Boleslaus II. the son of Casimir, an enterprising and valiant prince, succeeded to the throne; and soon made himself so famous, that three unfortunate princes all took refuge at his court at once, having been expelled from their own dominions by their rebellious subjects. These were, Jacimir, son of Briteslaus duke of Bohemia; Bela, brother to the king of Hungary; and Zaslus duke of Kiovia, eldest son to Jarislaus duke of Russia, and cousin to the king of Poland. Boleslaus determined to redress all their grievances; but while he deliberated upon the most proper means for so doing, the duke of Bohemia, dreading the consequence of Jacimir's escape, assembled an army, and, without any declaration of war, marched through the Hercynian forest, desolated Silesia, and laid waste the frontiers of Poland with fire and sword. Boleslaus marched against him with a force greatly inferior; and, by mere dint of superior capacity, cooped up his adversary in a wood, where he reduced him to the greatest distress. In this extremity the duke sent proposals for accommodation; but they were rejected with disdain by Boleslaus; upon which the former, ordering fires to be kindled in his camp, as if he designed to continue there, removed with the utmost silence in the night-time; and

marching through narrow defiles, had advanced several leagues before Boleslaus received advice of his retreat. The king pursued him, but in vain; for which reason he returned, after having ravaged the frontiers of Moravia. The next year he entered Bohemia with a numerous army; but the duke, being unwilling to encounter such a formidable adversary, submitted to such terms as Boleslaus thought proper to impose. In these the king of Poland stipulated for certain conditions in favour of Jacimir, which he took care to see punctually executed; after which he determined to march towards Hungary, to assist the fugitive prince Bela.

²⁶ Boleslaus II. a valiant and successful prince. This prince had been for some time solicited by a party of disaffected nobility to return, as his brother, the reigning king, had alienated the hearts of his subjects by his tyrannical behaviour: as soon therefore as Boleslaus had finished the war in Bohemia, he was solicited by Bela to embrace so favourable an opportunity, and put him in possession of the kingdom of Hungary. This the king readily complied with, as being agreeable to his own inclinations; and both princes entered Hungary by different routes, each at the head of a numerous body. The king of that country, however, was not disconcerted by such a formidable invasion; and being largely assisted by the emperor, advanced against his antagonists with a vast army; among whom was a numerous body of Bohemians, who had come to his assistance, though in direct violation of the treaty subsisting between the duke and the king of Poland. At last a decisive battle was fought, in which the Germans behaved with the greatest valour, but were entirely defeated through the treachery of the Hungarians, who in the heat of the battle deserted and went over to Bela. Almost all the foreign auxiliaries were killed on the spot; the king himself was seized, and treated with such insolence by his perfidious subjects, that he died in a short time of a broken heart; so that Bela was placed on the throne without further opposition, except from a revolt of the peasants, which was soon quelled by the Polish army.

²⁷ Entertains three unfortunate princes. Boleslaus, having succeeded so happily in these two enterprises, began to look upon himself as invincible; and, instead of designing only to assist Zaslus, as he had first intended, now projected no less than the subjection of the whole country. He had indeed a claim to the sovereignty by virtue of his descent from Mary, queen of Poland, sister to Jarislaus; and this he endeavoured to strengthen by marrying a Russian princess himself. Having therefore assembled a very numerous and well-disciplined army, he entered the duchy of Kiovia, where he was opposed by Wisselaus, who had usurped the sovereignty, with a vast multitude of forces. Boleslaus, however, continued to advance; and the Russian prince being intimidated by the number and good order of his enemies, deserted his own troops, and fled away privately with a slender retinue; upon which his force dispersed themselves for want of a leader. The inhabitants of the city of Kiovia now called to their assistance Suantoslaus and Wszevold two brothers of Wisselaus; but these princes acting the part of mediators, procured pardon for the inhabitants from Zaslus their natural sovereign. With the same facility the two princes recovered all the other dominions belonging to Zaslus; only one city venturing to stand a siege, and that was soon reduced. But in the mean time the king

Poland.

²⁸ and to Bela prince of Hungary.

²⁹ He projects the conquest of Russia.

³⁰ Meets with surprising success.

of

Poland. of Hungary dying, a revolt ensued, and the two sons of Bela were on the point of being deprived of their paternal dominions. This Boleslaus no sooner heard of than he marched directly into Hungary; where by the terror of his name only, he re-established tranquillity, and confirmed the princes in the enjoyment of their kingdom. In the time that this was doing, Zaslus was again driven from his territories, all the conquests that had been formerly made were lost, and Suantoslav and Wfzevold more powerful than ever. The king's vigour, however, soon disconcerted all their measures. He ravaged all those territories which composed the palatinates of Lufac and Chelm, reduced the strong city of Wolyn, and transported the booty to Poland. The campaign was finished by a battle with Wfzevold; which proved so bloody, that though Boleslaus was victorious, his army was weakened in such a manner that he could not pursue his conquests. In the winter he made numerous levies; and returning in the spring to Kiovia, reduced it, after several desperate attacks, by famine. On this occasion, instead of treating the inhabitants with cruelty, he commended their valour, and strictly prohibited his troops from pillaging or insulting them; distributing provisions among them with the utmost liberality.

³²
Reduces Kiovia, but enervates himself there.

³³
Universal defection of the Polish women.

³⁴
A terrible civil war ensues.

This clemency procured the highest honour to the king of Poland; but his stay here produced a most terrible disaster. Kiovia was the most dissolute, as well as the richest city, in the north; the king and all his soldiers gave themselves up to the pleasures of the place. Boleslaus himself affected all the imperious state of an eastern monarch, and contracted an inclination for the grossest debaucheries. The consequence had almost proved fatal to Poland. The Hungarian and Russian wars had continued for seven years, during all which time the king had never been at home excepting once for the short space of three months. In the mean time the Polish women, exasperated at hearing that their husbands had neglected them and connected themselves with the women of Kiovia, raised their slaves to the beds of their masters; and in short the whole sex conspired in one general scheme of prostitution, in order to be revenged of the infidelity of their husbands, excepting one single woman, namely, *Margaret*, the wife of Count Nicholas of Demboisin, who preserved her fidelity in spite of all sollicitation. Advice of this strange revolution was soon received at Kiovia, where it excited terrible commotions. The soldiers blamed the king for their dishonour; forgetting how much they had to accuse their own conduct in giving their wives such extreme provocation. The effect of these discontents was a general desertion, and Boleslaus saw himself suddenly left almost alone in the heart of Russia; the soldiers having unanimously resolved to return home to take vengeance of their wives and their gallants.

A dreadful kind of war now ensued. The women knew that they were to expect no mercy from their enraged husbands, and therefore persuaded their lovers to take arms in their defence. They themselves fought by the side of their gallants with the utmost fury, and fought out their husbands in the heat of battle, in order to secure themselves from all danger of punishment by their death. They were, however, on the point of being subdued, when Boleslaus arrived with the few remaining Poles, but assisted by a vast army of Russians,

with whom he intended to take equal vengeance on the women, their gallants, and his own soldiers who had deserted him. This produced a carnage more dreadful than ever. The soldiers united with their former wives and their gallants against the common enemy, and fought against Boleslaus and his Russians with the fury of lions. At last, however, the fortune of the king prevailed; the rebels were totally subdued, and the few who escaped the sword were tortured to death, or died in prison.

Poland.

To add to the calamities of this unhappy kingdom, the schisms which for some time had prevailed in the church of Rome found their way also into Poland; and the animosity of parties became aggravated in proportion to the frivolousness of their differences. By perverse accident the matter came at last to be a contention for wealth and power between the king and clergy.

³⁵
Religious contentions.

This soon gave occasion to bloodshed; and the bishop of Cracow was massacred in the cathedral while he was performing the duties of his office. This and some other enormous crimes in a short time brought on the most signal vengeance of the clergy. Gregory VII. the pope at that time, thundered out the most dreadful anathema against the king, released his subjects from their allegiance, deprived him of the titles of sovereignty, and laid the kingdom under a general interdict, which the archbishop of Gnesna saw punctually enforced.

³⁶
Boleslaus deposed by the pope, and the whole kingdom put under an interdict.

To this terrible sentence Boleslaus in vain opposed his authority, and recalled the spirit which had formerly rendered him so formidable to the neighbouring states. The minds of the people were blinded by superstition, so that they deemed it a less heinous crime to rise in rebellion against their sovereign than to oppose the tyranny of the holy see. Conspiracies were daily formed against the person and government of Boleslaus. The whole kingdom became a scene of confusion, so that the king could no longer continue with safety in his own dominions. He fled therefore with his son Miecslaus, and took refuge in Hungary; but here also the holy vengeance of the clergy pursued him, nor did they cease persecuting him till he was brought to a miserable end. Authors differ widely with respect to the manner of his death. Some say that he was murdered by the clergy as he was hunting; others, that he killed himself in a fit of despair; and one author tells us, that he wandered about in the woods of Hungary, lived like a savage upon wild beasts, and was at last killed and devoured by dogs. The greatest number, however, tell us, that being driven from place to place by the persecutions of the clergy, he was at last obliged to become a cook in a monastery at Carinthia, in which mean occupation he ended his days.

³⁷
The king's extreme distress and death.

The destruction of Boleslaus was not sufficient to allay the papal resentment. It extended to the whole kingdom of Poland. Miecslaus, the son of Boleslaus, was not suffered to ascend the throne; and the kingdom continued under the most severe interdict, which could be removed only by the force of gold, and the most abject concessions. Besides the tax called *Peter-pence*, new impositions were added of the most oppressive nature; till at length the pontiff, having fatiated his avarice, and impoverished the country, consented that the brother of the deceased monarch should be raised to the sovereignty, but only with the title of duke. This prince, named *Uladislaus*, being of a meek disposition, with little ambition, thought it his duty to acquiesce implicitly

³⁸
The interdict removed at the expense of grievous impositions.

Poland.
39
Uladislaus becomes sovereign, but is allowed only the title of duke.

implicitly in the will of the pope; and therefore accepted the terms offered, sending at the same time an embassy to Rome, earnestly intreating the removal of the interdiction. The request was granted; but all his endeavours to recover the regal dignity proved fruitless, the pope having, in conjunction with the emperor of Germany, conferred that honour on the duke of Bohemia. This was extremely mortifying to Uladislaus, but it was absorbed in considerations of the utmost consequence to himself and his dominions. Russia took the opportunity of the late civil disturbances to throw off the yoke; and this revolt drew after it the revolt of Prussia, Pomerania, and other provinces. The smaller provinces, however, were soon reduced; but the duke had no sooner returned to Poland, than they again rebelled, and hid their families in impenetrable forests. Uladislaus marched against them with a considerable army; but was entirely defeated, and obliged to return back with disgrace. Next year, however, he had better fortune; and, having led against them a more numerous army than before, they were content to submit and deliver up the ringleaders of the revolt to be punished as the duke thought proper.

No sooner were the Pomeranians reduced, than civil dissensions took place. Sbigneus, the son of Uladislaus by a concubine, was placed at the head of an army by the discontented nobility, in order to subvert his father's government, and dispute the title of Boleslaus, the legitimate son of Uladislaus, to the succession. The war was terminated by the defeat and captivity of Sbigneus; who was at first confined, but afterwards released on condition that he should join his father in punishing the palatine of Cracow. But before this could be done, the palatine found means to effect a reconciliation with the duke; with which the young princes being displeased, a war took place between them and their father. The end of all was, that the palatine of Cracow was banished, and the princes submitted; after which, Uladislaus, having chastised the Prussians and Pomeranians who had again revolted, died in the year 1103, the 59th of his age.

40
Boleslaus III. divides his dominions betwixt Sbigneus his illegitimate brother and himself.

41
A civil war.

42
Generosity of Boleslaus, and ingratitude of Sbigneus,

Uladislaus was succeeded by his son Boleslaus III. who divided his dominions equally betwixt his brother Sbigneus and himself. The former being dissatisfied with his share, raised cabals against his brother. A civil war was for some time prevented by the good offices of the primates: but at last Sbigneus, having privately stirred up the Bohemians, Saxons, and Moravians, against his brother, made such formidable preparations as threatened the conquest of all Poland. Boleslaus, being unprovided with forces to oppose such a formidable power, had recourse to the Russians and Hungarians; who readily embraced his cause, in expectation of turning it to their own advantage. The event was, that Sbigneus was entirely defeated; and might easily have been obliged to surrender himself at discretion, had not Boleslaus generously left him in quiet possession of the duchy of Mazovia, in order to maintain himself suitably to the dignity of his birth. This kindness the ungrateful Sbigneus repaid by entering into another conspiracy; but the plot being discovered, he was seized, banished, and declared a traitor if ever he set foot again in Poland. Even this severity did not produce the desired effect: Sbigneus persuaded the Pomeranians to arm in his behalf; but he was defeated, taken prisoner, and again banished. Almost all the nobility solicited the king to put such an ungrateful traitor to death; however, that generous prince could

not think of polluting his hands with the death of his brother, notwithstanding all he had yet done. Nay, he even took him back to Poland, and appointed him a maintenance suitable to his rank: but he soon had reason to repent of his kindness; for his unnatural brother in a short time began to raise fresh disturbances, in consequence of which he soon met with the death which he deserved.

Poland.
43
who is at last put to death.

Boleslaus was scarcely freed from the intrigues of his brother, when he found himself in greater danger than ever from the ambition of the emperor Henry IV. The emperor had attacked the king of Hungary, with whom Boleslaus was in close alliance, and from whom he had received assistance when in great distress himself. The king of Poland determined to assist his friend; and therefore made a powerful diversion in Bohemia, where he repeatedly defeated the Imperialists: upon which, the emperor collecting all his forces, ravaged Silesia, and even entered Poland, where he laid siege to the strong town of Lubusz; but was at last obliged to abandon the enterprise, after having sustained much loss. However, Henry was not discouraged, but penetrated still farther into Poland, and was laying waste all before him, when the superior skill of Boleslaus compelled him to retire, after having almost destroyed his army with fatigue and famine, without once coming to action. Enraged at this disappointment, Henry laid siege to Glogaw, in hopes of drawing the Poles to an engagement before he should be obliged to evacuate the country. The fortifications of the place were weak; but the spirit of the inhabitants supplied their deficiencies, and they gave the Imperialists a most unexpected and vigorous reception. At last, however, they were on the point of surrendering to superior force; and actually agreed to give up the place, provided they did not receive any succours during that time. Boleslaus determined, however, not to let such a brave garrison fall a sacrifice to their loyalty; and therefore prevailed on the besieged to break the capitulation rather than surrender when they were on the point of being delivered. All this was transacted with the utmost secrecy; so that the emperor advanced, without thoughts of meeting with any resistance, to take possession of the city; but, being received by a furious discharge of arrows and javelins, he was so incensed, that he resolved to storm the place, and give no quarter. On the approach of the army, the Imperialists were astonished to see not only the breaches filled up, but new walls, secured by a wet ditch, reared behind the old, and erected during the suspension of hostilities by the industry of the besieged. The attack, however, went on; but the inhabitants, animated by despair, defended themselves with incredible valour, and at last obliged the Imperialists to break up the siege with precipitation. Next day Boleslaus arrived, and pursued the emperor with such vigour, that he obliged him to fly with disgrace into his own country. This soon brought on a peace, which was confirmed by a marriage between Boleslaus and the emperor's sister.

44
War with the emperor Henry IV.

45
who is worsted.

Hitherto the glory of Boleslaus had equalled, or even eclipsed, that of his namesake and predecessor Boleslaus the Great; but about the year 1135 he was brought into difficulties and disgrace by his own credulity. He was imposed upon by an artful story patched up by a certain Hungarian; who insinuated himself so far into his affections, that he gave him the government of Wi-

46
Boleslaus brought into difficulties by his own credulity and generosity.

^{Poland} *Sica*, a strong town on the river Nida. But the traitor gave up the place to the Russians, who pillaged and burnt it; carrying the inhabitants at the same time into slavery. Boleslaus was incensed, and entered immediately upon a war with Russia, by which means he only heaped one calamity upon another. He received a deputation from the inhabitants of Halitz, to implore his assistance in favour of a young prince, who had been banished into Poland. Boleslaus marched to their relief with a choice body of troops; but as he was preparing to enter the town, he was attacked by the whole Russian army, and, after a most violent conflict, entirely defeated. By this disgrace the duke was so much afflicted, that he died in a short time, after having reigned 36 years.

47
Poland divided among the children of Boleslaus.

Boleslaus, by his will, left his dominions equally divided among his four sons. Uladislaus, the eldest, had the provinces of Cracow, Sirad, Lencici, Silesia, and Pomerania. Boleslaus, the second son, had for his share the palatinates of Culm and Cujavia, with the duchy of Mazovia. The palatinates of Kaleszh and Posnania fell to Mieczslaus the third son; and to Henry, the fourth son, were assigned those of Lublin and Sandomir. Casimir the youngest child, then an infant in the cradle, was entirely forgotten, and no provision made for him. There have been but very few instances where dominions were thus divided, that the princes remained satisfied with their respective shares; neither did the sons of Boleslaus long continue at peace with one another. By the will of the late duke, all the brothers were obliged to own the supremacy of Uladislaus, who was declared duke of all Poland: they were restrained from forming alliances, declaring war, or concluding peace, without his approbation: they were obliged to take the field with a certain number of troops, whenever the duke required it; and they were forbid to meddle with the guardianship of the infant prince Casimir, his education being left entirely to the sovereign. The harmony of the princes was first disturbed by the ambition of Christina, the wife of Uladislaus, who formed a scheme to get possession of all Poland, and deprive the younger children of the benefit of their father's will. Having obtained her husband's concurrence, she assembled the states of Poland, and made a long speech, showing the dangers which might arise from a partition of the ducal dominions among so many; and concluded with attempting to show the necessity of revoking the ratification of the late duke's will, in order to ensure the obedience of the princes and the tranquillity of the republic. Many of the nobility expressed their resentment against this speech, and fully refused every article in it; but they were all afterwards gained over, or intimidated by Uladislaus; so that none appeared to take the part of the young princes except a noble Dane, who lost his life for so doing.

49
Uladislaus drives out all the rest,

Uladislaus now having got the nobility on his side, first drove Boleslaus out of his territories; next, he marched against Henry, and dispossessed him also, forcing both to take refuge with Mieczslaus in Posnania, where all the three brothers were besieged. Several of the nobility interposed, and used all their influence to effect a reconciliation, but in vain; for Uladislaus was as inexorable as if he had received an injury; and therefore insisted that the besieged princes should surrender at discretion, and submit to the will of the conqueror.

Thus driven to despair, the brothers sallied out, and attacked the duke's army with such impetuosity, that they obtained a complete victory, and took all his baggage and valuable effects. The brothers improved their victory, and laid siege to Cracow. The Russians, who had assisted Uladislaus at first, now entirely abandoned him, and evacuated Poland, which obliged him to shut himself up in Cracow; but, finding the inhabitants little disposed to stand a siege, he retired into Germany in order to solicit assistance from his wife's friends. But here he found himself mistaken, and that these friends were attached to him only in his prosperity; while in the mean time the city of Cracow surrendered, the unfortunate Uladislaus was formally deposed, and his brother Boleslaus raised to the supreme authority.

50
and is deposed.

The new duke began his administration with an act of generosity to his brother Uladislaus, to whom he gave the duchy of Silesia, which thus was separated from Poland, and has never since been re-annexed to it. This had no other effect upon Uladislaus than the putting him in a condition to raise fresh disturbances; for he now found means to persuade the emperor Conrade to invade Poland: but Boleslaus so harassed and fatigued his army by perpetual marches, ambuscades, and skirmishes, that he was obliged in a short time to return to his own country; and for some years Poland enjoyed profound tranquillity.

During this interval Henry entered on a crusade; and, though he lost almost all his army in that enthusiastic undertaking, he is celebrated by the superstitious writers of that age, as the bulwark of the church, and one of the greatest Christian heroes: however, in all probability, the reason of this extraordinary fame is, that he made large donations to the knights of St John of Jerusalem. Soon after the return of Henry, Poland was invaded by the emperor Frederic Barbarossa, who was persuaded to this by the solicitations of Uladislaus and his wife Christina. The number of the Imperialists was so great, that Boleslaus and his brothers did not think proper to oppose them in the field; they contented themselves with cutting off the convoys, placing ambuscades, harassing them on their march, and keeping them in perpetual alarms by false attacks and skirmishes. With this view the three brothers divided their forces, desolated the country before the enemy, and burnt all the towns and cities which were in no condition to stand a siege. Thus the emperor, advancing into the heart of a desolated country where he could not subsist, was at last reduced to such a situation that he could neither go forward nor retreat, and was obliged to solicit a conference with Boleslaus. The latter was too prudent to irritate him by an unseasonable haughtiness, and therefore went to the German camp attended only by his brothers and a slight guard. This instance of confidence was so agreeable to the emperor, that a treaty was soon entered upon, which was confirmed by a marriage between Adelaide, niece to the emperor, and Mieczslaus duke of Posnania.

51
Poland invaded by the emperor Barbarossa,

Boleslaus having thus happily escaped from so great a danger, took it into his head to attempt the conquest of Prussia, for no other reason but because the inhabitants were heathens. Having unexpectedly invaded the country with a very numerous army, he succeeded in his enterprise; great numbers of infidels were converted, and many churches set up: but no sooner was Boleslaus gone,

52
who is obliged to sue for peace.

^{Poland.} gone, than the inhabitants returned to their old religion. Upon this Boleslaus again came against them with a formidable power; but, being betrayed by some Prussians whom he had taken into his service and raised to posts of honour, his army was led into defiles and almost entirely cut off, duke Henry was killed, and Boleslaus and Mieczslaus escaped with great difficulty.

⁵³
^{A civil war.} This misfortune was quickly followed by another; for now the children of Uladislaus laid claim to all the Polish dominions which had been possessed by their father, most of which had been bestowed upon young Casimir. They were supported in their pretensions by a great number of discontented Poles, and a considerable body of German auxiliaries. Boleslaus, finding himself unable to withstand his enemies by force, had recourse to negotiation, by which means he gained time to recruit his army and repair his losses. An assembly of the states was held, before which the duke so fully refuted the claims of the children of Uladislaus, that it was almost unanimously voted that they had kindled an unjust war; and to take away every pretence for renewing the civil discords of Poland, they were a second time invested with the duchy of Silesia, which for the present put an end to all disputes. After this, Boleslaus applied himself to promote, by all means, the happiness of his subjects, till his death, which happened in the year 1174.

On the death of Boleslaus, the states raised his brother Mieczslaus to the ducal throne, on account of the great opinion they had of him. But the moment that Mieczslaus ceased to be a subject, he became a tyrant, and a slave to almost every kind of vice; the consequence of which was, that in a very short time he was deposed, and his brother Casimir elected in his stead.

⁵⁴
^{Casimir, an excellent prince,} Casimir was a prince of the greatest justice and benevolence, inasmuch that he scrupled to accept of the honour which the states had conferred upon him, lest it should be a trespass against the laws of equity. However, this scruple being soon got over, he set himself about securing peace and tranquillity in all parts of his dominions. He redressed all grievances, suppressed exorbitant imposts, and assembled a general diet, in which it was proposed to rescue the peasants from the tyranny of the nobility; an affair of such consequence, that the duke could not enter upon it by his own authority, even though supported by the clergy. Yet it proved less difficult than had been imagined, to persuade the nobility to relinquish certain privileges extremely detrimental to natural right. They were influenced by the example of their virtuous sovereign, and immediately granted all that he required; and to secure this declaration in favour of the peasants, the archbishop of Gnesna thundered out anathemas against those who should endeavour to regain the unjust privileges which they had now renounced; and to give still greater weight to this decision, the acts of the diet were transmitted to Rome, and were confirmed by the pope.

But though the nobility in general consented to have their power somewhat retrenched, it proved matter of discontent to some, who for this reason immediately became the partisans of the deposed Mieczslaus. This unfortunate prince was now reduced to such indigence, that he wrote an account of his situation to his brother Casimir; which so much affected him, that in an assembly of the diet he proposed to resign the sovereignty in favour of his brother. To this the states replied in

the most peremptory manner: they desired him never more to mention the subject to them, lest they should be under the necessity of deposing him and excluding his brother, who, they were determined, should never more have the dominion of Poland. Casimir, however, was so much concerned at the account of his brother's misfortunes, that he tried every method to relieve him, and even connived at the arts practised by some discontented noblemen to restore him. By a very singular generosity, he facilitated the reduction of Gnesna and Lower Poland, where Mieczslaus might have lived in peace and splendor, had not his heart been so corrupted that it could not be subdued by kindness. The consequence was, that he used all his art to wrest from his brother the whole of his dominions, and actually conquered the provinces of Mazovia and Cujavia; but of these he was soon dispossessed, and only some places in Lower Poland were left him. After this he made another attempt, on occasion of a report that Casimir had been poisoned in an expedition into Russia. He surprised the city of Cracow; but the citadel refused to surrender, and his hopes were entirely blasted by the return of Casimir himself; who, with an unparalleled generosity and magnanimity, asked peace of his brother whom he had vanquished and had in a manner at his mercy.—The last action of this amiable prince was the conquest of Russia, which he effected rather by the reputation of his wisdom and generosity than by the force of his arms. Those barbarians voluntarily submitted to a prince so famed for his benevolence, justice, and humanity. Soon after his return, he died at Cracow, lamented as the best prince in every respect who had ever filled the throne of Poland.

Casimir left one son, named *Lechus*, an infant; and the states, dreading the consequences of a long minority, hesitated at appointing him sovereign, considering how many competitors he must necessarily have, and how dubious it must be whether he might be fit for the sovereignty after he had obtained it. At last, however, *Lechus* was nominated, chiefly through the interest he had obtained on account of the reputation of his father's virtues. The consequence of his nomination was precisely what might have been expected. Mieczslaus formed an alliance against him with the dukes of Opelen, Pomerania, and Breslau; and having raised all the men in Lower Poland fit to bear arms, took the road to Cracow with a very numerous army. A bloody battle was fought on the banks of the river *Mozgarva*; in which both sides were so much weakened, that they were unable to keep the field, and consequently were forced to retire for some time in order to repair their forces. Mieczslaus was first ready for action, and therefore had the advantage: however, he thought proper to employ artifice rather than open force; and therefore having attempted in vain to corrupt the guardians of *Lechus*, he entered into a treaty with the duchess-dowager his mother. To her he represented in the strongest manner the miseries which would ensue from her refusal of the conditions he proposed. He stipulated to adopt *Lechus* and *Conrade*, her sons, for his own; to surrender the province of *Cujavia* for their present support; and to declare them heirs to all his dominions. The principal nobility opposed this accommodation, but it was accepted by the duchess in spite of all their remonstrances; and Mieczslaus was once more put in possession

Poland.

⁵²
conquers
Russia⁵⁶
Civil war
between
Lechus and
the deposed
Mieczslaus.⁵⁷
Mieczslaus
restored.

Poland. fession of the capital, after having taken a solemn oath to execute punctually every article of the treaty.

It is not to be supposed that a prince of such a perfidious disposition as Miecslaus would pay much regard to the obligations of a simple contract. It was a maxim with him, that a sovereign is no longer obliged to keep his oath than while it is neither safe nor beneficial to break it. Having therefore got all the power into his hands, he behaved in the very same manner as if no treaty with the dukes had subsisted. The dukes, perceiving herself duped, formed a strong party, and excited a general insurrection. The rebellion could not be withstood: Miecslaus was driven out of Cracow, and on the point of being reduced to his former circumstances, when he found means to produce a variance between the dukes and palatine of Cracow; and thus once more turned the scale in his favour. The forces of Miecslaus now became superior, and he, in consequence, regained possession of Cracow, but did not long enjoy his prosperity, falling a victim to his intemperance; so that Lechus was restored to the sovereignty in the year 1206.

58
Poland ravaged by the Tartars.

The government of Lechus was the most unfortunate of any of the sovereigns of Poland. In his time the Tartars made an irruption, and committed everywhere the most cruel ravages. At last they came to an engagement with the Poles, assisted by the Russians; and after an obstinate and dreadful conflict, obtained a complete victory. This incursion, however, terminated as precipitately as it commenced; for without any apparent reason they retired, just as the whole kingdom was ready to submit; but the devastations they had committed produced a famine, which was soon followed by a plague that depopulated one of the most populous countries of the north. In this unhappy situation of affairs, death ended the misfortunes of Lechus, who was murdered by his own subjects as he was bathing. A civil war took place after his death; and the history for some time is so confused, that it is difficult to say with certainty who was his successor. During this unfortunate state of the country, the Tartars made a second irruption, laid all desolate before them, and were advancing to the capital, when they were attacked and defeated with great slaughter by the palatine of Cracow with only a handful of men. The power of the enemy, however, was not broken by this victory; for, next year, the Tartars returned, and committed such barbarities as can scarce be imagined. Whole provinces were defeated, and every one of the inhabitants massacred. They were returning, laden with spoil, when the palatine fell upon them a second time, but not with the same success as before: for, after an obstinate engagement, he was defeated, and thus all Poland was laid open to the ravages of the barbarians; the nobility fled into Hungary, and the peasants sought an asylum among rocks and impenetrable forests. Cracow, being left entirely defenceless, was soon taken, pillaged, and burnt; after which the barbarians, penetrating into Silesia and Moravia, desolated these countries, destroying Breslau and other cities. Nor did Hungary escape the fury of their barbarity: the king gave battle to the Tartars, but was defeated with vast slaughter, and had the mortification to see his capital laid in ashes, and above 100,000 of his subjects perish by fire and sword. The arms of the Tartars were invincible; nothing

could withstand the prodigious number of forces which they brought into the field, and the fury with which they fought. They fixed their head-quarters on the frontiers of Hungary; and spread their devastations on every side with a celerity and success that threatened the destruction of the whole empire, as well as of the neighbouring kingdoms.

Poland.

In this dreadful situation was Poland when Boleslaus, surnamed the *Chaste*, was raised to the sovereignty; but this, so far from putting an end to the troubles, only superadded a civil war to the rest of the calamities. Boleslaus was opposed by his uncle Conrade the brother of Lechus, who was provoked at becoming the subject of his own nephew. Having assembled a powerful army, he gained possession of Cracow; assumed the title of *duke of Poland*; and might possibly have kept possession of the sovereignty, had not his avarice and pride equally offended the nobility and peasants. In consequence of their discontents, they unanimously invited Boleslaus, who had fled into Hungary, to come and head the insurrection which now took place in every quarter. On his arrival, he was joyfully received into the capital: but Conrade still headed a powerful party; and it is reported that on this occasion the knights of the Teutonic order were first called into Poland, to dispute the pretensions of Boleslaus. All the endeavours of Conrade, however, proved unsuccessful: he was defeated in two pitched battles, and forced to live in a private situation; though he never ceased to harass his nephew, and make fresh attempts to recover the crown. However, of the reign of Boleslaus we have little account, except that he made a vow of perpetual continency, and imposed the same on his wife; that he founded near 40 monasteries; and that he died after a long reign in 1279, after having adopted Lechus duke of Cujavia, and procured a confirmation of his choice by the free election of the people.

59
Knights of the Teutonic order first called into Poland.

The reign of this last prince was one continued scene of foreign and domestic trouble. On his first accession he was attacked by the united forces of Russia and Lithuania assisted by the Tartars; whom, however, he had the good fortune to defeat in a pitched battle. By this victory the enemy were obliged to quit the kingdom; but Lechus was so much weakened, that civil dissensions took place immediately after. These increased to such a degree, that Lechus was obliged to fly to Hungary, the common resource of distressed Polish princes. The inhabitants of Cracow alone remained firm in their duty; and these brave citizens stood all the fatigue and danger of a tedious siege, till they were at last relieved by Lechus at the head of a Hungarian army, who defeated the rebels, and restored to his kingdom a legitimate government. He had scarce reascended the throne when the united forces of the Russians, Tartars, and Lithuanians, made a second irruption into Poland, and desolated the country with the most savage barbarity. Their forces were now rendered more terrible than ever by their having along with them a vast number of large dogs trained to the art of war. Lechus, however, with an army much inferior, obtained a complete victory; the Poles being animated by despair, as perceiving, that, if they were conquered, they must also be devoured. Soon after this, Lechus died with the reputation of a warlike, wise, but unfortunate prince. As he died without issue, his crown was contested, a civil war again ensued;

60
Poland overrun by the Russians, Tartars, and Lithuanians.

Poland. ensued; and the affairs of the state continued in a very declining way till the year 1296, when Premislaus, the duke at that time, resumed the title of *king*. However, they did not revive in any considerable degree till the year 1305, when Uladislaus Loeticus, who had seized the throne in 1300, and afterwards been driven out, was again restored to it. The first transaction of his reign was a war with the Teutonic knights, who had usurped the greater part of Pomerania during the late disturbances. They had been settled in the territory of Culm by Conrade duke of Mazovia; but soon extended their dominion over the neighbouring provinces, and had even got possession of the city of Dantzic, where they massacred a number of Pomeranian gentlemen in cold blood; which so much terrified the neighbouring towns, that they submitted without a stroke. The knights were commanded by the Pope himself to renounce their conquests; but they set at nought all his thunders, and even suffered themselves to be excommunicated rather than part with them. As soon as this happened, the king marched into the territories of the marquis of Brandenburg, because he had pretended to sell a right to the Teutonic knights to those countries, when he had none to them himself. Uladislaus next entered the territory of Culm, where he laid every thing waste with fire and sword; and, being opposed by the joint forces of the marquis, the knights, and the duke of Mazovia, he obtained a complete victory after a desperate and bloody engagement. Without pursuing the blow, he returned to Poland, recruited his army, and being reinforced by a body of auxiliaries from Hungary and Lithuania, he dispersed the enemy's forces, and ravaged a second time all the dominions of the Teutonic order. Had he improved this advantage, he might easily have exterminated the whole order, or at least reduced them so low, that they could never have occasioned any more disturbances in the state; but he suffered himself to be soothed and cajoled by the promises which they made without any design of keeping them, and concluded a treaty under the mediation of the kings of Hungary and Bohemia. In a few months he was convinced of the perfidy of the knights; for they not only refused to evacuate Pomerania as had been stipulated in the treaty, but endeavoured to extend their usurpations, for which purpose they had assembled a very considerable army. Uladislaus, enraged at their treachery, took the field a third time, and gave them battle with such success, that 4000 knights were left dead on the spot, and 30,000 auxiliaries killed or taken prisoners. Yet, though the king had it once more in his power to destroy the whole Teutonic order, he satisfied himself with obtaining the territories which had occasioned the war; after which he spent the remainder of his life in peace and tranquillity.

61
War with the Teutonic knights.

62
Russia Nigra conquered by Casimir the Great.

Uladislaus was succeeded by his son Casimir III. surnamed the *Great*. He subdued the province called *Russia Nigra* in a single campaign. Next he turned his arms against Mazovia; and with the utmost rapidity overran the duchy, and annexed it as a province to the crown; after which he applied himself to domestic affairs, and was the first who introduced a written code of laws into Poland. He was the most impartial judge, the most rigid observer of justice, and the most submissive to the laws, of any potentate mentioned in the history of Europe. The only vice with which he is char-

ged is that of incontinency; but even this the clergy declared to be a venial sin, and amply compensated by his other virtues, particularly the great liberality which he showed to the clerical order.

63
Unhappy reign of Louis.

Casimir was succeeded in 1370 by his nephew Louis king of Hungary; but, as the Poles looked upon him to be a foreign prince, they were not happy under his administration. Indeed a coldness between this monarch and his people took place even before he ascended the throne; for in the *paeta conventa*, to which the Polish monarchs were obliged to swear, a great number of unusual articles were inserted. This probably was the reason why he left Poland almost as soon as his coronation was over, carrying with him the crown, sceptre, globe, and sword of state, to prevent the Poles from electing another prince during his absence. He left the government in the hands of his mother Elizabeth; and she would have been agreeable to the people, had her capacity for government been equal to the task. At that time, however, the state of Poland was too much distracted to be governed by a woman. The country was overrun with bold robbers and gangs of villains, who committed the most horrid disorders; the kingdom was likewise invaded by the Lithuanians; the whole province of Russia Nigra revolted; and the kingdom was universally filled with dissension. The Poles could not bear to see their towns filled with Hungarian garrisons; and therefore sent a message to the king, telling him that they thought he had been sufficiently honoured in being elected king of Poland himself, without suffering the kingdom to be governed by a woman and his Hungarian subjects. On this Louis immediately raised a numerous army, with a design fully to conquer the spirit of his subjects. His first operations were directed against the Russians; whom he defeated, and again reduced to subjection. Then he turned his arms against the Lithuanians, drove them out of the kingdom, and re-established public tranquillity. However, instead of being satisfied with this, and removing the Hungarian garrisons, he introduced many more, and raised Hungarians to all the chief posts of government. His credit and authority even went so far as to get a successor nominated who was disagreeable to the whole nation, namely *Sigismund* marquis of Brandenburg. After the death of Louis, however, this election was set aside; and Hedwiga, daughter of Casimir the Great, was proclaimed queen.

64
Hedwiga marries the duke of Lithuania, thereby uniting that duchy, together with Samogitia and Russia Nigra, to Poland.

This princess married Jagello duke of Lithuania, who was now converted to Christianity, and baptized by the name of *Uladislaus*. In consequence of this marriage, the duchy of Lithuania, as well as the vast provinces of Samogitia and Russia Nigra, became annexed to the crown of Poland. Such a formidable accession of power excited the jealousy of the Teutonic knights, who were sensible that Uladislaus was now bound to undertake the reduction of Pomerania, and revenge all the injuries which Poland had sustained from them for a great number of years. From his first accession therefore they considered this monarch as their greatest enemy, and endeavoured to prevent his designs against them by effecting a revolution in Lithuania in favour of his brother Andrew. The prospect of success was the greater here, as most of the nobility were discontented with the late alliance, and Uladislaus had proposed to effect a revolution in religion, which was highly disagreeable.

Poland. On a sudden, therefore, two armies marched towards the frontiers of the duchy, which they as suddenly penetrated, laying waste the whole country, and seizing upon some important fortresses, before the king of Poland had any notice of the matter. As soon as he received advice of these ravages, Uladislaus raised some forces with the utmost celerity, which he committed to the care of his brother Skirgello, who defeated the Teutonic knights, and soon obliged them to abandon all their conquests. In the mean time Uladislaus marched in person into the Higher Poland, which was subjected to a variety of petty tyrants, who oppressed the people, and governed with intolerable despotism. The palatine of Posnia, in particular, had distinguished himself by his rebellious practices; but he was completely defeated by Uladislaus, and the whole country reduced to obedience.

65
Troubles in
Lithuania.

Having secured the tranquillity of Poland, Uladislaus visited Lithuania, attended by a great number of the clergy, in order to convert his subjects. This he effected without great difficulty; but left the care of the duchy to his brother Skirgello, a man of a cruel, haughty, and debauched turn, and who immediately began to abuse his power. With him the king sent his cousin Vitowda, a prince of a generous, brave, and amiable disposition, to be a check upon his conduct; but the barbarity of Skirgello soon obliged this prince to take refuge among the Teutonic knights, who were now become the asylum of the oppressed and discontented. For some time, however, he did not assist the knights in their designs against his country; but having applied for protection to the king, and finding him remiss in affording the necessary assistance, he at last joined in the schemes formed by the knights for the destruction of Poland. Entering Lithuania at the head of a numerous army, he took the capital, burnt part of it, and destroyed 14,000 persons in the flames, besides a great number who were massacred in attempting to make their escape. The upper part of the city, however, was vigorously defended, so that the besiegers were at last obliged to abandon all thoughts of making themselves masters of it, and to content themselves with desolating the adjacent country. The next year Vitowda renewed his attempts upon this city, but with the same ill success; though he got possession of some places of less note. As soon, however, as an opportunity offered, he came to an accommodation with the king, who bestowed on him the government of Lithuania. During the first years of his government, he bestowed the most diligent attention upon domestic affairs, endeavouring to repair the calamities which the late wars had occasioned; but his impetuous valour had prompted him at last to engage in a war with Tamerlane the Great, after his victory over Bajazet the Turkish emperor. For some time before, Vitowda had been at war with the neighbouring Tartars, and had been constantly victorious, transporting whole hordes of that barbarous people into Poland and Lithuania, where to this day they form a colony distinct in manners and dress from the other inhabitants. Uladislaus, however, dissuaded him from attacking the whole strength of the nation under such a celebrated commander as Tamerlane: but Vitowda was obstinate; he encountered an army of 400,000 Tartars under Ediga, Tamerlane's lieutenant, with only a tenth part of their number. The battle continued for

66
Terrible
battle with
the Tar-
tars.

a whole day; but at last Vitowda was surrounded by the numbers of his enemy, and in the utmost danger of being cut in pieces. However, he broke his way through with prodigious slaughter on both sides; and came off at last without a total defeat, having killed a number of the enemy equal to the whole of his own army.

Poland.

During the absence of Vitowda, the Teutonic knights had penetrated into Lithuania, committing every where the most dreadful ravages. On his return he attacked and defeated them, making an irruption into Livonia, to punish the inhabitants of that country for the assistance they had given to the Teutonic order. This was succeeded by a long series of wars between Poland and Prussia, in which it became necessary for Uladislaus himself to take the field. The knights had now one way or other got possession of Samogitia, Mazovia, Culm, Silesia, and Pomerania; so that Uladislaus resolved to punish them before they became too powerful. With this view he assembled an army composed of several different nations, with which he penetrated into Prussia, took several towns, and was advancing to Marienburg, the capital of Pomerania, when he was met by the army of the Prussian knights, who determined to hazard a battle. When the engagement began, the Poles were deserted by all their auxiliaries, and obliged to stand the brunt of the battle by themselves. But the courage and conduct of their king so animated them, that after a most desperate battle they obtained a complete victory; near 40,000 of the enemy being killed in the field, and 30,000 taken prisoners. This terrible overthrow, however, was less fatal to the affairs of the Prussian knights than might have been expected; as Uladislaus did not improve his victory, and a peace was concluded upon easier terms than his adversaries had any reason to expect.—Some infraction of the treaty occasioned a renewal of hostilities; and Uladislaus was so much elated with victory that he would hearken to no terms, by which means the enemy were driven to the desperate resolution of burying themselves in the ruins of their capital. The siege was accordingly commenced, and both sides behaved with the greatest vigour; but at last, through the good conduct and valour of the grand master of the knights named *Plawen*, the Polish monarch found himself obliged to grant them an advantageous peace, at a time when it was universally expected that the whole order would have been exterminated.

67
Wars with
the Teuto-
nic knights.

Uladislaus V. died in 1435, and was succeeded by his son Uladislaus VI. at that time only nine years of age. He had scarce ascended the throne, when the kingdom was invaded by the Tartars, who defeated Buccarius the general of the Polish forces; and committing everywhere dreadful ravages, returned to their own country loaded with booty. A few years after, the nation was involved in a war with Amurath the emperor of the Turks, who threatened to break into Hungary; and it was thought by the diet to be good policy to assist the Hungarians at this juncture, because it was impossible to know where the storm might fall after Hungary was conquered. But before all things were prepared for the young king to take the field, a strong body of auxiliaries was dispatched under the celebrated John Hunniades vaivode of Transylvania, to oppose the Turks, and likewise to support the

Poland. the election of Uladislaus to the crown of Hungary. This detachment surpris'd the Turkish army near the river Morava, and defeated Amurath with the loss of 30,000 men; after which Hunniades retook all the places which had been conquered by Amurath, the proud sultan was forced to sue for peace, and Uladislaus was rais'd without opposition to the crown of Hungary. A treaty was concluded, by which the Turks promised to relinquish their designs upon Hungary, to acknowledge the king's right to that crown, and to give up all their conquests in Rascia and Servia. This treaty was seal'd by mutual oaths: but Uladislaus broke it at the persuasion of the pope's legate; who insist'd, that now was the time for humbling the power of the infidels; and produced a special commission from the pope, absolving him from the oath he had taken at the late treaty. The consequence of this perfidy was, that Uladislaus was entirely defeated and killed at Varna, and the greatest part of his army cut in pieces.

68
Uladislaus
defeated
and killed
by the
Turks.

69
Teutonic
knights
subdued.

Uladislaus VI. was succeeded by Casimir IV. in whose reign the Teutonic knights were subdued, and obliged to yield up the territories of Culm, Michlow, and the whole duchy of Pomerania, together with the towns of Elbing, Marienburg, Talkmith, Schut, and Christburgh, to the crown of Poland. On the other hand, the king restored to them all the other conquests he had made in Prussia, granted a seat in the Polish senate to the grand-master, and endowed him with other privileges, on condition that, six months after his accession, he should do homage for Prussia, and take an oath of fidelity to the king and republic.

This success rais'd the spirits of the Polish nation, which had drooped ever since the battle of Varna. The diet did not, however, think proper to renew the war against the Turks, but took under their protection the hospodar of Moldavia; as thinking that this province would make a convenient barrier to the Polish dominions on one side. The request of the prince who asked this protection was therefore readily granted, an oath of fidelity exacted from him and the inhabitants, and a tribute required; regular payment of which was made for a great number of years afterwards.

70
Crowns of
Bohemia
and Hun-
gary united
to Poland.

About this time also the crown of Bohemia becoming vacant, the people were extremely desirous of being governed by one of the princes of Poland; upon which the barons were induc'd to bestow the crown upon Uladislaus, eldest son of Casimir, in opposition to the intrigues of the king of Hungary. Not satisfied with this acquisition, Uladislaus took advantage of the dissensions in Hungary, in order to unite that crown to his own: and this he also effected; by which means his power was greatly augmented, though not the felicity of his people. So many foreign expeditions had exhausted the treasury, and oppress'd the peasants with taxes; the gentry were greatly diminished by a number of bloody engagements; agriculture was neglected, and the country almost depopulated. Before a proper remedy could be applied for these evils, Casimir died in 1492; much more admired, than beloved or regretted, by his subjects. It is related by the historians of this period, that in the reign of Casimir IV. the deputies of the provinces first appear'd at the diet, and assum'd to themselves the legislative power; all laws before this time having been fram'd by the king in conjunction with the senate. It is observ'd also, that before

Casimir's time, the Latin language was understood only by the clergy of Poland; in proof of which, it is alleg'd, that at an interview between this prince and the king of Sweden at Dantzic, his Polish majesty was forced to make use of the assistance of a monk to interpret between him and the Swedish monarch. Casimir, ashamed of the ignorance shewn by himself and court, published an edict, enjoining the diligent study of the Latin, which in our days is spoken as vernacular by every Polish gentleman, though very unclassically.

During the succeeding reigns of John, Albert, and Alexander, the Polish affairs fell into decline; the kingdom being harass'd by continual wars with the Turks and Tartars. However, they were retriev'd by Sigismund I. who ascended the throne in 1507. This monarch, having reformed some internal abuses, next set about rendering the kingdom as formidable as it had formerly been. He first quell'd a rebellion which broke out in Lithuania; after which, he drove the Walachians and Moldavians out of Russia Nigra, and defeated the Russians in a pitched battle, with the loss of 30,000 men. In this engagement he was oblig'd to cause his cavalry to swim across the Boristhenes in order to begin the attack, while a bridge was preparing for the infantry. These orders were executed with astonishing celerity, notwithstanding the rapidity of the stream, the steepness of the banks, and the enemy's opposition. The onset was led by the Lithuanians, who were directed to retreat gradually, with a view of drawing the enemy within reach of the cannon. This the Russians mistook for a real flight; and as they were pursuing with eagerness, Sigismund open'd his line to the right and left, pouring in grape-shot from the artillery with dreadful success. The Russian general, and several noblemen of the first distinction, were taken prisoners, while the whole loss of the royal army did not amount to 300 men.

After this complete victory, the king turn'd his arms against the Teutonic knights, who had elect'd the marquis of Brandenburg their grand-master; and this prince not only refus'd to acknowledge the sovereignty of the crown of Poland, but even invaded the Polish territories. Sigismund march'd against him, and gain'd possession of several important places in Brandenburg; but as he was pursuing his conquests, the marquis was reinforced by 14,000 Germans, led by the duke of Schonenburg, who ventur'd to lay siege to Dantzic, after having ravag'd all the neighbouring country. The Dantzickers, however, defend'd themselves with so much spirit, that the besiegers were soon oblig'd to relinquish their enterprize. In their retreat they were attack'd by a strong detachment of Polish cavalry, who made prodigious havock among them, and compell'd the wretched remains to take shelter in Pomerania, where they were inhumanly butcher'd by the peasants. Soon after this the marquis was oblig'd to submit to the clemency of the conqueror; from whom, however, he obtain'd better conditions than could have been expected, or indeed than he would have got, had he not abandon'd the interest of the Teutonic order, and resign'd the dignity of grand-master. In order to secure him in his interest, therefore, Sigismund granted him half the province of Prussia as a secular duke, and dependent on the crown of Poland;

Poland.

71
Exploits of
Sigismund
I.

by

Poland. by which means he entirely deprived that order of the best part of their dominions, and put it quite out of their power to disturb the tranquillity of Poland any more.

The power of Sigismund had now excited the jealousy of the House of Austria; for which reason they took every method in their power to stir up enemies against him. By their means, the Russians, Moldavians, and Tartars, were all excited to fall upon the Polish territories at once. The vaivode of Walachia, with 50,000 men, made an irruption into the small province of Pokator, but was entirely defeated by Count Taro at the head of no more than 6000. This victory is wholly ascribed to the good conduct of the commander, who possessed himself of some eminences on the flanks of the enemy. On these he erected batteries; which played with such fury as soon put their ranks in disorder: upon which the Poles attacked them sword in hand, and entirely dispersed them with the loss of 10,000 killed or taken. The count having then augmented his army with a strong body of Lithuanians, attacked the Muscovites and Tartars, drove them entirely out of the duchy, pursued them into Russia, reduced several towns, and at last laid siege to the strong fortress of Staradub; in which the regent, together with some of the best troops of Russia, were inclosed. The garrison made a gallant defence; and the fortifications were composed of beams joined together, and supported by a bulwark of earth, upon which the cannon-shot made no impression: but the count contrived a method of setting the wood on fire; by which means the regent and nobility were obliged to surrender at discretion, and Taro carried off upwards of 60,000 prisoners, with an immense booty.

In the reign of Sigismund, we may look upon the kingdom of Poland to have been at its greatest pitch of glory. This monarch possessed, in his own person, the republic of Poland, the great duchies of Lithuania, Smolensko, and Saveria, besides vast territories lying beyond the Euxine and Baltic; while his nephew Lewis possessed the kingdoms of Bohemia, Hungary, and Silesia. But this glory received a sudden check in 1548, by the defeat and death of Louis, who perished in a battle fought with Solyman the Great, emperor of the Turks. The daughter of this prince married Ferdinand of Austria; whereby the dominions of Hungary, Bohemia, and Silesia, became inseparably connected with the hereditary dominions of the Austrian family. This misfortune is thought to have hastened the death of Sigismund; though, being then in his 84th year, he could not have lived long by the ordinary course of nature. He did not, however, survive the news many months, but died of a lingering disorder, leaving behind him the character of the completest general, the ablest politician, the best prince, and the strongest man, in the north; of which last, indeed, some instances are related by historians that are almost incredible.

⁷³ Sigismund Augustus, a wife and valiant prince. Sigismund Augustus, who succeeded his father Sigismund I. proved also a very great and happy prince.

At that time the most violent and bloody wars were carrying on in Germany, and indeed through other parts of Europe, on account of religion; but Sigismund wisely avoided interfering in these disputes. He would not admit into his dominions any of those di-

vines who were taxed with holding heterodox opinions, nor even allow his people the liberty of corresponding with them; yet he never persecuted, or employed any other means for the preservation of the state than those of a well conducted and regular policy. Instead of disputing with his subjects about speculative opinions, Sigismund applied himself diligently to the reforming of abuses, enforcing the laws, enriching the treasury, promoting industry, and redeeming the crown-lands where the titles of the possessors appeared illegal. Out of the revenue recovered in this manner he obtained a formidable standing army, without laying any additional tax upon the subjects; and though he preferred peace to war, he was always able to punish those that offered indignities to his crown or person. His knowledge in the art of war was soon tried in a contest with the Russians, who had made an irruption into Livonia, encouraged by the disputes which had subsisted between the Teutonic knights and the archbishop of Riga, cousin to Sigismund. The province was at that time divided between the knights and the prelate; and the Russians, under pretence of assisting the former, had seized great part of the dominions of the latter. The archbishop had recourse to his kinsman the king of Poland; who, after fruitless efforts to accommodate matters, marched towards the frontiers of Livonia with an army of 100,000 men. The knights were by no means able to resist such a formidable power; and therefore, deserting their late allies, put themselves under the protection of the king of Poland. The czar, John Basilides, though deserted by the knights, did not lose his courage; nay, he even insolently refused to return any answer to the proposals of peace made by Sigismund. His army consisted of 300,000 men, with whom he imagined himself able to reduce all Livonia, in spite of the utmost efforts of the king of Poland: however, having met with some checks on that quarter, he directly invaded Poland with his whole army. At first he carried every thing before him; but the Poles soon made a vigorous opposition. Yet the Russians, though everywhere defeated, still continued their incursions, which Sigismund at last revenged by invading Russia in his turn. These mutual desolations and ravages at last made both parties desirous of peace, and a truce for three years was agreed on; during the continuance of which the king of Poland died, and with him was extinguished the house of Jagellon, which had governed Poland for near 200 years.

On the death of Sigismund, Poland became a prey to intestine divisions; and a vast number of intrigues were set on foot at the courts of Vienna, France, Saxony, Sweden, and Brandenburg; each endeavouring to establish a prince of their own nation on the throne of Poland. The consequence of all this was, that the kingdom became one universal scene of corruption, faction, and confusion; the members of the diet consulted only their own interest, and were ready on every occasion to sell themselves to the best bidder. The Protestants had by this time got a considerable footing in the kingdom, and thus religious disputes were intermingled with political ones. One good effect, however, flowed from this confusion: for a law was passed, by which it was enacted, that no difference in religious opinions should make any contention among the subjects of the kingdom; and that all the Poles, without

Poland.

73
War with
Russia.74
Extinction
of the house
of Jagellon.75
Distracted
state of Po-
land.

Poland. discrimination, should be capable of holding public offices and trusts under the government; and it was also resolved, that the future kings should swear expressly to cultivate the internal tranquillity of the realm, and cherish without distinction their subjects of all persuasions.

While the candidates for the throne were severally attempting to support their own interest in the best manner they could, John Crasofki, a Polish gentleman of great merit, but diminutive stature, had just returned from France, whither he had travelled for improvement. His humour, wit, and diverting size, had rendered him universally agreeable at the court of France, and in a particular manner engaged the esteem of Catharine de Medicis, which the little Pole had the address to make use of for his own advantage. He owed many obligations to the duke of Anjou; whom, out of gratitude, he represented in such favourable terms, that the Poles began to entertain thoughts of making him their king. These sentiments were confirmed and encouraged by Crasofki, who returned into France by order of several leading men in Poland, and acquainted the king and Queen Catharine, that nothing was wanting besides the formality of an embassy to procure the crown for the duke of Anjou, almost without opposition. Charles IX. king of France, at that time also promoted the scheme, being jealous of the duke of Anjou's popularity, and willing to have him removed to as great a distance as possible. Accordingly the parties came to an agreement; and it was stipulated that the duke of Anjou should maintain the laws, liberties, and customs of the kingdom of Poland, and of the grand duchy of Lithuania; that he should transport all his effects and annual revenues in France into Poland; that the French monarch should pay the late king Sigismund's debts; that he should maintain 100 young Polish gentlemen at his court, and 50 in other places; that he should send a fleet to the Baltic, to assist Poland against the Russians; and lastly, that Henry should marry the princess Anne, sister to the late king Sigismund; but this article Henry would not ratify till his return to Poland.

Every thing being thus settled, the young king quitted France, attended by a splendid retinue, and was accompanied by the queen-mother as far as Lorraine. He was received by his subjects on the frontiers of Poland, and conducted to Cracow, where he was soon after crowned. The affections of the Poles were soon engaged by the youth and accomplishments of Henry; but scarce was he seated on the throne, when, by the death of Charles IX. he became heir to the crown of France. Of this he was informed by repeated messages from Queen Catharine; he repented his having accepted the crown of Poland, and resolved to leave it for that of France. But being sensible that the Poles would oppose his departure, he kept his intentions secret, and watched an opportunity of stealing out of the palace in disguise in the night-time. The Poles, as might well have been expected, were irritated at being thus abandoned, from the mere motive of interest, by a prince whom they had loved and honoured so much. Parties were dispatched after him by different roads; and Zamofki, a nobleman who headed one of these parties, overtook him some leagues distant from Cracow. All the prayers and tears of that nobleman, how-

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ever, could not prevail on Henry to return; he rode post to Vienna, and then passed into France by the way of Italy.

In the mean time, the Poles were so much exasperated against Henry and his whole nation, that all the French in Cracow would have been massacred if the magistrates had not placed guards in the streets. Henry, however, had foreseen the consequences of his flight, and therefore endeavoured to apologise for his behaviour. One Danzai undertook his cause in full senate; and with great eloquence explained the king's motives for his abrupt departure. Henry also wrote to the chief nobility and clergy with his own hand. But nothing could satisfy the Poles; who now acquainted their king, that if he did not immediately return, they would be obliged to divest him of the royal dignity, and to choose another sovereign. Henry began to excuse himself on account of the wars in which he was engaged, and promised to send men of unexceptionable integrity to govern Poland till he should return; but no excuses could be accepted; and, on the 15th of July 1575, he was solemnly divested⁷⁸ and is deposed of the regal dignity in full diet, and the throne declared vacant.

After the deposition of Henry, commotions and factions again took place. However, the contending parties were now reduced to two; one who supported the interest of Maximilian emperor of Germany; the other, who were for electing the princess Anne, and marrying her to Stephen Batori prince of Transylvania. The latter prevailed through the courage of one⁷⁹ gentleman, who, in imitation of the power assumed by the Roman tribunes, stood up in the full senate, and opposed the proclamation of Maximilian, declaring that his election was violent and illegal. In this situation of affairs, it was obvious that strength and celerity must determine which election was legitimate: both parties wrote to the princes whose cause they had espoused, intreating them to come with all possible expedition to take possession of the throne. Batori proved the more alert; for while Maximilian was disputing about certain conditions which the Poles required for the security of their privileges, he entered Poland, married the princess, and was crowned on the first of May 1576.

No opposition was made to the authority of Batori⁸⁰ Dantzic except by the inhabitants of Dantzic. These adhe- revolts red to the interest of Maximilian even after he was dead, and had the presumption to demand from the king an oath acknowledging their absolute freedom and independence. Batori referred them to the senate, declaring that he had no right to give up the privileges of the republic; but admonished the citizens to avoid all occasion of a civil war, which must necessarily terminate in their disadvantage. But the obstinate citizens, construing the king's lenity into fear, shut the gates against the ambassador, seized upon the fortress of Grebin, and published a manifesto resembling a libel upon the king and the republic. The king, incensed at these proceedings, marched against Grebin, retook the castle, and ravaged certain territories belonging to the Dantzickers; who retaliated by burning to the ground a monastery named *Oliva*, to prevent the Poles from taking possession of so important a situation.

Notwithstanding these outrages, Batori renewed his
K overtures

⁷⁶
Duke of Anjou chosen king of Poland.

⁷⁷
Runs away from his kingdom,

⁷⁹
Stephen Batori chosen king.

⁸⁰

Poland.

overtures for an accommodation: but the Dantzickers were deaf to these salutary propofals; fo that he was obliged to declare them rebels, and fend againft them a body of troops under one Zborowki. As the number of the Polish army, however, was not confiderable, the Dantzickers marched out to give him battle. They were affifted by a corps of Germans, and a refolution was formed of attacking the Poles in their camp by fuprize; but the project was difconcerted by a fudden ftorm, accompanied with dreadful thunder and lightning, which fpread a panic through the army, as if it had been a judgement from heaven, and obliged the commander, John de Collen, to retire into the city. In a fhort time, however, they recovered their fpirits, and came to an action with the Poles; but were defeated with the lofs of 8000 men killed on the fpot, a great many taken prifoners, and the lofs of feveral pieces of cannon. But this check, inftead of abating the courage of the Dantzickers, only animated them the more, and they refolved to hold out to the laft extremity. In the mean time, the czar of Mufcovy, thinking the prefent opportunity favourable for extending his dominions, laid fiege to Revel; but, not being able to make himfelf mafter of that place, he was obliged to content himfelf with ravaging Livonia, which he did in a dreadful manner. This did not, however, hinder Batori from laying fiege to Dantzic in perfon, and purfuing the operations with the utmoft vigour. Collen made many vigorous fallies, in feveral of which he defeated the Poles; but, happening at laft to be killed, nobody was found capable of fupplying his place, and the citizens were at laft obliged to furrender at difcretion; though not till they had obtained a promife from the elector of Saxony and landgrave of Hefle of interpozing as mediators in their behalf. The only terms which the king demanded of them were, that they fhould ask his pardon, difmifs their troops, and rebuild the monastery of Oliva which they had deftroyed; while his majefly, on the other hand, confirmed all their privileges, and granted them full liberty of adhering to the confeffion of Augfburg, for which they had for fome time been ftrenuous advocates.

81
Poland invaded by the Ruf-
fians.

82
Dantzic fubmits.

83
Cruelty of the Ruf-
fians.

The war with Dantzic was no fooner ended, than the king directed his whole ftrength againft the czar of Mufcovy, who had made himfelf mafter of feveral important cities in Livonia. The czar behaved everywhere with the greateft cruelty, flaugttering all without diftinction who were able to bear arms, and abandoning the women and children to the fhocking brutality of the Tartars who ferved in his army. Such was the horror infpired by the perfidy and cruelty of the czar's conduct, that the inhabitants of Wender chofe rather to bury themfelves in the ruins of their town than to fubmit to fuch an inhuman enemy. For a confiderable time the Rufians were allowed to proceed in this manner, till the whole province of Livonia, excepting Riga and Revel, had fuffered the barbarities of this infulting conqueror; but at laft, in 1578, a body of forces was difpatched into the province, the towns of Wender and Dunnenburg were fuprized, and an army fent by the czar to fuprize the former was defeated.

At this time the Mufcovites were not the only enemies who oppofed the king of Poland, and oppreffed Livonia. That unhappy province was alfo invaded by the Swedes, who profefled themfelves to be enemies equally

to both parties, and who were fcarcely inferior in cruelty to the Rufians themfelves. The king, however, was not daunted by the number of his adverfaries; but having made great preparations, and called to his affiftance Christopher prince of Tranfylvania, with all the ftanding forces of that country, he took the field in perfon againft the Mufcovites, and laid fiege to Polocz, a town of great importance fituated on the river Dwina. The Rufians no fooner heard of the approach of the Polish army, than they refolved to put all the citizens to death, thinking by this means to ftrike terror into the enemy. When Batori came near the town, the moft fhocking fpectacle prefented itfelf; the river appeared dyed with blood, and a vaft number of human bodies faftened to planks, and terribly mangled, were carried down its fream. This barbarity, inftead of intimidating the Poles, irritated them to fuch a degree, that nothing could refift them. Finding that their cannon made little impreffion upon the walls of the city, which were conftituted of wood, they advanced to the affault with burning torches in their hands; and would foon have reduced the fortifications to afhes, had not a violent ftorm of rain prevented them. The defign, however, was put in execution as foon as the rain slackened; and the barbarous Rufians were obliged to furrender at difcretion. It reflects the higheft honour on Batori, that, notwithstanding the dreadful instances of cruelty which he had before his eyes, he would not fuffer his fouldiers to retaliate. Indeed the cruelties committed by the Rufians on this occafion, feem almoft to have authorized any revenge that could poffibly have been taken. A number of Germans were found in the city, fome expiring under the moft dreadful tortures, and others dead of pains which nature could no longer fupport. Several of the officers had been dipped in cauldrons of boiling oil, with a cord drawn under the fkin of the umbilical region, which faftened their hands behind; in which fituation their eyes had been torn out from their fockets, or burnt with red-hot irons, and their faces otherwife terribly mangled. The diffigured carcafes, indeed, plainly fhewed the barbarous treatment they had met with; and the dreadful tale was confirmed by the testimony of the few who furvived. The Polish fouldiers were exasperated almoft to madnefs; fo that fcarce all the authority of Batori could refrain them from cutting in pieces the wretches who had been the authors of fuch a dreadful tragedy.

After the reduction of Polocz, Batori continued the war with great fuccefs. Two detachments from the army penetrated the enemy's country by different roads, wasted all before them to the gates of Smolenko, and returned with the fpoils of 2000 villages which they had pillaged and deftroyed. In the mean time the Swedes and Poles thought proper to come to an accommodation: and though John king of Sweden was at that time prevented from bearing his fhare of the war, yet Batori reduced fuch a number of cities, and committed fuch devaftations in the Rufian territories, that the czar was obliged to fue for peace; which he obtained on condition of relinquifhing Livonia, after having thrown away the lives of more than 400,000 of his fubjects in attempting to conquer it.

Batori, being thus freed from a moft deftructive and cruel war, applied himfelf to the internal government of his kingdom. He regulated the Polish cavalry in fuch

Poland.

84
Siege of
Polocz.

85
Monftrous
barbarities
committed
by the Ruf-
fians in
that city.

86
Ruffia rava-
ged by Ba-
tore.

87
The Czar
lives for
peace.

Poland.

a manner as made them become formidable to the Turks and other neighbouring nations: and this is the military establishment to which the Poles have given the name of *quartienne*; because a fourth part of the revenue is employed in supporting them. Batori sent this body of cavalry towards the frontiers of Tartary, to check the incursions of those barbarians; by which means the Ukraine, a vast tract of desert country, was filled with flourishing towns and villages, and became a strong barrier against the Turks, Tartars, and Russians. The last memorable action of Batori was his attaching the Cossacks to Poland, civilizing and instructing them in the arts of war and peace. His first endeavour was to gain their affections by his liberality; for which purpose, he presented them with the city of Techtemeravia, situated on the Boristhenes, which they formed into a magazine, and made the residence of their chieftains. He gave them officers of all degrees, established discipline among them; altered their arms, and formed them into a regular militia, which afterwards performed eminent services to the state. All kinds of manufactures at that time known in Poland were likewise established among the Cossacks; the women were employed in spinning and weaving woollen cloths, while the men were taught agriculture, and other arts proper for their sex.

83
Batori civilizes the Cossacks.

While Batori was employed in this manner, the Swedes broke the convention into which they had entered with Poland, and were on the point of getting possession of Riga. To this, indeed, Batori himself had given occasion, by attempting to impose the Romish religion upon the inhabitants, after having promised them entire liberty of conscience. This so irritated them, that they revolted, and were on the point of admitting a Swedish garrison into the city, when the king was informed of what was going forward. Upon this he resolved to take a most exemplary vengeance on the inhabitants of Riga; but before he could execute his intention, he died in the year 1586, the 54th of his age, and 10th of his reign.

89
His death.

The death of Batori involved Poland in fresh troubles. Four candidates appeared for the crown, viz. the princes Ernest and Maximilian of the house of Austria; Sigismund prince of Sweden, and Theodore czar of Muscovy. Each of these had a separate party; but Sigismund and Maximilian managed matters so well, that in 1587 both of them were elected. The consequence of this was a civil war; in which Maximilian was defeated and taken prisoner: and thus Sigismund III. surnamed *De Vasa*, became master of the throne of Poland without opposition. He waged a successful war with the Tartars, and was otherwise prosperous; but though he succeeded to the crown of Sweden, he found it impossible for him to retain both kingdoms, and he was formally deposed from the Swedish throne. In 1610 he conquered Russia, and placed his son on the throne; but the Polish conquests of that country have always been but for a short time. Accordingly the young prince was soon after deposed; and the Russians not only regained their liberty, but began to make encroachments on Poland itself. A very unfortunate war also took place with Sweden, which was now governed by the great Gustavus Adolphus; the particulars of which, with the other exploits of that renowned warrior, are related under the article SWEDEN. At last Sigismund, worn out with cares and misfortunes, died in 1629.

90
War with Gustavus Adolphus.

After Sigismund's death the affairs of Poland seemed to revive a little under Uladislaus VII.; for he obliged the Russians to sue for peace, and Sweden to restore some of her conquests: but having attempted to abridge the liberty of the Cossacks, they revolted, and gave the Poles several terrible defeats. Nor was the war terminated in the lifetime of Uladislaus, who died in 1648. His successor, John Casimir, concluded a peace with these dangerous enemies: but the war was soon after renewed; and while the kingdom was distracted between these enemies and the discontents of its own inhabitants, the Russians took the opportunity of invading and pillaging Lithuania. In a little after the whole kingdom was subdued by Charles Gustavus, successor to Christina queen of Sweden.

Poland.

91
Poland subdued by Charles Gustavus.

Happily for Poland, however, a rupture took place between the courts of Sweden and Copenhagen; by which means the Poles were enabled to drive out the Swedes in 1657. This was succeeded by civil wars and contests with Russia, which so much vexed the king, that he resigned the crown in 1668.

For two years after the resignation of Casimir the kingdom was filled with confusion; but on the 17th of September 1760, one Michael Coribut Wiefnowiski, collaterally descended from the house of Jagello, but in a very mean situation at that time, was chosen king. His reign continued but for three years; during which time John Sobieski, a celebrated Polish general, gave the Turks a dreadful overthrow, though their army consisted of more than 300,000 men; and had this blow been pursued, the Cossacks would have been entirely subdued, and very advantageous terms might have been obtained from the sultan. Of that vast multitude of Turks no more than 15,000 made their escape, the rest being all either killed or taken: however, the Polish soldiers, being bound by the laws of their country only to stay a certain time in the field, they refused to pursue this signal victory, and suffered the king to make peace on any terms he could procure.

Wiefnowiski died before the news of this transaction reached Cracow; and after his death a new scene of confusion ensued, till at last the fortune of John Sobieski prevailed, and he was elected king of Poland in 1674. He was a most magnanimous and heroic prince; who, by his valour and good conduct, retrieved the affairs of Poland, and entirely checked the progress of the Turks westward. These barbarians were everywhere defeated, as is particularly related under the article TURKEY; but notwithstanding his great qualities, Poland was now so thoroughly corrupted, and pervaded by a spirit of disaffection, that the latter part of this monarch's reign was involved in troubles, through the ambition and contention of some powerful noblemen.

92
John Sobieski retrieves the Polish affairs.

Sobieski died in 1696; and with him fell the glory of Poland. Most violent contests took place about the succession; the recital of which would far exceed our limits. At last Frederic Augustus, elector of Saxony, prevailed; but yet, as some of the most essential ceremonies were wanting in his coronation, because the prime, who was in an opposite interest, would not perform them, he found it extremely difficult to keep his subjects in proper obedience. To add to his misfortunes, having engaged in a league with Denmark and Russia against Sweden, he was attacked with irresistible fury by Charles XII. Though Augustus had not been betrayed;

Poland. as indeed he almost always was, he was by no means a match for the ferocious Swede. The particulars of this war, however, as they make great part of the exploits of that northern hero, more properly fall to be related under the article SWEDEN. Here, therefore, we shall only observe, that Augustus was reduced to the humiliating necessity of renouncing the crown of Poland on oath, and even of congratulating his rival Stanislaus upon his accession to the throne: but when the power of Charles was broken by his defeat at Pultowa, the fortune of Augustus again prevailed; Stanislaus was driven out; and the former being absolved from his oath by the pope, resumed the throne of Poland.

93 Poland conquered by Charles XII.
94 Degeneracy of the Poles.
95 Elevation of Stanislaus Augustus, to the throne.
96 Interference of foreign powers in behalf of the dissidents.

Since that time the Polish nation has never made any figure. Surrounded by great and ambitious powers, it has sunk under the degeneracy of its inhabitants; so that it now scarcely exists as a nation. This catastrophe took place in the following manner: On the 5th of October 1763, died Augustus III. elector of Saxony, and king of Poland. He was succeeded by Count Poniatowski, a Polish grandee, who was proclaimed September 7th 1764, by the name of *Stanislaus Augustus*, and crowned on the 25th of November the same year.—During the interregnum which took place between the death of Augustus III. and the election of Stanislaus, a decree had been made by the convocation-diet of Poland, with regard to the *dissidents*, as they were called, or dissenters from the Popish religion. By this decree they were prohibited from the free exercise of their religion, much more than they had formerly been, and totally excluded from all posts and places under the government. On this several of the European powers interposed, at the application of the dissidents, for their good offices. The courts of Russia, Prussia, Great Britain, and Denmark, made remonstrances to the diet; but, notwithstanding these remonstrances, the decree was confirmed by the coronation-diet held after the king's election.

October 6. 1766, an ordinary diet was assembled.

Here declarations from the courts above mentioned were presented to his Polish majesty, requiring the re-establishment of the dissidents in their civil rights and privileges, and the peaceable enjoyment of their modes of worship secured to them by the laws of the kingdom, which had been observed for two centuries. These privileges, it was alleged, had been confirmed by the treaty of Oliva, concluded by all the northern powers, which could not be altered but by the consent of all the contracting parties. The Popish party contended strongly for a confirmation of some decrees made against the dissidents in 1717, 1723, and 1736. The deputies from the foreign powers replied, that those decrees had passed in the midst of intestine troubles, and were contradicted by the formal protestations and express declarations of foreign powers. At last, after violent contests, the matter was referred to the bishops and senators for their opinion. Upon a report from them, the diet came to a resolution, That they would fully maintain the dissidents in all the rights and prerogatives to which they were entitled by the laws of their country, particularly by the constitutions of the year 1717, &c. and by treaties; and that as to their complaints with regard to the exercise of their religion, the college of archbishops and bishops, under the direction of the prince primate, would endeavour to remove those difficulties in a manner conformable to justice and neighbourly love.—By this time,

however, the court of Russia seemed determined to make her remonstrances more effectual, and a small body of Russian troops marched to within two miles of the capital of Poland.

These resolutions of the diet were by no means agreeable to the dissidents. They dated the beginning of their sufferings from the year 1717. The referring their grievances to the archbishops and bishops was looked upon as a measure the most unreasonable that could be imagined, as that body of men had always been their opposers, and in fact the authors of all the evils which had befallen them.—Shortly after matters were considered in this view, an additional body of Russians, to the number of about 15,000, entered Poland.

The dissidents, being now pretty sure of the protection of foreign powers, entered, on the 20th of March 1767, into two confederacies, at Thorn and Sluck. One of them was signed by the dissidents of Great and Little Poland, and the other by those of the Great Duchy of Lithuania. The purport of these confederacies was, an engagement to exert themselves in the defence of their ancient privileges, and the free exercise of their religion; professing at the same time, however, the utmost loyalty to the king, and resolving to send a deputation to him to implore his protection. They even invited those of the Catholic communion, and all true patriots, to unite with them in maintaining the fundamental laws of the kingdom, the peace of religion, and the right of each one jointly with themselves. They claimed, by virtue of public treaties, the protection of the powers who were guarantees of their rights and liberties; namely, the empress of Russia, and the kings of Sweden, Great Britain, Denmark, and Prussia. Lastly, they protested, that they had no intention of acting to the detriment of the Roman Catholic religion, which they duly respected: and only asked the liberty of their own, and the re-establishment of their ancient rights. The three cities of Thorn, Elbing, and Dantzic, acceded to the confederacy of Thorn on the 10th of April; as did the duke and nobles of Courland to that of Sluck on the 15th of May.

The empress of Russia and king of Prussia, in the mean time, continued to issue forth new declarations in favour of the dissidents; and the Russian troops in Poland were gradually augmented to 30,000 men. Great numbers of other confederacies were also formed in different parts of the kingdom. These at first took little part in the affairs of the dissidents: they complained only of the administration of public affairs, into which they alleged that innovations had been introduced, and were therefore for some time called *confederations of malcontents*. All these confederacies published manifestoes, in which they recommended to the inhabitants to quarter and treat the Russian troops as the defenders of the Polish liberties.

The different confederacies of malcontents formed in the 24 districts of Lithuania united at Wilna on the 22d of June; and that general confederacy re-established by Prince Radzivil, who had married the king's sister, in his liberty, estates, and honour, of which he had been deprived in 1764 by the states of that duchy. On the 23d of June Prince Radzivil was chosen grand marshal of the general confederacy of all Poland, which then began to be called the *national confederacy*, and was said to be composed of 72,000 noblemen and gentlemen.

The

Poland.

97 Consequences of this.

98 General confederacy.

Poland.

The general confederacy took such measures as appeared most proper for strengthening their party. They sent to the several waywodes of the kingdom, requiring their compliance with the following articles: 1. That all the gentlemen who had not signed the confederacy should do it immediately; 2. That all the courts of justice should subsist as formerly, but not judge any of the confederates; 3. That the marshals of the crown should not pass any sentence without the participation of at least four of the confederates; and, 4. That the marshals of the crown and the treasurers should be immediately restored to the possession of their respective rights. The Catholic party in the mean time were not idle. The bishop of Cracow sent a very pathetic and zealous letter to the dietines assembled at Warsaw on the 13th of August, in which he exhorted them to arm their nuncios with courage, by giving them orthodox and patriotic instructions, that they might not grant the dissidents new advantages beyond those which were secured to them by the constitutions of the country, and treaties with foreign powers, &c. The pope also sent briefs to the king, the great chancellor, the noblesse, bishops of the kingdom, and to the prince primate, with such arguments and exhortations as were thought most proper to ward off the impending danger. Councils in the mean time were frequently held at the bishop of Cracow's palace, where all the prelates at Warsaw assembled.

On the 26th of September 1767 the confederacy of dissidents was united with the general confederacy of malcontents in the palace of Prince Radzivil, who on that occasion expressed great friendship for the dissidents. In a few days after, the Russian troops in the capital were reinforced, and a considerable body of them was posted at about five miles distance.

99
Tumults
in the diet.

On the 5th of October an extraordinary diet was held: but the affair of the dissidents met with such opposition, that it was thought necessary to adjourn the meeting till the 12th; during which interval, every expedient was used to gain over those who opposed Prince Radzivil's plan. This was, to appoint a commission, furnished with full power to enter into conference with Prince Replin, the Russian ambassador, concerning the affairs of the dissidents. Notwithstanding all the pains taken, however, the meeting of the 12th proved exceedingly tumultuous. The bishops of Cracow and Kiow, with some other prelates, and several magnats, declared, that they would never consent to the establishment of such a commission; and at the same time spoke with more vehemence than ever against the pretensions of the dissidents. Some of the deputies answered with great warmth; which occasioned such animosities, that the meeting was again adjourned till the 16th.

100
Violent
proceedings
of the Rus-
sians.

On the 13th the bishops of Cracow and Kiow, the palatine of Cracow, and the staroste of Domski, were carried off by Russian detachments. The crime alleged against them, in a declaration published next day by Prince Replin, was, that they had been wanting in respect to the dignity of the empress of Russia, by attacking the purity of her intentions towards the republic; though she was resolved to continue her protection and assistance to the general confederacy united for preserving the liberties of Poland, and correcting all the abuses which had been introduced into the government, &c.

Poland.

It was probably owing to this violent proceeding of the Russians, that Prince Radzivil's plan was at last adopted, and several new regulations were made in favour of the dissidents. These innovations, however, soon produced a civil war, which at last ended in the ruin of the kingdom. In the beginning of the year 1768, a new confederacy was formed in Podolia, a province bordering on Turkey, which was afterwards called the *confederacy of Bar*. The intention of it was, to abolish, by force of arms, the new constitutions, particularly those in favour of the dissidents. The members of the new confederacy likewise expressed great resentment against the carrying away the bishops of Cracow, &c. and still detaining them in custody.

101
Confederacy
of Bar.

Podolia was reckoned the fittest place for the purpose of the confederates, as they imagined the Russians could not attack them there without giving umbrage to the Ottoman court. Similar confederacies, however, were quickly entered into throughout the kingdom: the clergy excited all ranks of men to exert themselves in defence of their religion; and so much were their exhortations regarded, that even the king's troops could not be trusted to act against these confederates. The empress of Russia threatened the new confederates as disturbers of the public tranquillity, and declared that her troops would act against them if they persisted. It was, however, some time before the Russian troops were considerably reinforced; nor did they at first seem inclined to act with the vigour which they might have exerted. A good many skirmishes soon happened between these two contending parties, in which the confederates were generally defeated. In one of these the latter being worsted, and hardly pressed, a number of them passed the Niester, and took refuge in Moldavia. This province had formerly belonged to Poland, but was now subject to the Grand Signior: the Russians, however, pursued their enemies into Moldavia; but in order to prevent any offence being taken by the Porte, Prince Replin wrote to the Russian resident at Constantinople, to intimate there, that the conduct of the Russian colonel who commanded the party was quite contrary to the orders of his court, and that therefore he would be turned out of his post.

Great cruelty in the mean time was exercised against the dissidents where there were no Russian troops to protect them. Towards the end of October 1769, Prince Martin Lubomirski, one of the southern confederates, who had been driven out of Poland, and had taken shelter with some of his adherents among the mountains of Hungary, got a manifesto posted up on several of the churches of Cracow, in which he invited the nation to a general revolt, and assuring them of the assistance of the Ottoman Porte, with whom he pretended to have concluded a treaty. This was the beginning of hostilities between the Turks and Russians, which were not terminated but by a vast effusion of blood on both sides.

The unhappy kingdom of Poland was the first scene of this war, and in a short time was reduced to the most deplorable situation. In the end of the year 1768, the peasants of the Greek religion in the Polish Ukraine, and province of Kiow, took up arms, and committed the greatest ravages, having, as they pretended, been threatened with death by the confederates unless they would turn Roman Catholics. Against these insurgents the Russians employed their arms, and made great numbers

102
War be-
tween this
confederacy
and the
Russians.

Poland. of them prisoners. The rest took refuge among the Haidamacks; by whom they were soon joined, and in the beginning of 1769 entered the Ukraine in conjunction with them, committing everywhere the most horrid massacres. Here, however, they were at last defeated by the Polish troops, at the same time that several of the confederacies in Poland were severely chastised. Soon after, the chan of the Crim Tartars, having been repulsed with loss in an attempt on New Servia, entered the Polish territories, where he left frightful marks of his inhumanity upon some innocent and defenceless persons. This latter piece of conduct, with the cruelties exercised by the confederates, induced the Polish Cossacks of Braclau and Kiovia, amounting to near 30,000 effective men, to join the Russians, in order to defend their country against these destroyers. Matters continued much in the same way during the rest of the year 1769; and in 1770, skirmishes frequently happened between the Russians and confederates, in which the latter were almost always worsted; but they took care to revenge themselves by the most barbarous cruelties on the dissidents, wherever they could find them. In 1770, a considerable number of the confederates of Bar, who had joined the Turks, and been excessively ill used by them, came to an accommodation with the Russians, who took them under their protection on very moderate terms. —Agriculture in the mean time had been so much neglected, that the crop of 1770 was very deficient. This encouraged a number of desperadoes to associate under the denomination of *confederates*, who were guilty of still greater excesses than those who had been under some kind of regulation. Thus a great part of the country was at last reduced to a mere desert, the inhabitants being either exterminated, or carried off to stock the remote Russian plantations, from whence they never could return.

103
New confederacies.

In the year 1771, the confederacies, which seemed to have been extinguished, sprang up afresh, and increased to a prodigious degree. This was occasioned by their having been secretly encouraged and supplied with money by France. A great number of French officers engaged as volunteers in their service; who having introduced discipline among their troops, they acted with much greater vigour than formerly, and sometimes proved too hard for their enemies. These gleams of success proved at last their total ruin. The Russians were reinforced, and properly supported. The Austrian and Prussian troops entered the country, and advanced on different sides; and the confederates found themselves in a short time entirely surrounded by their enemies, who seemed to have nothing less in view than an absolute conquest of the country, and sharing it among themselves.

104
Attempt to assassinate the king,

Before matters came to this crisis, however, the confederates formed a design of assassinating the king, on account of his supposed attachment to the dissidents. Of this singular occurrence we have the following account in the travels of Mr Coxe, communicated to the author by Mr Wraxall.—“A Polish nobleman, named *Pulaski*, a general in the army of the confederates, was the person who planned the atrocious enterprise; and the conspirators who carried it into execution were about 40 in number, and were headed by three chiefs, named *Lukawski*, *Strawenski*, and *Kofinski*. These three chiefs had been engaged and hired

Poland. for that purpose by *Pulaski*, who in the town of *Czetschokow* in Great Poland obliged them to swear in the most solemn manner, by placing their hands between his, either to deliver the king alive into his hands, or, in case that was impossible, to put him to death. The three chiefs chose 37 persons to accompany them. On the second of November, about a month after they had quitted *Czetschokow*, they obtained admission into *Warsaw*, unsuspected or undiscovered, by the following stratagem. They disguised themselves as peasants who came to sell hay, and artfully concealed their ladders, arms, and clothes, under the loads of hay which they brought in waggons, the more effectually to escape detection.

“On Sunday night, the third of September 1771, a few of these conspirators remained in the skirts of the town; and the others repaired to the place of rendezvous, the street of the Capuchins, where his majesty was expected to pass by about his usual hour of returning to the palace. The king had been to visit his uncle Prince *Czartoriski*, grand chancellor of Lithuania, and was on his return from thence to the palace between nine and ten o'clock. He was in a coach, accompanied by at least 15 or 16 attendants, beside an aid-de-camp in the carriage: scarce was he at the distance of 200 paces from Prince *Czartoriski's* palace, when he was attacked by the conspirators, who commanded the coachman to stop on pain of instant death. They fired several shot into the carriage, one of which passed through the body of a heyduc, who endeavoured to defend his master from the violence of the assassins. Almost all the other persons who preceded and accompanied his majesty were dispersed; the aid-de-camp abandoned him, and attempted to conceal himself by flight. Meanwhile the king had opened the door of his carriage with the design of effecting his escape under shelter of the night, which was extremely dark. He had even alighted, when the assassins seized him by the hair, exclaiming in Polish, with horrible execrations, ‘We have thee now; thy hour is come.’ One of them discharged a pistol at him so very near, that he felt the heat of the flash; while another cut him across the head with his sabre, which penetrated to the bone. They then laid hold of his majesty by the collar, and mounting on horseback, dragged him along the ground between their horses at full gallop for near 500 paces through the streets of *Warsaw*.

105
who is taken prisoner,

106
and wounded,

“Soon finding, however, that he was incapable of following them on foot, and that he had already almost lost his respiration from the violence with which they had dragged him, they set him on horseback; and then redoubled their speed for fear of being overtaken. When they came to the ditch which surrounds *Warsaw*, they obliged him to leap his horse over. In the attempt the horse fell twice, and at the second fall broke its leg. They then mounted his majesty upon another, all covered as he was with dirt.

“The conspirators had no sooner crossed the ditch, than they began to rifle the king, tearing off the order of the Black Eagle of Prussia which he wore round his neck, and the diamond cross hanging to it. He requested them to leave his handkerchief, which they consented to: his tablets escaped their rapacity. A great number of the assassins retired after having thus plundered him, probably with intent to notify to their respective leaders the

107
and rifled,

^{Poland.} the success of their enterprise; and the king's arrival as a prisoner. Only seven remained with him, of whom Kofinski was the chief. The night was exceedingly dark; they were absolutely ignorant of the way; and, as the horses could not keep their legs, they obliged his majesty to follow them on foot, with only one shoe, the other being lost in the dirt.

108
His presence of mind remarkable.

"They continued to wander through the open meadows, without following any certain path, and without getting to any distance from Warsaw. They again mounted the king on horseback, two of them holding him on each side by the hand, and a third leading his horse by the bridle. In this manner they were proceeding, when his majesty, finding they had taken the road which led to a village called *Burakow*, warned them not to enter it, because there were some Russians stationed in that place who might probably attempt to rescue him (A). Finding himself, however, incapable of accompanying the assassins in the painful posture in which they held him kept down on the saddle, he requested them, since they were determined to oblige him to proceed, at least to give him another horse and a boot. This request they complied with; and continuing their progress through almost impassable lands, without any road, and ignorant of their way, they at length found themselves in the wood of *Bielany*, only a league distant from Warsaw. From the time they had passed the ditch they repeatedly demanded of Kofinski their chief, if it was not yet time to put the king to death; and these demands were reiterated in proportion to the obstacles and difficulties they encountered, till they were suddenly alarmed by a Russian patrol or detachment. Instantly holding council, four of them disappeared, leaving him with the other three, who compelled him to walk on. Scarce a quarter of an hour after, a second Russian guard challenged them anew. Two of the assassins then fled, and the king remained alone with Kofinski the chief, both on foot. His majesty, exhausted with all the fatigue which he had undergone, implored his conductor to stop, and suffer him to take a moment's repose. Kofinski refused it, menacing him with his naked sabre; and at the same time informed him, that beyond the wood they should find a carriage. They continued their walk, till they came to the door of the convent of *Bielany*. Kofinski appeared lost in thought, and so much agitated by his reflections, that the king perceiving his disorder, and observing that he wandered without knowing the road, said to him, 'I see you are at a loss which way to proceed. Let me enter the convent of *Bielany*, and do you provide for your own safety.' 'No (replied Kofinski), I have sworn.'

"They proceeded till they came to *Mariemont*, a small palace belonging to the house of Saxony, not above half a league from Warsaw: here Kofinski be-

trayed some satisfaction at finding where he was, and the king still demanding an instant's repose, he consented at length. They sat down together on the ground, and the king employed these moments in endeavouring to soften his conductor, and induce him to favour or permit his escape. His majesty represented the atrocity of the crime he had committed in attempting to murder his sovereign, and the invalidity of an oath taken to perpetrate so heinous an action: Kofinski lent attention to this discourse, and began to betray some marks of remorse. But (said he), if I should consent and reconduct you to Warsaw, what will be the consequence? I shall be taken and executed! I give you my word (answered his majesty), that you shall suffer no harm; but if you doubt my promise, escape while there is yet time. I can find my way to some place of security; and I will certainly direct your pursuers to take the contrary road to that which you have chosen. Kofinski could not any longer contain himself, but, throwing himself at the king's feet, implored forgiveness for the crime he had committed; and swore to protect him against every enemy, relying totally on his generosity for pardon and preservation. His majesty reiterated to him his assurances of safety. Judging, however, that it was prudent to gain some asylum without delay, and recollecting that there was a mill at some considerable distance, he immediately made towards it. Kofinski knocked, but in vain; no answer was given: he then broke a pane of glass in the window, and intreated for shelter to a nobleman who had been plundered by robbers. The miller refused, supposing them to be banditti, and continued for more than half an hour to persist in his denial. At length the king approached, and speaking through the broken pane, endeavoured to persuade him to admit them under his roof, adding, 'If we were robbers, as you suppose, it would be very easy for us to break the whole window, instead of one pane of glass.' This argument prevailed. They at length opened the door, and admitted his majesty. He immediately wrote a note to General Coccei, colonel of the foot-guards, informing him of his danger and miraculous escape.

"When the messenger arrived with the note, the astonishment and joy was incredible. Coccei instantly rode to the mill, followed by a detachment of the guards. He met Kofinski at the door with his sabre drawn, who admitted him as soon as he knew him. The king had sunk into a sleep, caused by his fatigue; and was stretched on the ground, covered with the miller's cloak. Coccei immediately threw himself at his majesty's feet, calling him his sovereign, and kissing his hand. It is not easy to paint or describe the astonishment of the miller and his family, who instantly imitated Coccei's example, by throwing themselves on their knees (B). The king returned to Warsaw in General Coccei's carriage,

^{Poland.}
109
He gains over his conductor, effects his escape, and

(A) "This intimation, which the king gave to his assassins, may at first sight appear extraordinary and unaccountable, but was really dictated by the greatest address and judgment. He apprehended with reason, that, on the sight of a Russian guard, they would instantly put him to death with their sabres, and fly; whereas by informing them of the danger they incurred, he in some measure gained their confidence: in effect, this behaviour of the king seemed to soften them a little, and made them believe he did not mean to escape from them."

(B) "I have been (says Mr Wraxall) at this mill, rendered memorable by so deplorable an event. It is wretched."

Poland.

riage, and reached the palace about five in the morning. His wound was found not to be dangerous; and he soon recovered from the bruises and injuries which he had suffered during this memorable night. So extraordinary an escape is scarce to be paralleled in history, and affords ample matter of wonder and surprize.

“It is natural to inquire what is become of Kofinski, the man who saved his majesty’s life, and the other conspirators. He was born in the palatinate of Cracow, and of mean extraction; having assumed the name of *Kofinski* (c), which is that of a noble family, to give himself credit. He had been created an officer in the troops of the confederates under Pulaski. It would seem as if Kofinski began to entertain the idea of preserving the king’s life from the time when Lukawski and Strawenski abandoned him; yet he had great struggles with himself before he could resolve on this conduct, after the solemn engagements into which he had entered. Even after he had conducted the king back to Warsaw, he expressed more than once his doubts of the propriety of what he had done, and some remorse for having deceived his employers. He was detained under a very strict confinement, and obliged to give evidence against his two companions Lukawski and Strawenski, who were beheaded, his majesty having obtained for them from the diet a mitigation of the horrible punishment which the laws of Poland inflict upon regicides. About a week after the execution of these conspirators, Kofinski was sent out of Poland, after the king had settled upon him an annual pension, which he enjoyed at Semigallia, in the papal territories.”

110
Is received at Warsaw with demonstrations of joy.

111
Partition of Poland projected by the king of Prussia,

Upon the king’s return to Warsaw he was received with the utmost demonstrations of joy. Every one exclaimed with rapture, “The king is alive!” and all struggled to get near him, to kiss his hand, or even to touch his clothes. But neither the virtues nor the popularity of the sovereign could allay the factious spirit of the Poles, nor prevent the dismemberment of his kingdom.

“The partition of Poland was first projected by the king of Prussia. Polish or Western Prussia had long been an object of his ambition: exclusive of its fertility, commerce, and population, its local situation rendered it highly valuable to that monarch; it lay between his German dominions and Eastern Prussia, and while possessed by the Poles, cut off at their will all communication between them.” The period was now arrived when the situation of Poland seemed to promise the easy acquisition of this valuable province. “Frederic pursued it, however, with all the caution of an able politician. On the commencement of the troubles, he showed no eagerness to interfere in the affairs of this country; and although he had concurred with the empress of Russia in raising Stanislaus Augustus to the throne of Poland, yet he declined taking any active part in his favour against the confederates. Afterwards, when the whole kingdom became convulsed throughout with civil commotions (1769), and desolated likewise by the plague, he, under pretence of forming lines to prevent the spreading of the infection, advanced his

troops into Polish Prussia, and occupied that whole district.

Poland.

“Though now completely master of the country, and by no means apprehensive of any formidable resistance from the disunited and distracted Poles, yet, as he was well aware that the security of his new acquisition depended upon the acquiescence of Russia and Austria, he planned the partition of Poland. He communicated the project to the emperor, either upon their interview at Niels in Silesia in 1769, or in that of the following year at Newstadt in Austria; from whom the overture met with a ready concurrence. To induce the empress of Russia to acquiesce in the same project, he dispatched his brother Henry to Peterburg, who suggested to the empress that the house of Austria was forming an alliance with the Porte, with which she was then at war; that if such alliance took place, it would create a most formidable combination against her; that, nevertheless, the friendship of that house was to be purchased by acceding to the partition; that upon this condition the emperor was willing to renounce his connection with the Grand Signior, and would suffer the Russians to prosecute the war without interruption. Catharine, anxious to push her conquests against the Turks, and dreading the interposition of the emperor in that quarter; perceiving likewise, from the intimate union between the courts of Vienna and Berlin, that it would not be in her power, at the present juncture, to prevent the intended partition—closed with the proposal, and selected no inconsiderable portion of the Polish territories for herself. The treaty was signed at Peterburg in the beginning of February 1772, by the Russian, Austrian, and Prussian plenipotentiaries. It would be tedious to enter into a detail of the pleas urged by the three powers in favour of their several demands; it would be no less uninteresting to lay before the reader the answers and remonstrances of the king and senate, as well as the appeals to the other states which had guaranteed the possessions of Poland. The courts of London, Paris, Stockholm, and Copenhagen, remonstrated against the usurpations; but remonstrances without assistance could be of no effect. Poland submitted to the dismemberment not without the most violent struggles, and now for the first time felt and lamented the fatal effects of faction and discord.

112
who gains over the emperor and the empress to his measures.

113
Poland dismembered.

A diet being demanded by the partitioning powers, in order to ratify the cession of the provinces, it met on the 19th of April 1773; and such was the spirit of the members, that, notwithstanding the deplorable situation of their country, the threats and bribes of the three powers, the partition-treaty was not carried through without much difficulty. For some time the majority of the nuncios appeared determined to oppose the dismemberment, and the king firmly persisted in the same resolution. The ambassadors of the three courts enforced their requisitions by the most alarming menaces, and threatened the king with deposition and imprisonment. They also gave out by their emissaries, that in case the diet continued refractory, Warsaw should be pillaged.

wretched Polish hovel, at a distance from any house. The king has rewarded the miller to the extent of his wishes, in buying him a mill upon the Vistula, and allowing him a small pension.”

(c) His real name was John Kutfma.

Poland.

pillaged. This report was industriously circulated, and made a sensible impression upon the inhabitants. By menaces of this sort, by corrupting the marshal of the diet, who was accompanied with a Russian guard; in a word, by bribes, promises, and threats, the members of the diet were at length prevailed on to ratify the dismemberment.

114
Provinces
seized by
the three
partition-
ing powers.

Of the dismembered countries, the Russian province is the largest, the Austrian the most populous, and the Prussian the most commercial. The population of the whole amounts to near 5,000,000 souls; the first containing 1,500,000, the second 2,500,000, and the third 860,000. Western Prussia was the greatest loss to Poland, as by the dismemberment of that province the navigation of the Vistula entirely depends upon the king of Prussia: by the loss consequently of this district a fatal blow was given to the trade of Poland; for his Prussian majesty has laid such heavy duties upon the merchandise passing to Dantzic, as greatly to diminish the commerce of that town, and to transfer a considerable portion of it to Memel and Konigsburg.

The partitioning powers, however, did less injury to the republic by dismembering its fairest provinces, than in perpetuating the principles of anarchy and confusion, and establishing on a permanent footing that exorbitant liberty which is the parent of faction, and has proved the decline of the republic. Under pretence of amending the constitution, they have confirmed all its defects, and have taken effectual precautions to render this unhappy country incapable of emerging from its present deplorable state, as has been lately seen in the failure of the most patriotic attempt that was perhaps ever made by a king to reform the constitution of his kingdom.

115
The kings
of Poland
originally
hereditary.

The kings of Poland were anciently hereditary and absolute; but afterwards became elective and limited, as we find them at this day. In the reign of Louis, towards the end of the 14th century, several limitations were laid on the royal prerogative. In that of Casimir IV. who ascended the throne in 1446, representatives from the several palatinates were first called to the diet; the legislative power till then having been lodged in the states, and the executive in the king and senate. On the decease of Sigismund Augustus, it was enacted by law, "That the choice of a king for the future should perpetually remain free and open to all the nobles of the kingdom;" which law has accordingly been hitherto observed.

116
afterwards
elective.

Universal
History.

"As soon as the throne is vacant, all the courts of justice, and other ordinary springs of the machine of government, remain in a state of inaction, and all the authority is transferred to the primate, who, in quality of interrex, has in some respects more power than the king himself; and yet the republic takes no umbrage at it, because he has not time to make himself formidable. He notifies the vacancy of the throne to foreign princes, which is in effect proclaiming that a crown is to be disposed of; he issues the *universalia*, or circular letters for the election; gives orders to the starosts (a sort of military officers who have great authority, and whose proper business it is to levy the revenue) to keep a strict guard upon the fortified places, and to the grand-generals to do the same upon the frontiers, towards which the army marches.

"The place of election is the field of Wola, at the
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gates of Warsaw. All the nobles of the kingdom have a right of voting. The Poles encamp on the left side of the Vistula, and the Lithuanians on the right, each under the banners of their respective palatinates, which makes a sort of civil army; consisting of between a hundred and fifty and two hundred thousand men, assembled to exercise the highest act of freedom. Those who are not able to provide a horse and a sabre stand behind on foot, armed with scythes, and do not seem at all less proud than the rest, as they have the same right of voting.

Poland.

117
Place and
manner of
the elec-
tion.

"The field of election is surrounded by a ditch with three gates, in order to avoid confusion, one to the east for Great Poland, another to the south for Little Poland, and a third to the west for Lithuania. In the middle of the field, which is called *Kolau*, is erected a great building of wood, named the *izopa* or hall for the senate, at whose debates the deputies are present, and carry the result of them to the several palatinates. The part which the marshal acts upon this occasion is very important; for, being the mouth of the nobility, he has it in his power to do great service to the candidates; he is also to draw up the instrument of election, and the king elect must take it only from his hand.

"It is prohibited, upon pain of being declared a public enemy, to appear at the election with regular troops, in order to avoid all violence. But the nobles, who are always armed with pistols and sabres, commit violence against one another, at the time that they cry out 'liberty!'

"All who aspire openly to the crown are expressly excluded from the field of election, that their presence may not constrain the voters. The king must be elected *nemine contradicente*, by all the suffrages without exception. The law is founded upon this principle, that when a great family adopts a father, all the children have a right to be pleased. The idea is plausible in speculation; but if it was rigorously kept to, Poland could have no such thing as a lawful king. They therefore give up a real unanimity, and content themselves with the appearance of it; or rather, if the law, which prescribes it, cannot be fulfilled by means of money, they call in the assistance of the sabre.

"Before they come to this extremity, no election can possibly be carried on with more order, decency, and appearance of freedom. The primate in few words recapitulates to the nobles on horseback the respective merits of the candidates; he exhorts them to choose the most worthy, invokes heaven, gives his blessing to the assembly, and remains alone with the marshal of the diet, while the senators disperse themselves into the several palatinates, to promote an unanimity of sentiments. If they succeed, the primate goes himself to collect the votes, naming once more all the candidates. 'Szoda (answer the nobles), that is the man we choose;' and instantly the air resounded with his name, with cries of *vivat*, and the noise of pistols. If all the palatinates agreed in their nominations, the primate got on horseback; and then the profoundest silence succeeding to the greatest noise, he asked three times if all were satisfied? and after a general approbation, three times proclaimed the king; and the grand-marshal of the crown repeated the proclamation three times at the three gates of the camp. How glorious a king this, if endued with royal qualities! and how incontestable his title in the suffrages.

L

Poland. suffrages of a whole people! But this sketch of a free and peaceable election is by no means a representation of what usually happened. The corruption of the great, the fury of the people, intrigues and factions, the gold and the arms of foreign powers, frequently filled the scene with violence and blood."

118
The *patia*
conventa.

Before the king was proclaimed, the *patia conventa* was read aloud to him, which on his knees at the altar he swore to observe. As this contract, which was drawn up, methodized, and approved, by the senate and nobility, was deemed the great charter of Poland, we shall enumerate the principal articles of which it consisted. These are, that the king should not attempt to encroach on the liberty of the people, by rendering the crown hereditary in his family; but that he should preserve all the customs, laws, and ordonnances, respecting the freedom of election: that he should ratify all treaties subsisting with foreign powers which were approved by the diet: that it should be his chief study to cultivate peace, preserve the public tranquillity, and promote the interest of the realm: that he should not coin money except in the name of the republic, or appropriate to himself the advantages arising from coinage: that in declaring war, concluding peace, making levies, hiring auxiliaries, or admitting foreign troops upon any pretext within the Polish dominions, the consent of the diet and senate should be necessary: that all offices and preferments should be given to the natives of Poland and Lithuania; and that no pretence should excuse or palliate the crime of introducing foreigners into the king's council or the departments of the republic: that the officers of his majesty's guards should be Poles or Lithuanians; and that the colonel should absolutely be a native of Poland, and of the order of nobility: that all the officers should be subordinate to the authority of the marshal: that no individual should be vested with more employments than the law allows: that the king should not marry without the approbation of the senate; and that the household of the queen should be determined and regulated by the republic: that the sovereign should never apply his private signet to acts and papers of a public nature: that the king should dispose of the offices both of the court and of the republic; and regulate with the senate the number of forces necessary for the defence of the kingdom: that he should administer justice by the advice of the senate and his council: that the expences of his civil list should be the same with those of his predecessors: that he should fill up all vacancies in the space of six weeks: that this should be his first business in the diet, obliging the chancellor to publish his appointments in due form: that the king should not diminish the treasure kept at Cracow; but, on the contrary, endeavour to augment that and the number of the crown-jewels: that he should borrow no money without the consent of the diet: that he should not equip a naval force without the consent and full approbation of the republic: that he should profess the Roman Catholic faith, promote, maintain, and defend it, through all the Polish dominions: and finally, that all their several liberties, rights, and privileges, should be preserved to the Poles and Lithuanians in general, and to all the districts and provinces contained within each of these great divisions, without change, alteration, or the smallest violation, except by the consent of the republic. To

these articles a variety of others were added, according to circumstances and the humour of the diet; but what we have recited formed the standing conditions, which were scarcely ever altered or omitted.

Poland.

The diet of Poland was composed of the king, the senate, bishops, and the deputies of the nobility or gentry of every palatinate, called, in their collective capacity, *comitia togata*, that is, when the states assembled in the city without arms and horses; or *comitia paludata*, when they met in the fields armed, as during an interregnum, at the diet of election. It was a prerogative of the crown to assemble the diet at any particular place, except on occasion of a coronation, which the custom of the country required should be celebrated at the capital. For a number of years, indeed, the diet regularly assembled at Warsaw; but, on complaint made by the Lithuanians, it was agreed, that every third diet should be held at Grodno. "When it is proposed to hold a general diet, the king, or, in case of an interregnum, the primate, issues writs to the palatines of the several provinces, specifying the time and place of the meeting. A sketch likewise was sent of the business to be deliberated on by the assembly; the senate was consulted in this particular, and six weeks were allowed the members to prepare themselves for the intended session. It is remarkable, that the diet never sat more than six weeks in the most critical conjunctures and pressing emergencies: they have been known to break up in the middle of an important debate, and to leave the business to a future meeting. This custom has been justly esteemed one of the greatest defects of the Polish constitution, which probably owed its origin to convenience, but was afterwards superstitiously observed from whim and caprice. On receipt of the king's writ, the palatine communicated the meeting of the diet to all the castellans, starostas, and other inferior officers and gentry within his jurisdiction, requiring them to assemble on a certain day to elect deputies, and take into consideration the business specified in the royal summons. These meetings were called *petty diets*, *dietines*, or *lantage*, in the language of the country; every gentleman possessing three acres of land having a vote, and matters being determined by a majority; whereas in the general diet decrees were only valid when the whole body was unanimous. Every palatinate had three representatives, though the business devolved on one called a *nuncio*, who was elected for his ability and experience; and the other two were added only to give weight to this leading member, and do honour by their magnificent appearance to the palatinate they represented. As these deputies, since the reign of Casimir III. had seats in the diet, it naturally divided the general assembly into two bodies, the upper and lower; the one being composed of the senate, the superior clergy, and the great officers; the other of the representatives of the palatinates, who prepared all business for the superior body.

119
The diet of
Poland, and

120
Dietines

The first business of the assembly was to choose a marshal; upon which occasion the debates and tumults ran so high, that the whole time for the session of the diet was often consumed in altercation and wrangling about the election of a speaker, who had now nothing farther to do than return quietly to his own home. After his election, he kissed the king's hand; and the chancellor, as the royal representative, reported the matters to be deliberated by the diet. Then the marshal acquainted

¹²¹ Poland. acquainted the king with the instructions of the deputies from their constituents, the grievances which they would have redressed, and the abuses they required to be remedied. He likewise requested of his majesty to fill up the vacant offices and benefices, according to law; and he was answered by a set speech from the chancellor, who reported the king's inclination to satisfy his people, as soon as he had consulted his faithful senate. There was

¹²¹ Abfurd customs observed in the diet.

¹²² The *liberum veto*.

something very peculiarly absurd in some of the customs observed by the Polish diet: one in particular merits attention. Not only an unanimity of voices was necessary to pass any bill, and constitute a decree of the diet, but every bill must likewise be assented to unanimously, or none can take effect. Thus, if out of twenty bills one happened to be opposed by a single voice, called *liberum veto*, all the rest were thrown out, and the diet met, deliberated, and debated, for six weeks, to no purpose.

"To add to the other inconveniences that attended the constitution of the diet of Poland, a spirit of venality in the deputies, and a general corruption, had seized all ranks and degrees in that assembly. There, as in some other countries, the cry of liberty was kept up for the sake of private interest. Deputies came with a full resolution of profiting by their patriotism, and not lowering their voice without a gratification. Determined to oppose the most salutary measures of the court, they either withdrew from the assembly, protested against all that should be transacted in their absence, or else excited such a clamour as rendered it necessary for the court to silence them by some lucrative pension, donation, or employment. Thus not only the business of the assembly was obstructed by its own members, but frequently by largesses from neighbouring powers, and sometimes by the liberality of an open enemy, who had the art of distributing his money with discretion.

¹²³ The senate of Poland.

"Perhaps the most respectable department of the Polish government was the senate, composed of the bishops, palatines, castellans, and ten officers of state, who derived a right from their dignities of sitting in that assembly; in all amounting to 144 members, who were styled *senators of the kingdom* or *counsellors of the state*, and had the title of *excellency*, a dignity supported by no pension or emoluments necessarily annexed. The senate presided over the laws, was the guardian of liberty, the judge of right, and the protector of justice and equity. All the members, except the bishops, who were *senators ex officio*, were nominated by the king, and they took an oath to the republic before they were permitted to enter upon their functions. Their honours continued for life: at the general diet they sat on the right and left of the sovereign, according to their dignity, without regard to seniority. They were the mediators between the monarch and the subject, and, in conjunction with the king, ratified all the laws passed by the nobility. As a senator was bound by oath to maintain the liberties of the republic, it was thought no disrespect to majesty that they reminded the prince of his duty. They were his counsellors, and this freedom of speech was an inseparable prerogative of their office."

Such was the constitution of Poland before it was new-modelled by the partitioning powers. That it was a very bad constitution needs no proof; but those foreign reformers did not improve it. For two centuries at least, the Poles had with great propriety denomina-

ted their government a republic, because the king was exceedingly limited in his prerogative, that he resembled more the chief of a commonwealth than the sovereign of a powerful monarchy. That prerogative, already too confined to afford protection to the peasants, groaning under the aristocratic tyranny of the nobles, was, after the partition treaty, still further restrained by the establishment of the *permanent council*, which was vested with the whole executive authority, leaving to the sovereign nothing but the name. The permanent council consisted of 36 persons, elected by the diet out of the different orders of nobility; and though the king, when present, presided in it, he could not exert a single act of power but with the consent of the majority of persons, who might well be called his *colleagues*.

Poland
¹²⁴ The permanent council.

That the virtuous and accomplished Stanislaus should labour to extricate himself and the great body of the people from such unparalleled oppression, and that the more respectable part of the nation should wish to give to themselves and their posterity a better form of government, was surely very natural and very meritorious. The influence of the partitioning powers was indeed exerted to make the king contented with his situation. His revenues, which before did not exceed 100,000*l.* were now increased to three times that sum. The republic likewise agreed to pay his debts, amounting to upwards of 400,000*l.* It bestowed on him also, in hereditary possession, four starosties, or governments of castles, with the districts belonging to them; and reimbursed him of the money he had laid out for the state. It was also agreed, that the revenues of the republic should be enhanced to 33 millions of florins (near two millions sterling), and the army should consist of 30,000 men. Soon after the conclusion of the peace with Turkey, the empress of Russia also made the king a present of 250,000 rubles, as a compensation for that part of his dominions which fell into her hands.

These bribes, however, were not sufficient to blind the eyes of Stanislaus, or to cool the ardour of his patriotism. He laboured for posterity, and with such apparent success, that on the 3d of May 1791, a new constitution of the government of Poland was established by the king, together with the confederate states assembled in double number to represent the Polish nation. That this was a perfect constitution, we are far from thinking; but it was probably as perfect as the inveterate prejudices of the nobles would admit of. It deviated as little as possible from the old forms, and was drawn up in 11 articles, respecting the government of the republic; to which were added 21 sections, regulating the dietines or primary assemblies of Poland.

¹²⁵ A new constitution established in 1791.

Of this constitution, the first article established the Roman Catholic faith, with all its privileges and immunities, as the dominant national religion; granting to all other people, of whatever persuasion, peace in matters of faith, and the protection of government. The second article guaranteed to the nobility or the equestrian order, all the privileges which it enjoyed under the kings of the house of Jagellon. The third and fourth articles granted to the free royal towns internal jurisdictions of their own; and exempted the peasants from slavery, declaring every man free as soon as he set his foot on the territory of the republic. The fifth article, after declaring, that in civil society all power should be derived from the will of the people, enacted that the govern-

¹²⁶ Substance of the first five articles of it.

Poland. ment of the Polish nation should be composed of three distinct powers, the *legislative*, in the states assembled; the *executive*, in the king and the council of inspection; and the *judicial* power, in the jurisdictions existing, or to be established. The sixth and seventh articles, as being of more importance, we shall give in the words of the constitution itself.

127
The diet to consist of two houses, viz. the house of nuncios,

VI. *The Diet, or the legislative power*, shall be divided into two houses, viz. the house of nuncios, or deputies, and the house of senate, where the king is to preside. The former being the representative and central point of supreme national authority, shall possess the pre-eminence in the legislature; therefore all bills are to be decided first in this house.

1. *All General Laws*, viz. constitutional, civil, criminal, and perpetual taxes; concerning which matters, the king is to issue his propositions by the circular letters sent before the dietines to every palatinate and to every district for deliberation, which coming before the house with the opinion expressed in the instructions given to their representatives, shall be taken the first for decision.

2. *Particular Laws*, viz. temporal taxes; regulations of the mint; contracting public debts; creating nobles, and other casual recompenses; reparation of public expences, both ordinary and extraordinary; concerning war; peace; ratification of treaties, both political and commercial; all diplomatic acts and conventions relative to the laws of nations; examining and acquitting different executive departments, and similar subjects arising from the accidental exigencies and circumstances of the state; in which the propositions, coming directly from the throne into the house of nuncios, are to have preference in discussion before the private bills.

128
and the house of senate.

In regard to the house of senate, it is to consist of bishops, palatines, castellans, and ministers, under the presidency of the king, who shall have but one vote, and the casting voice in case of parity, which he may give either personally, or by a message to the house. Its power and duty shall be,

1. Every general law that passes formally through the house of nuncios, is to be sent immediately to this, which is either accepted, or suspended till farther national deliberation, by a majority of votes, as prescribed by law. If accepted, it becomes a law in all its force; if suspended, it shall be resumed at the next diet; and if it is then agreed to again by the house of nuncios, the senate must submit to it.

3. Every particular law or statute of the diet in matters above specified, as soon as it has been determined by the house of nuncios, and sent up to the senate, the votes of both houses shall be jointly computed, and the majority, as described by law, shall be considered as a decree and the will of the nation. Those senators and ministers who, from their share in executive power, are accountable to the republic, cannot have an active voice in the diet, but may be present, in order to give necessary explanations to the states.

These ordinary legislative diets shall have their uninterrupted existence, and be always ready to meet; renewable every two years. The length of sessions shall be determined by the law concerning diets. If convened out of ordinary session upon some urgent occasion, they shall only deliberate on the subject which occasion-

ed such a call, or on circumstances which may arise out of it. Poland.

No law or statute enacted by such ordinary diet can be altered or annulled by the same. The complement of the diet shall be composed of the number of persons in both houses to be determined hereafter.

The law concerning the dietines or primary elections, as established by the present diet, shall be regarded as a most essential foundation of civil liberty.

The majority of votes shall decide every thing, and everywhere; therefore we abolish, and utterly annihilate, *liberum veto*, all sorts of confederacies and confederate diets, as contrary to the spirit of the present constitution, as undermining the government, and as being ruinous to society.

129
The *liberum veto* abolished.

Willing to prevent, on one hand, violent and frequent changes in the national constitution, yet, considering on the other, the necessity of perfecting it, after experiencing its effects on public prosperity, we determine the period of every 25 years for an extraordinary constitutional diet, to be held purposely for the revision and such alterations of the constitution as may be found requisite: which diet shall be circumscribed by a separate law hereafter.

130
Extraordinary diet for revising the constitution.

VII. The most perfect government cannot exist or last without an effectual executive power. The happiness of the nation depends on just laws, but the good effects of laws flow only from their execution. Experience has taught us, that the neglecting this essential part of government has overwhelmed Poland with disasters.

Having, therefore, secured to the free Polish nation the right of enacting laws for themselves, the supreme inspection over the executive power, and the choice of their magistrates, we entrust to the king and his council the highest power of executing the laws. This council shall be called *straz*, or the council of inspection.

131
Powers of the king and council of inspection.

The duty of such executive power shall be to watch over the laws, and to see them strictly executed according to their import, even by the means of public force, should it be necessary. All departments and magistracies are bound to obey its directions. To this power we leave the right of controlling such as are refractory, or of punishing such as are negligent in the execution of their respective offices.

This executive power cannot assume the right of making laws, or of their interpretation. It is expressly forbidden to contract public debts; to alter the repartition of the national income, as fixed by the diet; to declare war; to conclude definitively any treaty, or any diplomatic act; it is only allowed to carry on negotiations with foreign courts, and facilitate temporary occurrences, always with reference to the diet.

The crown of Poland we declare to be elective in regard to families, and it is settled so for ever.

132
Crown elective in regard to families;

Having experienced the fatal effects of interregna, periodically subverting government, and being desirous of preventing for ever all foreign influence, as well as of insuring to every citizen a perfect tranquillity, we have, from prudent motives, resolved to adopt hereditary succession to our throne: therefore we enact and declare, each family that, after the expiration of our life, according to the gracious will of the Almighty, the present elector of Saxony

133
but hereditary until its extinction.

Saxony

Poland. Saxony shall reign over Poland, and in his person shall the dynasty of future kings of Poland begin. We reserve to the nation, however, the right of electing to the throne any other house or family, after the extinction of the first.

134
Coronation
oath.

Every king, on his accession to the throne, shall take a solemn oath to God and the nation, to support the present constitution, to fulfil the *pacta conventa*, which will be settled with the present elector of Saxony, as appointed to the crown, and which shall bind him in the same manner as former ones.

135
King's per-
son sacred;

The king's person is sacred and inviolable; as no act can proceed immediately from him, he cannot be in any manner responsible to the nation; he is not an absolute monarch, but the father and the head of the people; his revenues, as fixed by the *pacta conventa*, shall be sacredly preserved. All public acts, the acts of magistracies, and the coin of the kingdom, shall bear his name.

136
His particu-
lar powers.

The king, who ought to possess every power of doing good, shall have the right of pardoning those that are condemned to death, except the crimes be against the state. In time of war, he shall have the supreme command of the national forces: he may appoint the commanders of the army, however, by the will of the states. It shall be his province to patentee officers in the army, and other dignitaries, consonant to the regulations hereafter to be expressed, to appoint bishops, senators, and ministers, as members of the executive power.

137
Members of
the council
of inspec-
tion.

The king's council of inspection is to consist, 1. Of the primate, as the head of the clergy, and the president of the commission of education, or the first bishop in order. 2. Of five ministers, viz. the minister of police, minister of justice, minister of war, minister of finances, and minister for the foreign affairs. 3. Of two secretaries to keep the protocols, one for the council, another for the foreign department; both, however, without decisive vote. The hereditary prince coming of age, and having taken the oath to preserve the constitution, may assist at all sessions of the council, but shall have no vote therein. The marshal of the diet, being chosen for two years, has also a right to sit in this council, without taking any share in its resolves; for the end only to call together the diet, always existing, in the following case: should he deem, from the emergencies hereunder specified, the convocation of the diet absolutely necessary, and the king refusing to do it, the marshal is bound to issue his circular letters to all nuncios and senators, adducing real motives for such meeting.

138
Powers of
the marshal.

The cases demanding such convocation of the diet are the following: 1. In a pressing necessity concerning the law of nations, and particularly in case of a neighbouring war. 2. In case of an internal commotion, menacing with the revolution of the country, or of a collision between magistrates. 3. In an evident danger of general famine. 4. In the orphan state of the country, by demise of the king, or in case of the king's dangerous illness. All the resolutions of the council of inspection are to be examined by the rules above mentioned. The king's opinion, after that of every member in the council has been heard, shall decisively prevail. Every resolution of this council shall be issued under the king's signature, countersigned by one of the ministers sitting therein; and thus signed, shall be obeyed by all executive departments, except in cases expressly exempted by the present constitution.

Should all the members refuse their counterfign to any resolution, the king is obliged to forego his opinion; but if he should persist in it, the marshal of the diet may demand the convocation of the diet; and if the king will not, the marshal himself shall send his circular letters as above. Ministers composing this council cannot be employed at the same time in any other commission or department.

Poland.

If it should happen that two-thirds of secret votes in both houses demand the changing of any person, either in the council, or any executive department, the king is bound to nominate another. Willing that the council of inspection should be responsible to the nation for their actions, we decree, that when these ministers are denounced and accused before the diet (by the special committee appointed for examining their proceedings) of any transgression of positive law, they are answerable with their persons and fortunes. Such impeachments being determined by a simple majority of votes, collected jointly from both houses, shall be tried immediately by the comitial tribunal, where the accused are to receive their final judgement and punishment, if found guilty; or to be honourably acquitted on sufficient proof of innocence.

In order to form a necessary organization of the executive power, we establish hereby separate commissions, connected with the above council, and subjected to obey its ordinations. These commissions are, 1. of education; 2. of police; 3. of war; 4. of treasury. It is through the medium of these four departments that all the particular orderly commissions, as established by the present diet, in every palatinate and district, shall depend on, and receive all orders from, the council of inspection, in their respective duties and occurrences.

139
Commis-
sions of e-
ducation,
police, &c.

The eighth article regulates the administration of justice, beginning with a very sensible declaration, that the judicial power is incompatible with the legislative, and that it cannot be administered by the king. It therefore constitutes primary courts of justice for each palatinate or district, composed of judges chosen at the diet; and appoints higher tribunals, erected one in each of the three provinces into which the kingdom is divided, with which appeals may be lodged from the primary courts. It appoints likewise for the trial of persons accused of crimes against the state, one supreme general tribunal for all classes, called a *comitial tribunal* or court, composed of persons chosen at the opening of every diet.

140
Admini-
stration of
justice.

The ninth article provides a regency during the king's minority, in case of his settled alienation of reason, or upon the emergency of his being made a prisoner of war. This regency was to be composed of the council of inspection, with the queen at their head, or, in her absence, the primate of the kingdom. The tenth article enjoins, that the education of the king's sons shall be entrusted to the king with the council, and a tutor appointed by the states; and the eleventh regulates the army in such a manner, as to prevent it from being employed to overturn the constitution.

141
Regency on
certain oc-
casions.

The regulation of the dietines contains nothing that can be interesting to a British reader, except what relates to the election and duties of nuncios or representatives to the general diet. And here it is enacted, that persons having a right to vote are all nobles of the equestrian order; i. e. 1. All hereditary proprietors of landed

142
The elec-
tion and
duties of
nuncios,
landed

Poland. landed property, or possessed of estates by adjudication for a debt, paying territorial tax to government: sons also of such proprietors during the life of their parents, before the ex-division of patrimony. 2. Brothers inheriting estates before they have shared their succession. 3. All mortgages who pay 100 florins (50 shillings) of territorial tax per year from their possessions. 4. All life-holders of lands paying territorial tax to the same amount. 5. All nobles in the army possessed of such qualifying estates have a vote in their respective districts in time of peace, and properly furloughed by their commanders. 6. Legal possession is understood to be qualifying when it has been formerly acquired and actually enjoyed for twelve calendar months previously.

143
Persons eligible and not eligible.

Persons who have no right to vote are, 1. Those of the equestrian order that are not actually possessed of a property, as described in the foregoing article. 2. Such as hold royal, ecclesiastical, or noble lands, even with right of inheritance, but on condition of some duty or payment to their principals, consequently dependent thereon. 3. Gentry possessing estates on feudal tenure, called *ordynackie*, as being bound to certain personal service thereby. 4. All renters of estates that have no other qualifying property. 5. Those that have not accomplished 18 years of age. 6. *Crimine notati*, and those that are under a decree passed in default, even in the first instance, for having disobeyed any judicial court.

Every person of the equestrian order that pays territorial tax to government for his freehold, let it be ever so small, is eligible to all elective offices in his respective district.

Gentlemen actually serving in the army, even possessed of landed hereditary estate, must have served six complete years before they are eligible to the office of a nuncio only. But this condition is dispensed with in favour of those that have filled before some public function.

Whoever is not personally present at the dietine; whoever has not completed 23 years of age; whoever has not been in any public function, nor passed the biennial office of a commissary in the orderly commission; those that are not exempted by law from obligations of *scarta bellatus*, which subjects all newly-nobilitated persons to certain civil restrictions until the next generation; and, lastly, all those against whom may be objected a decree *in contumaciam* in a civil cause; are not eligible.

144
Instructions to the nuncios,

During the business of election, the president who opened the meeting, with the rest of the committee, except those who are assessors, shall prepare instructions for procedure; and in regard to the propositions sent by the king and the council of inspection, these instructions shall be worded thus: "Our nuncios shall vote *affirmative* to the article *N*;" or, "Our nuncios shall vote *negative* to the article *N*," in case it is found contrary to the opinion of the dietine: and should any amendment or addition be deemed necessary and agreed on, it may be inserted in the instructions at the end of the relative proposition.

145
Who are accountable to their constituents.

At the meeting of the dietines, after the diet has sat, the nuncios are bound to appear before their constituents, and to bring their report of the whole proceedings of that assembly; first, respecting the acts of legislature; next, with respect to the particular projects of their pa-

latinate or district recommended to them by the instructions. Poland.

It is at these dietines that nuncios, after they have rendered to their constituents a clear account of their proceedings and of the diet, may be either confirmed or changed, and new ones elected in their stead till the general election for the following ordinary diet.

New nuncios are chosen, 1. In the room of the deceased. 2. In the room of those that are become senators or ministers of state. 3. In case of resignation. 4. In the room of such as are disqualified by the diet. 5. When any of the assembly desires a new election, to substitute another nuncio in the room of one expressly pointed out; which request must be made in writing, signed by 12 members besides, and be delivered to the marshal of the dietine. In this last case, the marshal is to read the name of the nuncio objected to, and to make the following proposition: "Shall the nuncio *N* be confirmed in his function? or, Shall there be a new election made in his stead?" The opinion of the meeting being taken by a division, the majority shall decide the question, and be declared by the marshal. If the majority approves the conduct of the nuncio, the marshal and the assessors shall certify this confirmation on the diploma; and in case of disapprobation, the marshal shall declare the vacancy, and begin the form of a new election.

146
This constitution, though superior to the former, protected against by some corrupt nobles.

Such are the outlines of the Polish constitution established by the king and the confederates in 1791. It will not bear a comparison with that under which Britons have the happiness to live; but it is surely infinitely superior to that motley form of government which, for a century past, rendered Poland a perpetual scene of war, tumult, tyranny, and rebellion. Many of the corrupt nobles, however, perceiving that it would curb their ambition, deprive them of the base means which they had long enjoyed of gratifying their avarice by setting the crown to sale, and render it impossible for them to continue with impunity their tyrannical oppression of the peasants, protested against it, and withdrew from the confederates. This was nothing more than what might have been expected, or than what the king and his friends undoubtedly did expect. But the malcontents were not satisfied with a simple protest; they preferred their complaints to the empress of Russia, who, ready on all occasions, and on the slightest pretence, to invade Poland, poured her armies into the republic, and surrounding the king and the diet with ferocious soldiers, compelled them, by the most furious and independent menaces, to undo their glorious labour of love, and to restore the constitution as settled after the partition treaty.

147
and opposed by the Russians.

Of the progress of the Russians in this work of darkness, our readers will be pleased with the following manly and indignant narrative, taken from a periodical work* of acknowledged merit.

* *New Annual Register*, 1792.

"It was on the 21st of April 1792, that the diet received the first notification from the king, of the inimical and unjust intentions of Russia. He informed them that, without the shadow of pretence, this avowed enemy of the rights of mankind had determined to invade the territory of the republic with an army of 60,000 men. This formidable banditti, commanded by generals Soltikow, Michelson, and Kosakowski, was afterwards to be supported by a corps of 20,000, and by the troops

Poland. troops then acting in Moldavia, amounting to 70,000. The king, however, professed that he was not discouraged, and declared his readiness to put himself at the head of the national troops, and to terminate his existence in a glorious contest for the liberties of his country. Then, and not before, the diet decreed the organization of the army, and its augmentation to 100,000. The king and the council of inspection were invested with unlimited authority in every thing that regarded the defence of the kingdom. Magazines were ordered to be constructed when it was too late, and quarters to be provided for the army.

¹⁴⁸ The nation rises to maintain its independence. "The diet and the nation rose as one man to maintain their independence. All private animosities were obliterated, all private interests were sacrificed; the greatest encouragements were held forth to volunteers to enroll themselves under the national standard, and it was unanimously decreed by the diet, that all private losses should be compensated out of the public treasury.

"On the 18th of May, the Russian ambassador delivered a declaration, which was worthy of such a cause. It was a tissue of falsehood and hypocrisy. It asserted, that this wanton invasion, which was evidently against the sense of almost every individual Pole, was meant entirely for the good of the republic. It censured the precipitancy with which the new constitution was adopted, and ascribed the ready consent of the diet to the influence of the Warsaw mob. It represented the constitution as a violation of the principles on which the Polish republic was founded—complained of the licentiousness with which the sacred name of the empress was treated in some speeches of the members; and concluded by professing, that on these accounts, and in behalf of the emigrant Poles, her imperial majesty had ordered her troops to enter the territories of the republic.

¹⁴⁹ Spirit of the nobles. "At the moment this declaration was delivered to the diet, the Russian troops, accompanied by Counts Potocki, Rzewuski, Branicki, and a few Polish apostates, appeared upon the frontiers, and entered the territories of the republic in several columns, before the close of the month. The spirit manifested by the nobility was truly honourable. Some of them delivered in their plate to the mint. Prince Radzvil engaged voluntarily to furnish 10,000 stand of arms, and another a train of artillery. The courage of the new and hastily embodied soldiers corresponded with the patriotism of their nobles. Prince Poniatowski, nephew to the king, was appointed commander in chief; and though his force was greatly inferior to the enemy, it must be confessed that he made a noble stand. On the 24th of May, the enemy's Cossacks were repulsed, and pursued by the patrols of the republic to the very entrenchments. On the 26th, about one o'clock, the piquets of the republic discovered a large body of Don Cossacks approaching the outposts; and a Squadron of cavalry, commanded by Lieutenant Kwasniewski, supported by Lieutenant Golejowski with two squadrons more, in all about 300, marched out to meet them. They attacked the Cossacks with success, but pursued them with more valour than prudence to the side of a wood, where they found themselves drawn into an ambuscade, and surrounded by 2000 horse, two battalions of chassours, and six pieces

of cannon. The intrepid Poles bravely fought their way through the Russian line, and killed upwards of 200 of the enemy. The Poles in this engagement lost 100 men and two officers; one of whom, Lieutenant Kwasniewski, was wounded and made prisoner. The remainder of the detachment reached their quarters in safety.

¹⁵⁰ Conduct of the court of Berlin. "Perhaps the history of man can scarcely furnish an instance of perfidy, meanness, and duplicity, equal to that which was manifested by Prussia on this occasion. By the treaty of defensive alliance, solemnly contracted between the republic of Poland and the king of Prussia, and ratified on the 23d of April 1790, it is expressly stipulated, 'That the contracting parties shall do all in their power to guarantee and preserve to each other reciprocally the whole of the territories which they respectively possess: That, in case of menace or invasion from any foreign power, they shall assist each other with their whole force, if necessary:—and by the sixth article, it is further stipulated, 'that if any foreign power whatever shall presume to interfere in the internal affairs of Poland, his Prussian majesty shall consider this as a case falling within the meaning of the alliance, and shall assist the republic according to the tenor of the fourth article,' that is, with his whole force. What then is the pretext for abandoning this treaty? It is, that the empress of Russia has shown a decided opposition to the order of things established in Poland on the third of May 1791, and is provoked by Poland presuming to put herself into a posture to defend it.—It is known, however, by the most authentic documents, that nothing was effected on the third of May 1791, to which Prussia had not previously assented, and which she did not afterwards sanction; and that Prussia, according to the assertion of her own king, did not intimate a single doubt respecting the revolution till one month (and according to the Prussian minister till six months) after it had taken place; in short, to use the monarch's own words as fully explanatory of his double politics, 'not till the general tranquillity of Europe permitted him to explain himself.'—Instead, therefore, of assisting Poland, Prussia insultingly recommended to Poland to retrace her steps; in which case, she said that she would be ready to attempt an accommodation in her favour. This attempt was never made, and probably never intended; for the empress pursued her measures.

¹⁵¹ War with Russia. The duchy of Lithuania was the great scene of action in the beginning of the war; but the Russians had made little progress before the middle of the month of June. On the 10th of that month, General Judycki, who commanded a detachment of the Polish troops, between Mire and Swierzna, was attacked by the Russians; but, after a combat of some hours, he obliged them to retire with the loss of 500 men dead on the field.—The general was desirous of profiting by this advantage, by pursuing the enemy, but was prevented by a most violent fall of rain. On the succeeding day, the Russians rallied again to the attack; and it then too fatally appeared, that the Poles were too young and undisciplined to contend with an inferior force against experienced troops and able generals. By a masterly manœuvre, the Russians contrived to surround their antagonists, at a moment when the Polish general supposed that he had obliged the enemy to retreat; and though the field was

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contested with the utmost valour by the troops of the republic, they were at length compelled to give way, and to retire towards Nieswiefz.

On the 14th another engagement took place near Lubar, on the banks of the river Sluez, between a detachment of the Russian grand army and a party of Polish cavalry, dispatched by Prince Joseph Poniatowski, to intercept the enemy. The patriotic bravery of the Poles was victorious in this contest; but upon reconnoitring the force of the enemy, the prince found himself incapable of making a successful stand against such superior numbers. He therefore gave orders to strike the camp at Lubar, and commenced a precipitate retreat. During their march, the Polish rear was harassed by a body of 4000 Russians, till arriving at Boruskowee, the wooden bridge unfortunately gave way, under the weight of the cavalry. The enemy, in the mean time, brought their artillery to play upon the rear of the fugitives, who lost upwards of 250 men. The Polish army next directed its course towards Zielime, where meeting, on the 17th, with a reinforcement from Zallow, it halted to give battle to the enemy. The Russians were upwards of 17,000 strong, with 24 pieces of cannon, and the force of the republic much inferior. After a furious contest from seven in the morning till five in the afternoon, the Russians were at length obliged to retreat, and leave the field of battle in possession of the patriots. The Russians were computed to have lost 4000 men in this engagement, and the Poles about 1100.

Notwithstanding these exertions, the Poles were obliged gradually to retire before their numerous and disciplined enemies. Nieswiefz, Wilna, Minsk, and several other places of less consequence, fell into their hands one after another. On a truce being proposed to the Russian general Kochowski, the proposal was haughtily rejected; while the desertion of vice-brigadier Rudnicki and some others, who preferred dishonour to personal danger, proclaimed a tottering cause. The progress of the armies of Catharine was marked with devastation and cruelty, while, such was the aversion of the people both to the cause and the manner of conducting it, that, as they approached, the country all around became a wilderness, and scarcely a human being was to be seen.

In the mean time, a series of little defeats, to which the inexperience of the commanders, and the intemperate valour of new raised troops appear to have greatly contributed, served at once to distress and to dispirit these defenders of their country. Prince Poniatowski continued to retreat, and on the 17th of July, his rear being attacked by a very superior force, it suffered a considerable loss, though the skill and courage of General Kosciuszko enabled him to make a most respectable defence. On the 18th, a general engagement took place between the two armies. The Russian line extended opposite Dubienka, along the river Bog, as far as Opalin. The principal column, consisting of 14,000 men, was chiefly directed against the division of General Kosciuszko, which consisted of 5000 men only. After a most vigorous resistance, in which the Russians lost upwards of 4000 men, and the troops of the republic only some hundreds, the latter was compelled to give way before the superior numbers of the enemy, and to retire further into the country.

This unequal contest was at last prematurely terminated. The king, whose benevolent intentions were, perhaps, overpowered by his mental imbecility, and whose age and infirmities, probably, rendered him unequal to the difficulties and dangers which must attend a protracted war, instead of putting himself, according to his first resolve, at the head of his army, determined at once, to surrender at discretion. On the 23d of July, he summoned a council of all the deputies at that moment in Warsaw. He laid before them the last dispatches from the empress, which insisted upon total and unreserved submission. He pointed out the danger of a dismemberment of the republic, should they delay to throw themselves upon the clemency of the empress, and to intreat her protection. He mentioned the fatal union of Austria and Prussia with Russia; and the disgraceful supineness manifested by every other court in Europe.

Four citizens, the intrepid and patriotic Malachowski, the princes Sapieha, Radzvil, and Soltan, vehemently protested against these dastardly proceedings; and the following evening a company of gentlemen from the different provinces attended for the same purpose. The assembly waited immediately on these four distinguished patriots, and returned them their acknowledgements for the spirit and firmness with which they had resisted the usurpations of despotism. The submission of the king to the designs of Russia was no sooner made known, than Poland was bereft of all her best and most respectable citizens. Malachowski as marshal of the diet, and Prince Sapieha, grand marshal of Lithuania, entered strong protests on the journals of the diet against these hostile proceedings, and declared solemnly that the diet legally assembled in 1788 was not dissolved.

On the second of August a confederation was formed at Warsaw, of which the grand apostate, Potocki, was chosen marshal. The acts of this confederation were evidently the despotic dictates of Russia, and were calculated only to restore the ancient abuses, and to place the country under the aggravated oppression of a foreign yoke.

It is remarkable, that at the very moment when Poland was surrendering its liberties to its despotic invaders, the generous sympathy of Great Britain was evinced by a liberal subscription, supported by all the most respectable characters in the nation, of every party and of every sect, for the purpose of assisting the king and the republic to maintain their independence. Though the benevolent design was frustrated, the fact remains on record as a noble testimony of the spirit of Britons in the cause of freedom, of the indignation which fills every British heart at the commission of injustice, and of the liberality with which they are disposed to assist those who suffer from the oppression of tyrants.

Not satisfied with restoring the old wretched constitution, the empress of Russia seized upon part of the territory which, at the last partition, she and her coadjutors had left to the republic; and her ambassador entering into the diet with a crowd of armed russians, compelled the king and that assembly to grant the form of legality to her usurpations. The nation, however, did not submit. General Kosciuszko kept together a few retainers, whom he was soon enabled to augment to the number of an army; and seizing on the person of the king, he for some time waged against Russia a war, of which,

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The king
proposes
submission.

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Confedera-
tion at
Warsaw o-
verawed by
Russia, re-
stores the
former con-
stitution.

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The em-
press seizes
upon part
of the Po-
lish territo-
ry.



Poland.
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Deplorable
state of the
country.

which, it must be confessed, the object seemed doubtful, His enemies accuse him of cherishing in the republic the principles of the French Jacobins; and some late occurrences give a countenance to the accusation. Yet it is known he protested at first that his aim reached no farther than to reitore the constitution of 1791; and if public report may be credited, an insurrection has lately taken place in Great Poland, or South Prussia, in favour of that constitution. If other Poles have been driven to democracy, they have only, with the common weakness of human nature, run from one extreme to another; and in flying from the tyranny of their invaders, have fallen into the horrors of anarchy. That Kosciuszko will succeed against the powerful empire of Russia, there is not the smallest probability; and if there were, the court of Berlin, to complete its character, has withdrawn from the most honourable alliance in which it was ever engaged, and seems to have employed the subsidy which it received from Great Britain for the maintenance of that alliance, to co-operate with the empress in annihilating the kingdom and republic of Poland. What will be the ultimate fate of that unhappy country, and its amiable sovereign, it is impossible to say; but appearances at present (1794) indicate a division of the whole territory among the three hostile powers who formerly robbed it of some of its most valuable provinces; and when that division is made, the virtuous Stanislaus may be removed to a better world by violent means.

Some part of the above prediction was unfortunately for Poland fully verified. The patriotic exertions of Kosciuszko failed; his army was defeated, and he was himself taken prisoner by the Russians. In 1795 the king entered into a formal resignation of the crown, and was afterwards removed to Petersburg, where he remained a kind of state prisoner till his death in 1798. The whole kingdom was divided among the partitioning powers. Austria took possession of Little Poland and Red Russia, which latter was afterwards called Galicia; Prussia obtained Great Poland, Polish Prussia, part of Lithuania, Masovia, Polachia, and the cities of Dantzic and Thorn; and Samogitia, the remainder of Lithuania, Polesia, Volhynia, and Podolia, fell into the hands of Russia. But since the Prussian monarchy was nearly annihilated by the power of Bonaparte, and this unfortunate country was overrun by his numerous armies, considerable changes have taken place; for an account of which see PRUSSIA.

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Air, climate, &c.
of Poland.

The air of this country is cold in the north, but temperate in the other parts both in summer and winter, and the weather in both more settled than in many other countries. The face of the country is for the most part level, and the hills are but few. The Crapack or Carpathian mountains separate it from Hungary on the south. The soil is very fruitful both in corn and pasturage, hemp and flax. Such is the luxuriance of the pastures in Podolia, that it is said one can hardly see the cattle that are grazing in the meadows. Vast quantities of corn are yearly sent down the Vistula to Dantzic, from all parts of Poland, and bought up chiefly by the Dutch. The eastern part of the country is full of woods, forests, lakes, marshes, and rivers; of the last of which, the most considerable in Poland are the Vistula, Nieper, Niester, Duna, Bog, Warta, and Memel. The metals found in this country are iron and lead, with some tin, gold and silver; but there are no mines of the two last wrought at

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present. The other products of Poland are most sorts of precious stones, ochre of all kinds, fine rock-crystal, Muscovy glass, talc, alum, salpêtre, amber, pitcoal, quicksilver, spar, sal-gem, lapis calaminaris, and vitriol. In Lesser Poland are salt-mines, which are the chief riches of the country, and bring most money into the exchequer. In the woods, which consist mostly of oak, beech, pine, and fir-trees, besides the more common wild beasts, are elks, wild asses, wild oxen or uri, lynxes, wild horses, wild sheep with one horn, bisons, hyenas, wild goats, and buffaloes. In the meadows and fenny ground is gathered a kind of manna; and the kermes-berries produced in this country are used both in dyeing and medicine.

The inhabitants consist of nobles, citizens, and peasants. The first possess great privileges, which they enjoy partly by the indulgence of their kings, and partly by ancient custom and prescription. Some of them have the title of *prince, count, or baron*; but no superiority or pre-eminence on that account over the rest, which is only to be obtained by some public post or dignity. They have the power of life and death over their vassals; pay no taxes; are subject to none but the king; have a right to all mines and salt-works on their estates; to all offices and employments, civil, military, and ecclesiastic; cannot be cited or tried out of the kingdom; may choose whom they will for their king, and lay him under what restraints they please by the *Pacta Conventa*; and none but they and the burghers of some particular towns can purchase lands. In short, they are almost entirely independent, enjoying many other privileges and prerogatives besides those we have specified; but if they engage in trade, they forfeit their nobility.

The Polish tongue is a dialect of the Slavonic: (see PHILOLOGY, N^o 222.). It is neither copious nor harmonious. Many of the words, as they are written, have not a single vowel in them; but the High Dutch and Latin are understood, and spoken pretty commonly, though incorrectly. The language in Lithuania differs much from that of the other provinces. True learning, and the study of the arts and sciences, have been little attended to in Poland, till of late they began to be regarded with a more favourable eye, and to be not only patronized, but cultivated, by several of the nobles and others, both laymen and ecclesiastics.

There are two archbishops in the kingdom, viz. those of Gnesna and Laopol, and about a dozen bishops. The archbishop of Gnesna is always a cardinal, and primate of the kingdom. The prevailing religion is Popery; but there are great numbers of Lutherans, Calvinists, and Greeks, who are called *dissidents*, and by the laws of the kingdom were entitled to toleration, but were much oppressed till very lately. The Jews are indulged with great privileges, and are very numerous in Poland; and in Lithuania, it is said there are a multitude of Mahometan Tartars. We may judge of the numbers of Jews in this country by the produce of their annual poll-tax, which amounts to near 57,000 rixdollars.

There are few or no manufactures in the kingdom, if we except some linen and woollen cloths and hardwares; and the whole trade is confined to the city of Dantzic, and other towns on the Vistula or Baltic.

Before the troubles the king's revenue was all clear to himself; for he paid no troops, not even his own guards; but all the forces, as well as the officers of state,

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were

Poland.

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Different
classes of
inhabitants.

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Language.

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Archbisho-
pries, &c.

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Manufac-
tures.

161
Revenue.

Po'and
||
Pole.

were paid by the republic. The public revenues arose chiefly from the crown-lands, the salt-mines in the palatinate of Cracow, from the rents of Marienburg, Dirshau, and Regenus, from the government of Cracow, and district of Niepolomiez, and from ancient tolls and customs, particularly those of Elbing and Dantzic. From what sources those revenues now arise, it is difficult to say; but Prussia has got possession of the most lucrative customs.

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Order of
Knight-
hood.

The order of the White Eagle was instituted by Augustus II. in the year 1705. Its ensign is a cross of gold enamelled with red, and appendant to a blue ribbon. The motto, *Pro fide, rege, et lege*.

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Forces.

The standing forces of Poland were divided into the crown-army, and that of Lithuania, consisting of horse and foot, and amounting to between 20,000 and 30,000 men. These troops were mostly cantoned on the crown-lands, and in Poland were paid by a capitation or poll-tax; but in Lithuania other taxes were levied for this purpose. Most of the foot were Germans. On any sudden and imminent danger, the whole body of the nobility, with their vassals, was obliged to appear in the field on horseback; and the cities and towns furnished a certain number of foot-soldiers, with carriages, and military stores: but for want of proper arms, provisions, subordination, and discipline, and by being at liberty after a few weeks to return home, this body proved but of little advantage to the republic. Dantzic is the only place in the Polish dominions that deserves the name of a fortress, and it fell to the possession of Prussia. Foreign auxiliaries were not to be brought into the kingdom, nor the national troops to march out of it, without the consent of the states. Such was the military establishment of Poland before the partition treaty.

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Character
of the
people.

The Poles are personable men, and have good complexions. They are esteemed a brave, honest people, without dissimulation, and exceedingly hospitable. They clothe themselves in furs in winter, and over all they throw a short cloak. No people keep grander equipages than the gentry. They look upon themselves as so many sovereign princes; and have their guards, bands of music, and keep open houses: but the lower sort of people are poor abject wretches, in the lowest state of slavery. The exercises of the gentry are hunting, riding, dancing, vaulting, &c. They reside mostly upon their estates in the country; and maintain themselves and families by agriculture, breeding of bees, and grazing.

POLAR, in general, something relating to the poles of the world, or the poles of artificial globes.

POLAR Regions, those parts of the world which lie near the north and south poles. See the article POLE.

POLARITY, the quality of a thing considered as having poles, or a tendency to turn itself into one certain position; but chiefly used in speaking of the magnet.

POLE, REGINALD, cardinal, and archbishop of Canterbury, a younger son of Sir Rich. Pole, Lord Montague, was born at Stoverton castle, in Staffordshire, in the year 1500. At seven years of age he was sent to a Carthusian monastery at Shene, near Richmond in Surry; and thence, when he was about 12 years old, removed to Magdalen college in Oxford, where, by the instructions of the celebrated Linacre and Latimer, he made considerable progress in learning. In 1515 he took the degree of bachelor of arts, and was admitted to deacon's orders some time after: in 1517, he was made prebendary of Salisbury, and in 1519 dean of Wimborne and

dean of Exeter. We are not surpris'd at this young nobleman's early preferments, when we consider him as the kinsman of Henry VIII. and that he was bred to the church by the king's special command.

Pole.

Being now about the age of 19, he was sent, according to the fashion of the times, to finish his studies at Padua in Italy, where he resided some time in great splendor, having a handsome pension from the king. He returned to England in 1525, where he was most graciously received at court, and universally admired for his talents and address; but preferring study and sequestration to the pleasures of a court, he retired to the Carthusian convent at Shene, where he had continued about two years, when the pious king began to divulge his scruples of conscience concerning his marriage with Catharine of Spain. Pole foresaw that this affair would necessarily involve him in difficulties; he therefore determined to quit the kingdom, and accordingly obtained leave to visit Paris. Having thus avoided the storm for the present, he returned once more to his convent at Shene; but his tranquillity was again interrupted by the king's resolution to shake off the pope's supremacy, of which Pole's approbation was thought indispensably necessary. How he managed in this affair, is not very clear. However, he obtained leave to revisit Italy, and his pension was continued for some time.

The king, having now divorced Queen Catharine, married Anne Boleyn, and being resolved to throw off the papal yoke, ordered Dr Richard Sampson to write a book in justification of his proceedings, which he sent to Pole for his opinion. To this Pole, secure in the pope's protection, wrote a scurrilous answer, entitled *Pro Unitate Ecclesiastica*, and sent it to the king; who was so offended with the contents, that he withdrew his pension, stripped him of all his preferments, and procured an act of attainder to be passed against him. In the mean time, Pole was created a cardinal, and sent nuncio to different parts of Europe. King Henry made several attempts to have him secured and brought to England, but without effect. At length the pope fixed him as legate at Viterbo, where he continued till the year 1543, when he was appointed legate at the council of Trent, and was afterwards employed by the pope as his chief counsellor.

Pope Paul III. dying in 1540, Pole was twice elected his successor, and, we are told, twice refused the papal dignity: first, because the election was made in too great haste; and the second time, because it was done in the night. This delicacy in a cardinal is truly wonderful: but the intrigues of the French party seem to have been the real cause of his miscarriage; they started many objections to Pole, and by that means gained time to procure a majority against him. Cardinal Maria de Monte obtained the triple crown; and Pole, having kissed his slipper, retired to the convent of Magazone near Verona, where he continued till the death of Edward VI. in the year 1553. On the accession of Queen Mary, Pole was sent legate to England, where he was received by her majesty with great veneration, and conducted to the archbishop's palace at Lambeth, poor Cranmer being at that time prisoner in the Tower. He immediately appeared in the House of Lords, where he made a long speech; which being reported to the commons by their speaker, both these obsequious houses concurred in an humble supplication to be reconciled to the

Pole.

the see of Rome. They presented it on their knees to her majesty, who interceded with the cardinal, and he graciously condescended to give them absolution. This business being over, the legate made his public entry into London, and immediately set about the extirpation of heresy. The day after the execution of Cranmer, which he is said, though we believe falsely, to have advised, he was consecrated archbishop of Canterbury. In the same year, 1556, he was elected chancellor of the university of Oxford, and soon after of Cambridge; both which he visited, by his commissioners. He died of a double quartan ague in the year 1558, about 16 hours after the death of the queen; and was buried in the cathedral of Canterbury.

As to his character, the Romish writers ascribe to him every virtue under heaven: even Bishop Burnet is extremely lavish in his praise, and attributes the cruelties of Mary's reign to the advice of Gardiner. In this Mr Hume agrees with the bishop, and represents Pole as the advocate of toleration. By every impartial account, he seems to have been a man of mild manners, and of real worth, though undoubtedly a zealous member of the church of Rome.—He wrote, *Pro unitate ecclesiastica*, *De ejusdem potestate*, A treatise on Justification, and various other tracts.

Mr Philips published a very well written, though a very partial account, of Pole's life, to which Gloucester Ridley replied. This last work, which is entitled a *Review of Mr Philips's Life of Reginald Pole*, was published in 1766. It is a complete confutation of the former, and is a very learned and temperate vindication of the doctrines of the Reformation.

POLE, in *Astronomy*, that point in the heavens round which the whole sphere seems to turn. It is also used for a point directly perpendicular to the centre of any circle's plane, and distant from it by the length of a radius.

POLE, in *Geography*, one of the points on which the terraqueous globe turns; each of them being 90 degrees distant from the equator, and, in consequence of their situation, the inclination of the earth's axis, and its parallelism during the annual motion of our globe round the sun, having only one day and one night throughout the year.

It is remarkable, that though the *north* in Hebrew, Greek, Latin, and French, derives its name from gloom, obscurity, and darkness, the poles enjoy more light than any other part of the world. The ancients believed the north to be covered with thick darkness; Strabo tells us, that Homer, by the word *ζοφος*, which properly signifies *obscurity* or *darkness*, meant the *north*; and thus Tibullus, speaking of the north, says,

Illic et densa tellus absconditur umbra.

Paneg. ad Missel.

The Arabians call the northern ocean the *dark sea*; the Latins gave the name of *Aquilo* to the north wind, because *aquilus* signifies *black*; and the French call it *la bise*, from *bis* "black." According to the ancients, the Cimmerians lived in darkness, because they were placed near the north. But all this is mere prejudice; for there are no places in the world that enjoy light longer than the arctic and antarctic poles; and this is accounted for by considering the nature of twilight. In the torrid zone, and under the line, night immediately follows

the setting of the sun, without any sensible twilight; whereas the twilight begins and continues increasing in proportion as places are distant from the equator or approach the pole. To this long twilight we must add the *aurora borealis*, which appears in the northern regions, Greenland, &c. in clear nights, at the beginning of the new moon, casting a light equal to that of full moon. See Gassendi, in the *Life of Peyresc*, book iii. and La Perere in his *Account of Greenland*. There is also long moonlight at the poles during winter. See ASTRONOMY. But though there is really more light in the polar regions than elsewhere, yet owing to the obliquity with which the rays of the sun fall upon them, and the great length of winter night, the cold is so intense, that those parts of the globe which lie near the poles have never been fully explored, though the attempt has been repeatedly made by the most celebrated navigators. Indeed their attempts have chiefly been confined to the northern regions; for with regard to the south pole, there is not the same incitement to attempt it. The great object for which navigators have ventured themselves in these frozen seas, was to find out a more quick and more ready passage to the East Indies*; and this hath been attempted three several ways: one by coasting along the northern parts of Europe and Asia, called the *north-east passage*; another, by sailing round the northern part of the American continent, called the *north-west passage*; and the third, by sailing directly over the pole itself.

We have already given a short account of several unsuccessful attempts which have been made from England to discover the first two of these. See *NORTH-West Passage*, and *NORTH-East Passage*. But before we proceed to the third, we shall make a few further observations on them, and mention the attempts of some other nations.

During the last century, various navigators, Dutchmen particularly, attempted to find out the *north-east passage*, with great fortitude and perseverance. They always found it impossible, however, to surmount the obstacles which nature had thrown in the way. Subsequent attempts are thought by many to have demonstrated the impossibility of ever sailing eastward along the northern coast of Asia; and this impossibility is accounted for by the increase of cold in proportion to the extent of land. See AMERICA, n^o 3—5. This is indeed the case in temperate climates; but much more so in those frozen regions where the influence of the sun, even in summer, is but small. Hence, as the continent of Asia extends a vast way from west to east, and has besides the continent of Europe joined to it on the west, it follows, that about the middle part of that tract of land the cold should be greater than anywhere else. Experience has determined this to be fact; and it now appears that about the middle part of the northern coast of Asia the ice never thaws; neither have even the hardy Russians and Siberians themselves been able to overcome the difficulties they met with in that part of their voyage. In order to make this the more plain, and the following accounts more intelligible, we shall observe, that from the north-western extremity of Europe, called the *North Cape*, to the north-eastern extremity of Asia, called the *Promontory of the Tschutski**, is a space including about 160 degrees of longitude, viz. *Discoversies*, n^o 109 from 40 to 200 east from Ferro: the port of Archangel

Pole.

* See Cook's life of.

3 Attempts to find out the north-east passage.

4 Why it is impossible to sail along the north-east coast of Asia.

* See Cook's Discoveries, n^o 109 and 118.

x The poles enjoy much light;

2 And why.

Pole.

gel lies in about 57 degrees east longitude, Nova Zembla between 70 and 95; which last is also the situation of the mouth of the great river Oby. Still farther eastward are the mouths of the rivers Jenisey in 100°; Piafida in 105°; Chatanga in 124°; Lena, which has many mouths, between 134° and 142°; Indigirka in 162°; and the Kovyma in 175°. The coldest place in all this tract, therefore, ought to be that between the mouths of the Jenisey and the Chatanga; and indeed here the unfurmountable difficulty has always been, as will appear from the following accounts of the voyages made by the Russians with a view to discover the north-east passage.

5
Voyage of
Morzov-
vief, &c.

In 1734, Lieutenant Morzovieff sailed from Archangel towards the river Oby, but could scarce advance 20 degrees of longitude during that season. The next summer he passed through the straits of Wyegatz into the sea of Kara; but did not double the promontory which separates the sea of Kara from the bay or mouth of Oby. In 1738, the lieutenants Malgyin and Shurakoff doubled that promontory with great difficulty, and entered the bay of Oby. Several unsuccessful attempts were made to pass from the bay of Oby to the Jenisey; which was at last effected, in 1738, by two vessels commanded by lieutenants Offzin and Kofeleff. The same year the pilot Feodor Menin sailed eastwards from the Jenisey to the mouth of the Piafida: but here he was stopped by the ice; and finding it impossible to force a passage, he returned to the Jenisey.

6
Of Pront-
shitcheff.

In July 1735, Lieutenant Prontshitcheff sailed down the river Lena, in order to pass by sea to the mouth of the Jenisey. The western mouths of the Lena were so choked up with ice, that he was obliged to pass through the most easterly one; and was prevented by contrary winds from getting out till the 13th of August. Having steered north-west along the islands which lie scattered before the mouths of the Lena, he found himself in lat. 70. 4.; yet even here he saw pieces of ice from 24 to 60 feet in height, and in no place was there a free channel left of greater breadth than 100 or 200 yards. His vessel being much damaged, he entered the mouth of the Olenek, a small river near the western mouth of the Lena; and here he continued till the ensuing season, when he got out in the beginning of August. But before he could reach the mouth of the Chatanga, he was so entirely surrounded and hemmed in with ice, that it was with the utmost difficulty he could get loose. Observing then a large field of ice stretching into the sea, he was obliged to sail up the Chatanga. Getting free once more, he proceeded northward, doubled the cape called *Tamura*, and reached the bay of that name, lying in about 115° east from Ferro; from thence he attempted to proceed westward along the coast. Near the shore were several small islands, between which and the shore the ice was immoveably fixed. He then directed his course towards the sea, in order to pass round the chain of islands. At first he found the sea more free to the north of these islands, but observed much ice lying between them. At last he arrived at what he took to be the last of the islands lying in lat. 77. 25. Between this island and the shore, as well as on the other side of the island which lay most to the north, the ice was firm and immoveable. He attempted, however, to steer still more to the north; and having advanced about six miles, he was prevented

by a thick fog from proceeding: this fog being dispersed, he saw nothing everywhere but ice, which at last drove him eastward, and with much danger and difficulty he got to the mouth of the Olenek on the 29th of August.

Pole.

Another attempt to pass by sea from the Lena to the Jenisey was made in 1739 by Chariton Laptieff, but with no better success than that just mentioned. This voyager relates, that between the river Piafida and *Tamura*, a promontory stretches into the sea, which he could not double, the sea being entirely frozen up before he could pass round.

7
Of Charit-
ton Lap-
tieff.

Besides the Russians, it is certain that some English and Dutch vessels have passed the island of Nova Zembla into the sea of Kara: "But (says Mr Coxie in his Account of the Russian voyages) no vessel of any nation has ever passed round that cape which extends to the north of the Piafida, and is laid down in the Russian charts in about 78° lat. We have already seen that no Russian vessel has ever got from the Piafida to the Chatanga, or from the Chatanga to the Piafida; and yet some authors have positively asserted that this promontory has been sailed round. In order therefore to elude the Russian accounts, which clearly assert the contrary, it is pretended that Gmelin and Muller have purposely concealed some part of the Russian journals, and have imposed on the world by a misrepresentation of facts. But without entering into any dispute upon this head; I can venture to affirm, that no sufficient proof has been as yet advanced in support of this assertion; and therefore, until some positive information shall be produced, we cannot deny plain facts, or give the preference to hearsay evidence over circumstantial and well attested accounts."

8
Mr Coxie's
observations.

The other part of this north-east passage, *viz.* from the Lena to Kamshatka, though sufficiently difficult and dangerous, is yet practicable; as having been once performed, if we may believe the accounts of the Russians. According to some authors indeed, says Mr Coxie, this navigation has been open a century and a half; and several vessels at different times have passed round the north-eastern extremity of Asia. But if we consult the Russian accounts, we shall find that frequent expeditions have been unquestionably made from the Lena to the Kovyma, but that the voyage from the Kovyma round *Tschutskoi Nofs* into the Eastern ocean has been performed but once. According to Mr Euler, this formidable cape was doubled in the year 1648. The material incidents of this remarkable voyage are as follow.

9
Of the na-
vigation
from the
Lena to
Kamshat-
ka.

"In 1648 seven kotchies, or vessels, sailed from the mouth of the river Kovyma, in order to penetrate into the Eastern ocean. Of these, four were never more heard of: the remaining three were commanded by Simon Deshneff, Gerasim Ankudinoff, and Fedot Alexeieff. Deshneff and Ankudinoff quarrelled before their departure concerning the division of profits and honours to be acquired by their voyage; which, however, was not so easily accomplished as they had imagined. Yet Deshneff in his memorials makes no mention of obstructions from the ice, nor probably did he meet with any; for he takes notice that the sea is not every year so free from ice as it was at that time. The vessels sailed from the Kovyma on the 20th of June, and in September they reached the promontory of the *Tschutski*, where Ankudinoff's

10
Voyage of
Deshneff,
Ankudi-
noff, &c.

Pole.

Ankudinoff's vessel was wrecked, and the crew distributed among the other two. Soon after this the two vessels lost sight of each other, and never joined again. Delshneff was driven about by tempestuous winds till October, when he was shipwrecked considerably to the south of the Anadyr. Having at last reached that river, he formed a scheme of returning by the same way that he had come, but never made the attempt. As for Alexeeff, after being also shipwrecked, he had died of the scurvy, together with Ankudinoff; part of the crew were killed by the savages, and a few escaped to Kamfchatka, where they settled."

* See
Cook's
Discoveries, n^o 95.
—100.

From Captain * Cook's voyage towards the north-eastern parts of Asia, it appears that it is possible to double the promontory of Tschutski without any great difficulty: and it now appears, that the continents of Asia and America are separated from one another but by a narrow strait, which is free from ice; but, to the northwards, that experienced navigator was everywhere stopped by the ice in the month of August, so that he could neither trace the American continent farther than to the latitude of 70°, nor reach the mouth of the river Kovyma on the Asiatic continent; though it is probable that this might have been done at another time, when the situation of the ice was altered either by winds or currents.

11
Insurmountable
obstacles
in the
north-east
passage.

On the whole, therefore, it appears that the insurmountable obstacle in the north-east passage lies between the rivers Piasida and Chatanga; and unless there be in that space a connection between the Asiatic and American continents, there is not in any other part. Ice, however, is as effectual an obstruction as land: and though the voyage were to be made by accident for once, it never could be esteemed a passage calculated for the purposes of trade, or any other beneficial purpose whatever.

12
Of the
north-west
passage.

With regard to the north-west passage, the same difficulties occur as in the other. Captain Cook's voyage has now assured us, that if there is any strait which divides the continent of America into two, it must lie in a higher latitude than 70°, and consequently be perpetually frozen up. If a north-west passage can be found then, it must be by sailing round the whole American continent, instead of seeking a passage through it, which some have supposed to exist at the bottom of Baffin's bay. But the extent of the American continent to the northward is yet unknown; and there is a possibility of its being joined to that part of Asia between the Piasida and Chatanga, which has never yet been circumnavigated*. It remains therefore to consider, whether there is any possibility of attaining the wished-for passage by sailing directly north, between the eastern and western continents.

* See
Cook's
Discoveries, n^o 11.

13
Barrington's arguments in
favour of
a possibility
of reaching
the pole.

Of the practicability of this method, the Honourable Daines Barrington is very confident, as appears by several tracts which he published in the years 1775 and 1776, in consequence of the unsuccessful attempts made by Captain Phipps, now Lord Mulgrave. See *NORTH-EAST Passage*.—In the tracts now alluded to he instances a great number of navigators who have reached very high northern latitudes; nay, some who have been at the pole itself, or gone beyond it.—These instances are, 1. One Captain Thomas Robertson assured our author, that he had been in latitude 82½, that the sea was open, and he was certain that he could

Pole.

have reached the latitude of 83°.—2. From the testimony of Captain Cheyne, who gave answers to certain queries drawn up by Mr Dalrymple concerning the polar seas, it appears that he had been in the latitude of 82°.—3. One Mr Watt informed our author, that when he was 17 years of age, at that time making his first voyage with Captain M'Callam, a bold and skilful navigator, who commanded a Scotch whale-fishing ship, as during the time that the whales are supposed to copulate no fishing can be carried on, the captain resolved to employ that interval in attempting to reach the north pole. He accordingly proceeded without the least obstruction to 83½, when the sea was not only open to the northward, but they had seen no ice for the last three degrees; but while he still advanced, the mate complained that the compass was not steady, and the captain was obliged with reluctance to give over his attempt.—4. Dr Campbell, the continuator of Harris's voyages, informed Mr Barrington, that Dr Dallie, a native of Holland, being in his youth on board a Dutch ship of war which at that time was usually sent to superintend the Greenland fishery, the captain determined, like the Scotchman above mentioned, to make an attempt to reach the pole during the interval between the first and second fisheries. He penetrated, according to the best of Dr Campbell's recollection, as far as 88°; when the weather was warm, the sea free from ice, and rolling like the bay of Biscay. Dallie now pressed the captain to proceed: but he answered, that he had already gone too far, and should be blamed in Holland for neglecting his station; upon which account he would suffer no journal to be kept, but returned as soon as possible to Spitzbergen.—5. In the year 1662-3, Mr Oldenburg, then secretary of the Royal Society, was ordered to register a paper, entitled "Several Inquiries concerning Greenland, answered by Mr Gray, who had visited these parts." The 19th of these queries is the following: How near hath any one been known to approach the pole?—The answer is, "I once met upon the coast of Greenland a Hollander that swore he had been half a degree from the pole, showing me his journal, which was also attested by his mate; where they had seen no ice or land, but all water."—6. In Captain Wood's account of a voyage in quest of the north-east passage, we have the following account of a Dutch ship which reached the latitude of 89°. "Captain Goulden, who had made above 30 voyages to Greenland, did relate to his majesty, that being at Greenland some 20 years before, he was in company with two Hollanders to the eastward of Edge's island; and that the whales not appearing on the shore, the Hollanders were determined to go farther northward; and in a fortnight's time returned, and gave it out that they had sailed into the latitude 89°, and that they did not meet with any ice, but a free and open sea, and that there run a very hollow grown sea like that of the Bay of Biscay. Mr Goulden being not satisfied with the bare relation, they produced him four journals out of the two ships, which testified the same, and that they all agreed within four minutes."—7. In the Philosophical Transactions for 1675 we have the following passage: "For it is well known to all that sail northward, that most of the northern coasts are frozen up for many leagues, though in the open sea it is not so, *no nor under the pole itself*, unless by accident." In which passage the having reached the pole

Pole.

pole is alluded to as a known fact, and as such stated to the Royal Society.—8. Mr Miller, in his Gardener's Dictionary, mentions the voyage of one Captain Johnson, who reached 88 degrees of latitude. Mr Barrington was at pains to find a full account of this voyage; but met only with the following passage in Buffon's Natural History, which he takes to be a confirmation of it. "I have been assured by persons of credit, that an English captain, whose name was Monson, instead of seeking a passage to China between the northern countries, had directed his course to the pole, and had approached it within two degrees, where there was an open sea, without any ice." Here he thinks that M. Buffon has mistaken Johnson for Monson.—9. A map of the northern hemisphere, published at Berlin (under the direction of the Academy of Sciences and Belles Lettres), places a ship at the pole, as having arrived there according to the Dutch accounts.—10. Moxon, hydrographer to Charles II. gives an account of a Dutch ship having been two degrees beyond the pole, which was much relied on by Wood. This vessel found the weather as warm there as at Amsterdam.

Besides these, there are a great number of other testimonies of ships which have reached the lat. of 81, 82, 83, 84 (A), &c.; from all which our author concludes, that if the voyage is attempted at a proper time of the year, there would not be any great difficulty of reaching the pole. Those vast pieces of ice which commonly obstruct the navigators, he thinks, proceed from the mouths of the great Asiatic rivers which run northward into the frozen ocean, and are driven eastward and westward by the currents. But though we should suppose them to come directly from the pole, still our author thinks that this affords an undeniable proof that the pole itself is free from ice; because, when the pieces leave it, and come to the southward, it is impossible that they can at the same time accumulate at the pole.

14
Why we cannot suppose the sea all round the pole to be frozen.

The extreme cold of the winter air on the continents of Asia and America has afforded room for suspicion, that at the pole itself, and for several degrees to the southward of it, the sea must be frozen to a vast depth in one solid cake of ice; but this Mr Barrington refutes from several considerations. In the first place, he says,

Pole.

that on such a supposition, by the continual intensity of the cold, and the accumulation of snow and frozen vapour, this cake of ice must have been increasing in thickness since the creation, or at least since the deluge; so that now it must be equal in height to the highest mountains in the world, and be visible at a great distance. Besides, the pieces broken off from the sides of such an immense mountain must be much thicker than any ice that is met with in the northern ocean; none of which is above two yards in height above the surface of the water, those immense pieces called *ice-mountains* being always formed on land.

Again, the system of nature is so formed, that all parts of the earth are exposed for the same length of time, or nearly so, throughout the year to the rays of the sun. But, by reason of the spheroidal figure of the terraqueous globe, the poles and polar regions enjoy the sun somewhat longer than others; and hence the Dutch who wintered in Nova Zembla in 1672 saw the sun a fortnight sooner than they ought to have done by astronomical calculations. By reason of this flatness about the poles, too, the sun not only shines for a greater space of time on these inhospitable regions, but with less obliquity in the summer-time, and hence the effect of his rays must be the greater. Now Mr Barrington considers it as an absurd supposition, that this glorious luminary should shine for six months on a cake of barren ice where there is neither animal nor vegetable. He says that the polar seas are assigned by nature as the habitation of the whales, the largest animals in the creation; but if the greatest part of the polar seas are for ever covered with an impenetrable cake of ice, these huge animals will be confined within very narrow bounds; for they cannot subsist without frequently coming to the top of the water to breathe.

Lastly, the quantity of water frozen by different degrees of cold is by no means directly in proportion to the intensity of the cold, but likewise to the duration of it. Thus, large bodies of water are never frozen in any temperature of short duration, though shallow bodies often are. Our author observes, that as much of a given mass of water was frozen in five hours of a temperature 12° below the freezing point, as was frozen in

15
Quantity of ice formed is not always in proportion to the degree of cold.

one

(A) See *M. Bauche's Observations on the North or Ice Sea*, where he gives an account of various attempts made to reach the pole, from which he is convinced that the sea is there open, and that the thing is practicable. M. de Pages, in his *Travels*, vol. iii. informs us, that he wished to take a voyage to the north seas, for the purpose of bringing under one view the various obstacles from the ice, which have impeded the researches of navigators in those seas; and for this purpose he was prepared to continue his voyage to as high a latitude as possible, and that he might be able to say whether any land actually exists north from the coast of Greenland. He failed without any encouragement from his court (France) on the 16th of April 1776 from the Texel, in a Dutch vessel bound to Spitsbergen. On the 16th of May she was a little way north of 81°, the highest latitude she reached.

"Being now (says the author) less than 180 leagues from the pole, the idea of so small a distance served effectually to awaken my curiosity. Had I been able to inspire my fellow-voyagers with sentiments similar to my own, the winds and currents which at this moment carried us fast towards the pole, a region hitherto deemed inaccessible to the eye of mortals, would have been saluted with acclamations of joy. This quarter, however, is not the most eligible for such an enterprise: here the sea lying in the vicinity of those banks of ice, so frequent a little farther to the west, is much too confined. Nevertheless, when I consider the very changeable nature of the shoals under whatever form, even in their most crowded and compact state; their constant changes and concussions which break and detach them from one another, and the various expedients that may be employed for freeing the ship from confinement, as well as for obviating impending danger—I am far from viewing a voyage to the pole as a chimerical idea."

Pole. one hour of the temperature 50° below it; and that long duration of the temperature between 20 and 32 is, with regard to the congelation of water, equivalent to intensity of cold such as is marked 0 and below 0 in Fahrenheit, but of short duration. See COLD and CONGELATION.

16
Mr Forster's arguments against the possibility of reaching the pole.

On the other hand, Mr Forster, in his Observations, takes the contrary side of the question with no little vehemence. "I know (says he) that M. de Buffon, Lomonosof, and Crantz, were of opinion, that the ice found in the ocean is formed near the lands only, from the fresh water and ice carried down into the sea by the many rivers in Siberia, Hudson's bay, &c.; and therefore, when we fell in with such quantities of ice in December 1772, I expected we should soon meet with the land from whence these ice masses had been detached. But being disappointed in the discovery of this land, though we penetrated beyond the 67° twice, and once beyond 71°, south latitude, and having besides some other doubts concerning the existence of the pretended southern continent, I thought it necessary to inquire what reasons chiefly induced the above authors to form the opinion that the ice floating in the ocean must be formed near land, or that an austral land is absolutely requisite for that purpose; and having looked for their arguments, I find they amount chiefly to this: 'That the ice floating in the ocean is all fresh: that salt water does not freeze at all; or if it does, it contains briny particles. They infer from thence, that the ice in the ocean cannot be formed in the sea far from any land: there must therefore exist austral lands; because, in order to form an idea of the original of the great ice masses agreeably to what is observed in the northern hemisphere, they find that the first point for fixing the high ice-islands is the land; and, secondly, that the great quantity of flat ice is brought down the rivers.' I have impartially and carefully considered and examined these arguments, and compared every circumstance with what we saw in the high southern latitude, and with other known facts; and will here insert the result of all my inquiries on this subject.

"First, they observe the ice floating in the ocean to yield, by melting, fresh water: which I believe to be true. However, hitherto it has by no means been generally allowed to be fresh: for Crantz says expressly, that 'the flat pieces (forming what they call the *ice-fields*) are salt, because they were congealed from seawater.' The ice taken up by us for watering the ship was of all kinds, and nevertheless we found it constantly fresh: Which proves, either that the principle of analogy cannot be applied indiscriminately in both hemispheres; and that one thing may be true in the northern hemisphere which is quite otherwise in the southern, from reasons not yet known or discovered by us; or we must think that Crantz and others are mistaken, who suppose the ice floating in the ocean to be salt.

"The next remark is, That salt water does not freeze

at all; or if it does, it contains briny particles. M. de Buffon tells us, 'that the sea between Nova Zembla and Spitzbergen, under the 79° north latitude, does not freeze, as it is there considerably broad: and that it is not to be apprehended to find the sea frozen not even under the pole itself; for indeed there is no example of having ever found a sea wholly frozen over, and at a considerable distance from the shores; that the only instance of a sea entirely frozen is that of the Black sea, which is narrow and not very salt, and receives a great many rivers coming from northern regions, and bringing down ice: that this sea therefore sometimes freezes to such a degree, that its whole surface is congealed to a considerable thickness; and, if the historians are to be credited, was frozen, in the reign of the emperor Constantine Copronymus, 30 ells thick, not including 20 ells of snow which was lying on the ice. This fact, continues M. de Buffon, seems to be exaggerated: but it is true, however, that it freezes almost every winter; whilst the high seas which are 1000 leagues nearer towards the pole do not freeze; which can have no other cause than the difference in saltness, and the little quantity of ice carried out by rivers, if compared to the enormous quantity of ice which the rivers convey into the Black sea.' M. de Buffon is not mistaken when he mentions that the Black sea frequently freezes. Strabo informs us, that the people near the Bosphorus Cimmericus pass this sea in carts from Panticapæum to Phanagorea; and that Neoptolemus, a general of Mithridates Eupator, won a battle with his cavalry on the ice on the very spot where he gained a naval victory in the summer. Marcellinus Comes relates, that under the consulship of Vincentius and Fravita, in the year 401 after Christ, the whole surface of the Pontus was covered with ice, and that the ice in spring was carried through the Propontis, during 30 days, like mountains. Zonaras mentions the sea between Constantinople and Scutari frozen to such a degree in the reign of Constantine Copronymus, that even loaded carts passed over it. The prince Demetrius Cantemir observes, that in the year 1620-1 there happened so intense a frost, that the people walked over the ice from Constantinople to Iskodar. All these instances confirm M. de Buffon's assertion. But as this great natural historian says that the Black sea is the only instance of a sea being entirely frozen (B), I must beg leave to dissent from him; for it is equally well attested that the Baltic is sometimes entirely frozen, according to Caspar Schütz's account. In the year 1426, the winter was so severe, that people travelled over the ice across the Baltic from Dantzic to Lubeck; and the sea was likewise passable from Denmark to Mecklenburg: and in the year 1459 the whole Baltic was entirely frozen, so that persons travelled, both on foot and on horseback, over ice, from Denmark to the Venedick Hans-towns, called *Lubeck*, *Wismar*, *Rostock*, and *Siralsund*, which had never happened before; people likewise travelled across the Baltic over

Pole.

(B) In the year 860 the Mediterranean was covered with ice, so that people travelled in carts and horses across the Ionian sea to Venice; (*Hermænnus Contraëlius ap. Pistor. Script. tom. ii. p. 236.*). And in 1234 the Mediterranean was again thus frozen, that the Venetian merchants travelled over the ice with their merchandize to what place they chose; *Matth. Paris*, p. 78.

Pole.

ice from Revel in Estland to Denmark and to Sweden, and back again, without the least danger (c). But, according to Sæmund Frode, even the great German ocean between Denmark and Norway was frozen in the year 1048, so that the wolves frequently ran over the ice from one country to the other. The great northern ocean is likewise most certainly sometimes frozen to a great distance from any land: for Muller relates, that in the year 1715 a Cossack called *Markoff*, with some other persons, was sent by the Russian government to explore the north sea; but finding it next to impossible to make any progress during summer on account of the vast quantities of ice commonly filling this ocean, he at last determined to try the experiment during winter. He therefore took several sledges drawn according to the custom of the country by dogs, which commonly go about 80 or 100 versts per day, 105 of which make a degree; and on March the 15th, old style, with this caravan of nine persons, he left the shores of Siberia at the mouth of the river Yana, under the 71° of north latitude, and proceeded for seven days together northward, so that he had reached at least the 77° or 78° north latitude, when he was stopped by the ice, which there began to appear in the shape of prodigious mountains. He climbed up to the top of some of these ice-mountains: but seeing from thence no land, nor any thing except ice as far as the eye could reach, and having besides no more food for his dogs left, he thought it very necessary to return; which he with great difficulty performed, on April the 3d, as several of the dogs, which had perished for want, were employed to support those that remained alive. These facts, I believe, will convince the unprejudiced reader, that there are other seas besides the Black sea which really do freeze in winter, and that the ice carried down the rivers could not at least freeze the German ocean between Norway and Denmark, because the rivers there are so small, and bear a very inconsiderable proportion to the immense ocean, which, according to experiments made by Mr Wilke, is very salt, though near the land, in the Swedish harbour of Landskrona.

“ Now, if six or seven degrees of latitude, containing

from 360 to 420 sea-miles, are not to be reckoned a great distance from the land, I do not know in what manner to argue, because no distance whatsoever will be reckoned far from any land. Nay, if the Cossack *Markoff*, being mounted on one of the highest ice-mountains, may be allowed to see at least to the distance of 20 leagues, the extent alluded to above must then be increased to 480 English sea-miles; which certainly is very considerable, and makes it more than probable that the ocean is frozen in winter, in high northern latitudes, even as far as the pole. Besides, it invalidates the argument which these gentlemen wish to infer from thence, that the ocean does not freeze in high latitudes, especially where there is a considerably broad sea; for we have shown instances to the contrary.

“ But M. de Buffon speaks of ice carried down the rivers into the northern ocean, and forming there these immense quantities of ice. “ And in case, says he, we would suppose, against all probability, that at the pole it could be so cold as to congeal the surface of the sea, it would remain equally incomprehensible how these enormous floating ice-masses could be formed, if they had not land for a point to fix on, and from whence they are severed by the heat of the sun. The two ships which the India Company sent in 1739 upon the discovery of the austral lands, found ice in 47° or 48° south latitude, but at no great distance from land; which they discovered, without being able to approach it. This ice, therefore, must have come from the interior parts of the lands near the south pole; and we must conjecture, that it follows the course of several large rivers, washing these unknown lands, in the same manner as the rivers Oby, the Yenisea, and the other great rivers which fall into the northern sea, carry the ice-masses, which stop up the straits of Waigats for the greater part of the year, and render the Tartarian sea inaccessible upon this course. Before we can allow the analogy between the rivers Oby, Yenisea, and the rest which fall into the northern ocean, and those coming from the interior parts of the austral lands, let us compare the situation of both countries, supposing the austral lands really to exist. The Oby, Yenisea, and the rest of the Siberian rivers,

Pole.

(c) In 1296 the Baltic was frozen from Gothland to Sweden. (*Incerti auctoris Annales Denor. in Westphalii monument. Cimbr. tom. i. p. 1392.*)

In 1306 the Baltic was, during fourteen weeks, covered with ice between all the Danish and Swedish islands. (*Ludwig. reliquie, MSS. tom. ix. p. 170.*)

In 1323 there was a road for foot-passengers and horsemen over the ice on the Baltic during six weeks. (*id. ibid.*)

In 1349, people walked over the ice from Stralsund to Denmark. (*Incerti auct. cit. ap. Ludwig. tom. ix. p. 181.*)

In 1408 the whole sea between Gothland and Oeland, and likewise between Rostock and Gezoer, was frozen. (*id. ibid.*)

In 1423 the ice bore riding from Prussia to Lubec. (*Crantzii Vandal. lib. x. c. 40.*) The whole sea was covered with ice from Mecklenburg to Denmark. (*Incerti auct. ap. Ludwig. tom. ix. p. 125.*)

In 1461 (says *Nicol. Marschallus in Annal. Herul. ap. Westphal. tom. i. p. 261.*), “ tanta erat hyems, ut concreto gelu oceano plaustris millia passuum supra CCC merces ad ultimam Thylen (*Iceland*) et Orcades veherentur à Germania tota pene bruma.”

In 1545 the sea between Rostock and Denmark, and likewise between Fionia and Sealand, was thus frozen, that the people travelled over the ice on foot, with sledges to which horses and oxen were put. (*Anonym. ap. Ludwig. tom. ix. p. 176.*)

In 1294 the Cattegat or sea between Norway and Denmark was frozen; that from Oxflo in Norway, they could travel on it to Jutland. (*Strelow Chron. Juthiland, p. 148.*)

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rivers, falling down into the northern ocean, have their sources in 48° and 50° north latitude, where the climate is mild and capable of producing corn of all kinds. All the rivers of this great continent increasing these great rivers have likewise their sources in mild and temperate climates, and the main direction of their course is from south to north; and the coast of the northern ocean, not reckoning its sinuosities, runs in general west and east. The small rivers which are formed in high latitudes have, properly speaking, no sources, no springs, but carry off only the waters generated by the melting of snow in spring, and by the fall of rain in the short summer, and are for the greatest part dry in autumn. And the reason of this phenomenon is obvious, after considering the constitution of the earth in those high northern climates. At Yakutsk, in about 62° north latitude, the soil is eternally frozen, even in the height of summer, at the depth of three feet from the surface. In the years 1685 and 1686, an attempt was made to dig a well; and a man, by great and indefatigable labour, continued during two summer-seasons, and succeeded so far in this laborious task, that he at last reached the depth of 91 feet; but the whole earth at this depth was frozen, and he met with no water; which forced him to desist from so fruitless an attempt. And it is easy to infer from hence how impossible it is that springs should be formed in the womb of an eternally frozen soil.

17
Of the
freezing
of salt-
water.

“The argument, therefore, is now reduced to this, *That salt water does not freeze at all; or, if it does, the ice contains briny particles.* But we have already produced numberless instances, that the sea does freeze; nay, Crantz allows, *that the flat pieces of ice are salt, because they were congealed from sea-water.* We beg leave to add a few decisive facts relative to the freezing of the sea. Barentz observes in the year 1596, September the 16th, the sea froze two fingers thick, and next night the ice was as thick again. This happened in the middle of September; what effect then must the intense frost of a night in January not produce? When Captain James wintered in Charleton’s isle, the sea froze in the middle of December 1631. It remains, therefore, only to examine, whether the ice formed in the sea must necessarily contain briny particles. And here I find myself in a very disagreeable dilemma; for during the intense frost of the winter in 1776, two sets of experiments were made on the freezing of sea-water, and published, contradicting one another almost in every material point. The one by Mr Edward Nairne, F. R. S. an ingenious and accurate observer; the other by Dr Higgins, who reads lectures on chemistry and natural philosophy, and consequently must be supposed to be well acquainted with the subject. I will therefore still venture to consider the question as undecided by these experiments, and content myself with making a few observations on them: but previously I beg leave to make this general remark, that those who are well acquainted with mechanics, chemistry, natural philosophy, and the various arts which require a nice observation of minute circumstances, need not be informed, that an experiment or machine succeeds often very well when made upon a smaller scale, but will not answer if undertaken at large; VOL. XVII. Part I.

Pole.

and, *vice versa*, machines and experiments executed upon a small scale will not produce the effect which they certainly have when made in a more enlarged manner. A few years ago an experiment made on the dyeing of scarlet, did not succeed when undertaken on a small scale, whereas it produced the desired effect when tried at a dyer’s house with the large apparatus; and it evidently confirms the above assertion, which I think I have a right to apply to the freezing of salt water. It is therefore probable, that the ice formed in the ocean at large, in a higher latitude, and in a more intense degree of cold, whereof we have no idea here, may become solid, and free from any briny particles, though a few experiments made by Dr Higgins, in his house, on the freezing of salt water, produced only a loose spongy ice filled with briny particles.

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“The ice formed of sea-water by Mr Nairne was very hard, three inches and a half long, and two inches in diameter: it follows from thence, that the washing the outside of this ice in fresh water, could not affect the inside of a hard piece of ice. This ice when melted yielded fresh water, which was specifically lighter than water which was a mixture of rain and snow water, and next in lightness to distilled water. Had the ice thus obtained not been fresh, the residuum of the sea-water, after this ice had been taken out, could not have been specifically heavier than sea-water, which, however, was the case in Mr Nairne’s experiment. It seems, therefore, in my opinion, evident from hence, that salt water does freeze, and has no other briny particles than what adhere to its outside. All this perfectly agrees with the curious fact related by Mr Adanson (D), who had brought to France two bottles of sea water, taken up in different parts of the ocean, in order to examine it, and to compare its saltness, when more at leisure; but both the bottles containing the salt water were burst by being frozen, and the water produced from melting the ice proved perfectly fresh. This fact is so fairly stated, and so very natural, that I cannot conceive it is necessary to suppose, without the least foundation for it, *that the bottles were changed, or that Mr Adanson does not mention the circumstance by which the sea water was thus altered upon its being dissolved:* for as he expressly observes the bottles to have been burst, it is obvious that the concentrated briny parts ran out, and were entirely drained from the ice, which was formed of the fresh water only.

Result of
Mr Nairne’s
experiments
on this sub-
ject.

“The ice formed by Dr Higgins from sea water, consisted of thin laminae, adhering to each other weakly. Dr Higgins took out the frozen ice from the vessels wherein he exposed the sea water, and continued to do so till the remaining concentrated sea water began to form crystals of sea salt. Both these experiments, therefore, by no means prove what the Doctor intended to infer from thence; for it was wrong to take out such ice, which only consisted of thin laminae, adhering to each other weakly. Had he waited with patience, he would have obtained a hard ice as well as Mr Nairne, which, by a more perfect congelation, would have excluded the briny particles intercepted between the thin laminae, adhering to each other weakly; and would have connected the laminae,

N

laminae,

Pole.

minæ, by others formed by fresh water. The Doctor found afterwards, it is true, thicker and somewhat more solid ice: but the sea water had already been so much concentrated by repeated congelations, that it is no wonder the ice formed in it became at last brackish: it should seem, then, that no conclusive arguments can be drawn from these experiments.

“ There are two other objections against the formation of the ice in the great ocean. The *first* is taken from the immense bulk and size of the ice masses formed in the ocean, which is *the deepest mass of water we know of*. But it has been experimentally proved, that in the midst of summer, in the latitudes of 55° , $55^{\circ} 26'$, and 64° south, at 100 fathoms depth, the thermometer stood at 34° , $34\frac{1}{2}^{\circ}$ and 32° ; and that in all instances, the difference between the temperature at top and 100 fathoms depth never exceeded four degrees of Fahrenheit's thermometer, or that the temperature of the air did not differ five degrees from that of the ocean at 100 fathoms deep. If we now add to this, that beyond the 71° south the temperature of the air and ocean must be still colder, and that the rigours of an antarctic winter are certainly more than sufficient to cool the ocean to $28\frac{1}{2}^{\circ}$, which is requisite for congealing the aqueous particles in it; if we moreover consider, that these severe frosts are continued during six or eight months of the year, we may easily conceive that there is time enough to congeal large and extensive masses of ice. But it is likewise certain, that there is more than one way by which these immense ice masses are formed. We suppose very justly, that the ocean does freeze, having produced for many instances of it; we allow likewise, that the ice thus formed in a calm, perhaps does not exceed three or four yards in thickness; a storm probably often breaks such an ice-field, which Crantz allows to be 200 leagues one way and 80 the other; the pressure of the broken fragments against one another frequently sets one upon the other piece, and they freeze in that manner together; several such double pieces, thrown by another pressure upon one another, form at last large masses of miles extent, and of 20, 40, 60, and more fathoms thickness, or of a great bulk or height. Martens, in his description of Spitzbergen, remarks, that the pieces of ice cause so great a noise by their shock, that the navigators in those regions can only with difficulty hear the words of those that speak; and as the ice-pieces are thrown one upon another, ice-mountains are formed by it. And I observed very frequently, in the years 1772 and 1773, when we were among the ice, masses which had the most evident marks of such a formation, being composed of strata of some feet in thickness. This is in some measure confirmed by the state in which the Cossack Markoff found the ice at the distance of 420 miles north from the Siberian coasts. The high masses were not found formed, as is suspected in the *Second supplement to the probability of reaching the north pole*, p. 143-145, near the land, under the high cliffs, but far out at sea; and when these ice mountains were climbed by Markoff, nothing but ice, and no vestiges of land, appeared as far as the eye could reach. The high climates near the poles are likewise subject to heavy falls of snow, of several yards in thickness, which grow more and more compact, and by thaws and rain are formed into

solid ice, which increase the stupendous size of the floating ice mountains.

“ The *second* objection against the freezing of the ocean into such ice as is found floating in it, is taken from the *opacity* of ice formed in salt water; because the largest masses are commonly transparent like crystal, with a fine blue tint, caused by the reflection of the sea. This argument is very specious, and might be deemed unanswerable by those who are not used to cold winters and their effects. But whosoever has spent several winters in countries which are subject to intense frosts, will find nothing extraordinary or difficult in this argument: for it is a well-known fact in cold countries, that the ice which covers their lakes and rivers is often opaque, especially when the frost sets in accompanied by a fall of snow; for, in those instances, the ice looks, before it hardens, like a dough or paste, and when congealed it is opaque and white; however, in spring, a rain and the thaw, followed by frosty nights, change the opacity and colour of the ice, and make it quite transparent and colourless like a crystal: but, in case the thaw continues, and it ceases entirely to freeze, the same transparent ice becomes soft and porous, and turns again entirely opaque. This I believe may be applicable to the ice seen by us in the ocean. The field-ice was commonly opaque; some of the large masses, probably drenched by rain, and frozen again, were transparent and pellucid; but the small fragments of loose ice, formed by the decay of the large masses, and soaked by long-continued rains, we found to be porous, soft, and opaque.

“ It is likewise urged as an argument against the formation of ice in the ocean, that it always requires land, in order to have a point upon which it may be fixed. First, I observe, that in Mr Naime's experiments, the ice was generated on the surface, and was seen shooting crystals downwards: which evidently evinces, in my opinion, that ice is there formed or generated where the intensest cold is; as the air sooner cools the surface than the depth of the ocean, the ice shoots naturally downwards, and cools the ocean more and more, by which it is prepared for further congelation. I suppose, however, that this happens always during calms, which are not uncommon in high latitudes, as we experienced in the late expedition. Nor does land seem absolutely necessary in order to fix the ice; for this may be done with as much ease and propriety to the large ice mountains which remain undissolved floating in the ocean in high latitudes; or it may, perhaps, not be improper to suppose, that the whole polar region, from 80° and upwards, in the southern hemisphere, remains a solid ice for several years together, to which yearly a new circle of ice is added, and of which, however, part is broken off by the winds and the return of the mild season. Wherever the ice floats in large masses, and sometimes in compact bodies formed of an infinite number of small pieces, there it is by no means difficult to freeze the whole into one piece; for amongst the ice the wind has not a power of raising high and great waves. This circumstance was not entirely unknown to the ancients; and it is probable they acquired this information from the natives of ancient Gaul, and from the Britons and other northern nations, who sometimes undertook long voyages.

Pole.

The

Pole. The northern ocean was called by the ancients the *frozen*, the *dead*, the *lazy*, and *immoveable sea*: sometimes they give it the name *mare crinium*, the concrete sea, and *morimorusam**, the dead sea. And, what is very remarkable, in all the northern cold countries the frost sometimes is so intense, that all the waters become suddenly coagulated into a kind of paste or dough, and thus at once congeal."

* So called by the Cimbr.

19
Observations on Mr Forster's reasoning.

On this reasoning of Mr Forster's, however, we must observe, that it cannot possibly invalidate any fact which Mr Barrington has advanced. The best concerted and most plausible theory in the world must yield to experience; for this is in fact what must judge all theories. Now, from what we have already related, it is demonstrated, that in the space between the mouths of the rivers Piasida and Chatanga more ice must be formed, and more intense colds generated, than in any other part of the world; consequently, for a considerable space both on the east and west side of that, the sea must be more full of ice than anywhere else. Now, between these two rivers there is the promontory of Taimura, which runs out to the latitude of 78°, or near it, and which of necessity must obstruct the dispersion of the ice; and that it actually does so is in some degree probable, because in one of the Russian voyages above-mentioned the eastern mouth of the Lena was quite free, when the western ones were entirely choaked up with ice. Now the mouth of the Yana lies several degrees to the eastward of the Lena: consequently, when the ice comes eastward from the cape of Taimura, it must necessarily fill all that sea to the latitude of 78° and upwards; but the Cossack Markoff, if he proceeded directly north, could not be farther than the promontory of Taimura, and consequently still enveloped among the ice. Besides, we are certain, that the sea in 78° is not at all frozen into a solid cake in some places, since Lord Mulgrave, in 1773, reached 81°. Mr Forster's argument, therefore, either proves nothing, or it proves too much. If it proves, that about the middle of the eastern continent the cold is so intense that a sufficient quantity of ice is formed to obstruct the navigation for several hundred miles round, this proves nothing; because we knew before that this must be the case: But if it proves, that the sea must be unnavigable by reason of ice all round the globe at 78° north latitude, this is too much; because we certainly know, that in 1773 Lord Mulgrave reached the latitude of 81°. However, though it should be allowed that the sea is quite clear all the way to the pole, it must be a very great uncertainty whether any ship could by that way reach the East Indies; because we know that it must sail down between the continents of Asia and America, through that strait whose mouth must often be blocked up with ice driving eastward along the continent of Asia.

The south pole is still more inaccessible than the north pole; for the ice is found in much lower southern than northern latitudes. Upon this subject M. Pages speaks thus: "Having in former voyages (says he) visited many parts of the terraqueous globe in different latitudes, I had opportunities of acquiring a considerable knowledge of climate in the torrid as well as in the temperate divisions of the earth. In a subsequent voyage I made it my business to be equally well informed respecting the reputed inhospitable genius of the South seas; and upon my return from that expedition I en-

tained not the smallest doubt that there exists a peculiar and perpetual rigour in the southern hemisphere." (See his *Travels round the World*, vol. iii. translated from the French, and printed at London, 1792, for Murray). This superior degree of cold has by many been supposed to proceed from a greater quantity of land about the south than the north pole*; and the notion of a vast continent in these regions prevailed almost universally, inasmuch that many have sought for it, but hitherto in vain. See the articles *COOK'S Discoveries*, N° 38—49, and N° 68, and 69. *SOUTH SEA*, and *TERRA Australis*.

Pole
||
Polemo.

* See A-MERICA, N° 3—5. and COOK'S Discoveries, N° 38, &c.

Magnetic POLE. See MAGNETISM.

North POLE. See POLE.

POLE-Axe, a sort of hatchet nearly resembling a battle-axe, having an handle about 15 inches in length, and being furnished with a sharp point or claw, bending downwards from the back of its head; the blade whereof is formed like that of any other hatchet. It is principally employed in sea-fights to cut away and destroy the rigging of any adversary who endeavours to board.

Pole-axes are also said to have been successfully used on some occasions in boarding an enemy, whose sides were above those of the boarder. This is executed by detaching several gangs to enter at different parts of the ship's length, at which time the pole-axes are forcibly driven into her side, one above another, so as to form a sort of scaling-ladders.

POLE Cat. See MUSTELA, MAMMALIA Index.

POLE Star. See ASTRONOMY, N° 3, 17, and 39.

POLEIN, in English antiquity, is a sort of shoe, sharp or piked at the point. This fashion took its rise in the time of King William Rufus; and the pikes were so long, that they were tied up to the knees with silver or golden chains. They were forbidden by stat. an. 4. Edw. IV. cap. 7. *Tunc fluxus crinium, tunc latus vestium, tunc usus calceorum cum arcuatis aculeis inventus est.* Malmesb. in Will. ii.

POLEMARCHUS was a magistrate at Athens, who had under his care all the strangers and sojourners in the city, over whom he had the same authority that the archon had over the citizens. It was his duty to offer a solemn sacrifice to Enyalus (said to be the same with Mars, though others will have it that he was only one of his attendants), and another to Diana, surnamed *Argopseia*, in honour of the famous patriot Harmodius. It was also his business to take care that the children of those that had lost their lives in the service of their country should be provided for out of the public treasury.

POLEMICAL, in matters of literature, an appellation given to books of controversy, especially those in divinity.

POLEMO, who succeeded Xenocrates in the direction of the academy, was an Athenian of distinguished birth, and in the earlier part of his life a man of loose morals. The manner in which he was reclaimed from the pursuit of infamous pleasures, and brought under the discipline of philosophy, affords a memorable example of the power of eloquence employed in the cause of virtue. His history is thus related by Dr Enfield: "As he was, one morning about the rising of the sun, returning home from the revels of the night, clad in a loose robe, crowned with garlands, strongly perfumed, and intoxicated

Polemo
||
Polenburg.

cated with wine, he passed by the school of Xenocrates, and saw him surrounded with his disciples. Unable to resist so fortunate an opportunity of indulging his sportive humour, he rushed without ceremony into the school, and took his place among the philosophers. The whole assembly was astonished at this rude and indecent intrusion, and all but Xenocrates discovered signs of resentment. Xenocrates, however, preserved the perfect command of his countenance; and with great presence of mind turned his discourse from the subject on which he was treating to the topics of temperance and modesty, which he recommended with such strength of argument, and energy of language, that Polemo was constrained to yield to the force of conviction. Instead of turning the philosopher and his doctrine to ridicule, as he at first intended, he became sensible of the folly of his former conduct; was heartily ashamed of the contemptible figure which he had made in so respectable an assembly; took his garland from his head; concealed his naked arm under his cloak; assumed a sedate and thoughtful aspect; and, in short, resolved from that hour to relinquish his licentious pleasures, and devote himself to the pursuit of wisdom. Thus was this young man, by the powerful energy of truth and eloquence, in an instant converted from an infamous libertine to a respectable philosopher. In such a sudden change of character it is difficult to avoid passing from one extreme to another. Polemo, after his reformation, in order to brace up his mind to the tone of rigid virtue, constantly practised the severest austerity and most hardy fortitude. From the thirtieth year of his age to his death, he drank nothing but water. When he suffered violent pain, he showed no external sign of anguish. In order to preserve his mind undisturbed by passion, he habituated himself to speak in an uniform tone of voice, without elevation or depression. The austerity of his manners was, however, tempered with urbanity and generosity. He was fond of solitude, and passed much of his time in a garden near his school. He died, at an advanced age, of a consumption. Of his tenets little is said by the ancients, because he strictly adhered to the doctrine of Plato."

POLEMONIUM, GREEK VALERIAN, or *Jacob's Ladder*; a genus of plants, belonging to the pentandria class; and in the natural method ranking under the 29th order, *Campanaceæ*. See *BOTANY Index*.

POLEMOSCOPE, in *Optics*, the same with *OPERA-GLASS*. See *DIOPTRICS*.

POLENBURG, CORNELIUS, an excellent painter of small landscapes and figures, was born at Utrecht in 1586, and educated under Blomaert, whom he soon quitted to travel into Italy; and studied for a long time in Rome and Florence, where he formed a style entirely new, which, though preferable to the Flemish, is unlike any Italian, except in his having adorned his landscapes with ruins. There is a varnished smoothness and finishing in his pictures, that render them always pleasing, though simple and too nearly resembling one another. The Roman cardinals were charmed with the neatness of his works, as was also the great duke; but could not retain him. He returned to Utrecht, and pleased Rubens, who had several of his performances. King Charles I. invited him to London, where he generally painted the figures in Steenwyck's perspectives: but the king could not prevail on him to fix here; for

after staying only four years, and being handsomely rewarded by his majesty for several pieces which he performed for him, he returned to Utrecht, and died there at the age of 74. His works are very scarce and valuable.

Poleron
||
Polianthes.

POLERON, one of the Banda or Nutmeg islands in the East Indies. This was one of those spice islands which put themselves under the protection of the English, and voluntarily acknowledged James I. king of England for their sovereign; for which reason the natives of this and the rest of the islands were murdered or driven thence by the Dutch, together with the English.

POLESIA, a province of Poland, bounded by Polachia and Proper Lithuania on the north, and by Volhunia on the south. It is one of the palatinates of Lithuania, and is commonly called *Bregcia*, and its capital is of this name. It is full of forests and lakes.

POLESINO-DE-ROVIGO, a province of Italy, in the republic of Venice, lying to the north of the river Po; and bounded on that side by the Paduan, on the south by the Ferrarese, on the east by Degado, and on the west by the Veronese. It is 45 miles in length, and 17 in breadth, and is a fertile country. Rovigo is the capital.

POLETÆ were ten magistrates of Athens, who, with three that had the management of money allowed for public shows, were empowered to let out the tribute-money and other public revenues, and to sell confiscated estates; all which bargains were ratified by their president, or in his name. They were by their office also bound to convict such as had not paid the tribute called *Μελοικιον*, and sell them in the market by auction. The market where these wretches were sold was called *παραληγειον τε μελοικις*.

POLIANTHES, the TUBEROSE; a genus of plants belonging to the hexandria class; and in the natural method ranking under the 10th order, *Coronariæ*. See *BOTANY Index*. The varieties are the common tuberoze, with single flowers,—double-flowered,—dwarf-stalked,—variegated leaved. They all flower here in June, July, and August.

All the varieties being exotics from warm countries, although they are made to flower in great perfection in our gardens by assistance of hot-beds, they will not prosper in the open ground, and do not increase freely in England; so that a supply of the roots is imported hither annually from Genoa, and other parts of Italy, by most of the eminent nursery and seedsmen, and the Italian warehouse-keepers; generally arriving in February or March, time enough for the ensuing summer's bloom; and are sold commonly at the rate of twelve or fifteen shillings per hundred, being careful always to procure as large roots as possible, for on this depends the success of having a complete blow. Requiring artificial heat to blow them in this country, they are planted in pots, and plunged in a hot-bed, under a deep frame furnished with glass lights; or placed in a hot-house, where they may be blowed to great perfection with little trouble. The principal season for planting them is March and April: observing, however, that in order to continue a long succession of the bloom, it is proper to make two or three different plantings, at about a month interval; one in March, another in April, and a third the beginning of May, whereby the blow may be

continued

Polianthes continued from June until September; observing, as above-mentioned, they may be flowered either by aid of a common dung or bark hot-bed, or in a hot-house.

With respect to the propagation of these plants, it is principally by offsets of the roots. The blowing roots that are brought annually from abroad for sale are often furnished with offsets, which ought to be separated previous to planting. Those also that are planted here in our gardens frequently furnish offsets fit for separation in autumn when the leaves decay: they must then be preserved in sand all winter in a dry sheltered place; and in the beginning of March, plant them either in a bed of light dry earth in the full ground; or, to forward them as much as possible, allow them a moderate hot-bed; and in either method indulge them with a shelter in cold weather, either of a frame and lights, or arched with hoops and occasionally matted; but let them enjoy the full air in all mild weather, giving also plenty of water in dry weather during the season of their growth in spring and summer. Thus let them grow till their leaves again decay in autumn: then take them up, clean them from earth, and lay them in sand till spring; at which time such roots as are large enough to blow may be planted and managed as already directed, and the smaller roots planted again in a nursery-bed, to have another year's growth; afterwards plant them for flowering. The Egyptians put the flowers of tuberose into sweet oil; and by this means give it a most excellent flavour, scarce inferior to oil of jasmine.

POLICANDRO, a small island in the Archipelago, seated between Milo and Mergo. It has no harbour, but has a town about three miles from the shore near a huge rock. It is a ragged stony island, but yields as much corn as is sufficient for the inhabitants, who consist of about 120 Greek families, all Christians. The only commodity is cotton: of which they make napkins, a dozen of which are sold for a crown. E. Long. 35. 25. N. Lat. 36. 36.

POLICASTRO, an episcopal town of Italy, in the kingdom of Naples, and in the Hither Principato; but now almost in ruins, for which reason the bishop resides in another town. E. Long. 15. 46. N. Lat. 40. 26.

POLICY, or **POLITY**, in matters of government. See **POLITY**.

POLICY of Insurance, or Assurance, of ships, is a contract or convention, whereby a person takes upon himself the risks of a sea-voyage; obliging himself to make good the losses and damages that may befall the vessel, its equipage, tackle, victualling, lading, &c. either from tempests, shipwrecks, pirates, fire, war, reprisals, in part or in whole; in consideration of a certain sum of seven, eight, or ten *per cent.* more or less according to the risk run; which sum is paid down to the assurer by the assured upon his signing the policy. See **INSURANCE**.

POLIDORO DA CARAVAGGIO, an eminent painter, born at Caravaggio in the Milanese in 1492. He went young to Rome, where he worked as a labourer in preparing stucco for the painters; and was so animated by seeing them at work in the Vatican, that he solicited some of them to teach him the rules of designing. He attached himself particularly to Maturino, a young Florentine; and a similarity in talents and taste producing a disinterested affection, they associated like brothers,

laboured together, and lived on one common purse, until the death of Maturino. He understood and practised the chiaro-scuro in a degree superior to any in the Roman school: and finished an incredible number of pictures both in fresco and in oil, few of the public buildings at Rome being without some of his paintings. Being obliged to fly from Rome when it was stormed and pillaged, he retired to Messina, where he obtained a large sum of money with great reputation, by painting the triumphal arches for the reception of Charles V. after his victory at Tunis: and when he was preparing to return to Rome, he was murdered, for the sake of his riches, by his Sicilian valet with other assassins, in the year 1543.

POLIFOLIA. See **ANDROMEDA**, **BOTANY** *Index*.

POLIGNAC, MELCHIER DE, an excellent French genius and a cardinal, was born of an ancient and noble family at Puy, the capital of Velay, in 1662. He was sent by Louis XIV. ambassador extraordinary to Poland, where, on the death of Sobieski, he formed a project of procuring the election of the prince of Conti. But failing, he returned home under some disgrace; but when restored to favour, he was sent to Rome as auditor of the Rota. He was plenipotentiary during the congress at Utrecht, at which time Clement I. created him a cardinal; and upon the accession of Louis XV. he was appointed to reside at Rome as minister of France. He remained there till the year 1732, and died in the year 1741. He left behind him a MS. poem entitled *Anti-Lucretius, seu De Deo et Natura*; the plan of which he is said to have formed in Holland in a conversation with Mr Bayle. This celebrated poem was first published in the year 1749, and has since been several times printed in other countries besides France. He had been received into the French Academy in 1704, into the Academy of Sciences in 1715, into that of the Belles Lettres in 1717: and he would have been an ornament to any society, having all the accomplishments of a man of parts and learning.

POLISHER, or **BURNISHER**, among mechanics, an instrument for polishing and burnishing things proper to take a polish. The gilders use an iron-polisher to prepare their metals before gilding, and the blood-stone to give them the bright polish after gilding.

The polishers, among cutlers, are a kind of wooden wheels made of walnut-tree, about an inch thick, and of a diameter at pleasure, which are turned round by a great wheel; upon these they smooth and polish their work with emery and putty.

The polishers for glass consist of two pieces of wood; the one flat, covered with old hat; the other long and half-round, fastened on the former, whose edge it exceeds on both sides by some inches, which serves the workmen to take hold of, and to work backwards and forwards by.

The polishers used by spectacle-makers are pieces of wood a foot long, seven or eight inches broad, and an inch and a half thick, covered with old beaver hat, whereon they polish the shell and horn frames their spectacle-glasses are to be set in.

POLISHING, in general, the operation of giving a gloss or lustre to certain substances, as metals, glass, marble, &c.

Polidoro
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Polishing.



Politeness. The operation of polishing optic-glasses, after being properly ground, is one of the most difficult points of the whole process. See TELESCOPE.

POLITENESS means elegance of manners or good breeding: Lord Chesterfield calls it the art of pleasing. It has also been called an artificial good nature; and indeed good nature is the foundation of true politeness; without which art will make but a very indifferent figure, and will generally defeat its own ends. "Where compliance and assent, caution and candour, says an elegant essayist *, arise from a natural tenderness of disposition and softness of nature, as they sometimes do, they are almost amiable and certainly excusable; but as the effects of artifice, they must be despised. The persons who possess them are, indeed, often themselves dupes of their own deceit, when they imagine others are deluded by it. For excessive art always betrays itself; and many, who do not openly take notice of the deceiver, from motives of delicacy and tenderness for his character, secretly deride and warmly resent his ineffectual subtilty."

* *Dr Knox.*

† *Beauties of History.*

"True politeness (says another author †) is that continual attention which humanity inspires us with, both to please others, and to avoid giving them offence. The surly plain-dealer exclaims loudly against this virtue, and prefers his own shocking bluntness and Gothic freedom. The courtier and fawning flatterer, on the contrary, substitute in its place insipid compliments, cringings, and a jargon of unmeaning sentences. The one blames politeness, because he takes it for a vice; and the other is the occasion of this, because that which he practises is really so."

Both these characters act from motives equally absurd, though not equally criminal. The conduct of the artful flatterer is guided by self-love, while that of the plain-dealer is the effect of ignorance; for nothing is more certain, than that the desire of pleasing is founded on the mutual wants and the mutual wishes of mankind; on the pleasure which we wish to derive from society, and the character which we wish to acquire. Men having discovered that it was necessary and agreeable to unite for their common interests, they have made laws to repress the wicked, they have settled the duties of social life, and connected the idea of respectability with the practice of those duties; and after having prescribed the regulations necessary to their common safety, they have endeavoured to render their commerce with one another agreeable, by establishing the rules of politeness and good breeding. Indeed, as an elegant author already quoted remarks, the philosopher who, in the austerity of his virtue, should condemn the art of pleasing as unworthy cultivation, would deserve little attention from mankind, and might be dismissed to his solitary tub, like his brother Diogenes. It is the dictate of humanity, that we should endeavour to render ourselves agreeable to those in whose company we are destined to travel in the journey of life. It is our interest, it is the source of perpetual satisfaction; it is one of our most important duties as men, and particularly required in the professor of Christianity."

It is needless to particularize the motives which have induced men to practise the agreeable virtues; for, from whatever source the desire of pleasing proceeds, it has always increased in proportion to the general civilization of mankind. In a rude state of society, pleasure

is limited in its sources and its operation. When the wants of mankind, and the means of attaining them, are few, personal application is necessary to gratify them, and it is generally sufficient; by which means an individual becomes more independent than can possibly be the case in civilized life, and of course less disposed to give or receive assistance. Confined to the solitary wish of furnishing means for his own happiness, he is little intent on the pleasures of conversation and society. His desire of communication is equal to the extent of his knowledge. But as soon as the natural wants of life are filled up, we find unoccupied time, and we labour hard to make it pass in an agreeable manner. It is then we perceive the advantage of possessing a rational nature, and the delights of mutual intercourse. When we consider society in that state of perfection which enables a great part of the members of it to pursue at leisure the pleasures of conversation, we should expect, both from the ease of acquitting ourselves to the satisfaction of our associates, and from the advantages arising from this conduct, that the art of pleasing might be reduced to a few plain and simple rules, and that these might be derived from a slight attention to general manners.

The art of pleasing, in our intercourse with mankind, is indeed so simple, that it requires nothing more than the constant desire to please in all our words and actions; and the practice of it can neither wound a man's self-love, nor be prejudicial to his interest in any possible situation.

But though this be certain, it is doubtless less attended to than in reason it ought to be. Each particular man is so zealous to promote his own ends or his own pleasure, as to forget that his neighbour has claims equal to his own; that every man that enters into company gives up for the time a great many of his peculiar rights; and that he then forms part of an association, met together not for the particular gratification of any one, but for the purpose of general satisfaction. See BREEDING, CONVERSATION, and *Good MANNERS*.

The qualities essential in the art of pleasing, are *virtue, knowledge, and manners*. All the virtues which form a good and respectable character in a moral sense are essential to the art of pleasing. This must be an established principle, because it depends on the wants and mutual relations of society. In all affairs of common business, we delight in transacting with men in whom we can place confidence, and in whom we find integrity; but truth is so naturally pleasing, and the common affairs of life are so interwoven with social intercourse, that we derive abundantly more satisfaction from an honest character than from specious manners. "Should you be suspected (says Chesterfield) of injustice, malignity, perfidy, lying, &c. all the parts and knowledge of the world will never procure you esteem, friendship, and respect."

The first of virtues in our commerce with the world, and the chief in giving pleasure to those with whom we associate, is inviolable sincerity of heart. We can never be too punctual in the most scrupulous tenderness to our moral character in this respect, nor too nicely affected in preserving our integrity.

The peculiar modes, even of the fashionable world, which are founded in dissimulation, and which on this account have induced several to recommend the practice, would not prevent a man of the highest integrity from

Politeness. from being acceptable in the very best company. Acknowledged sincerity gives the same ornament to character that modesty does to manners. It would abundantly atone for the want of ridiculous ceremony, or false and unmeaning professions; and it would in no respect diminish the lustre of a noble air, or the perfection of an elegant address.

If integrity be the foundation of that character which is most generally acceptable, or which, in other words, possesses the power of pleasing in the highest degree, humanity and modesty are its highest ornaments.

The whole art of pleasing, as far as the virtues are concerned, may be derived from the one or other of these sources. Humanity comprehends the display of every thing amiable to others; modesty removes or suppresses every thing offensive in ourselves.

This modesty, however, is not inconsistent with firmness and dignity of character; it arises rather from the knowledge of our imperfection compared with a certain standard, than from conscious ignorance of what we ought to know. We must therefore distinguish between this modesty and what the French call *mauvaise honte*. The one is the unaffected and unassuming principle which leads us to give preference to the merit of others, the other is the awkward struggling of nature over her own infirmities. The first gives an additional lustre to every good quality; while some people, from feeling the pain and inconveniency of the *mauvaise honte*, have rushed into the other extreme, and turned impudent, as cowards sometimes grow desperate from excess of danger. The medium between these two extremes marks out the well-bred man; he feels himself firm and easy in all companies, is modest without being bashful, and steady without being impudent.

A man possessing the amiable virtues is still farther prepared to please, by having in his own mind a perpetual fund of satisfaction and entertainment. He is put to no trouble in concealing thoughts which it would be disgraceful to avow, and he is not anxious to display virtues which his daily conversation and his constant looks render visible.

The next ingredient in the art of pleasing, is to possess a correct and enlightened understanding, and a fund of rational knowledge. With virtue and modesty we must be able to entertain and instruct those with whom we associate.

The faculty of communicating ideas is peculiar to man, and the pleasure which he derives from the interchange alone is one of the most important of his blessings. Mankind are formed with numberless wants, and with a mutual power of assisting each other. It is a beautiful and happy part of the same perfect plan, that they are likewise formed to delight in each other's company, and in the mutual interchange of their thoughts. The different species of communication, in a highly polished age, are as numerous as the different ranks, employments, and occupations of men; and indeed the knowledge which men wish to communicate, takes its tinge from their peculiar profession or occupation.

Thus commercial men delight to talk of their trade, and of the nature of public business; men of pleasure, who wish merely to vary or quicken their amusements, are in conversation light, trifling, and insincere; and the literati delight to dwell on new books, learned men, and important discoveries in science or in arts. But as

the different classes of men will frequently meet together, all parties must so contrive matters, as to combine the useful and agreeable together, so as to give the greatest delight at the time, and the greatest pleasure on reflection. An attention to these principles would make the man of pleasure and the man of learning meet together on equal terms, and derive mutual advantage from their different qualifications. With due attention to such ideas, we proceed to mention the kinds of knowledge which are most fitted for conversation. Those who wish to please should particularly endeavour to be informed in those points which most generally occur. An accurate or extensive knowledge on learned subjects is by no means sufficient: we must also have an accurate and extensive knowledge of the common occurrences of life.

It is the knowledge of mankind, of governments, of history, of public characters, and of the springs which put the great and the little actions of the world in motion, which give real pleasure and rational instruction. The knowledge which we communicate must in some shape be interesting to those to whom we communicate it; of that nature, that the desire of receiving it may overbalance every kind of disgust, excited too often on the score of envy and self-love, against those who happen to possess superior endowments, and at the same time of that importance, as to elevate the thoughts somewhat above the actions and the faults of the narrow circle formed in our own immediate neighbourhood. On this account it is recommended by an author who fully knew mankind, as a maxim of great importance in the art of pleasing, to be acquainted with the private character of those men who, from their station or their actions, are making a figure in the world. We naturally wish to see such men in their retired and undisguised moments; and he who can gratify us is highly acceptable. History of all kinds, fitly introduced, and occasionally embellished with pleasing anecdotes, is a chief part of our entertainment in the intercourse of life. This is receiving instruction, without exciting much envy; it depends on memory, and memory is one of those talents the possession of which we least grudge to our neighbour. Our knowledge of history, at the same time, must not appear in long and tedious details; but in apt and well chosen allusions, calculated to illustrate the particular subject of conversation. But the knowledge most necessary is that of the human heart. This is acquired by constant observation on the manners and maxims of the world, connected with that which passes in our own minds. This leads us from the common details of conduct, from slander and defamation, to the sources and principles of action, and enables us to enter into what may be called the philosophy of conversation. We may see both the practicability of this kind of discourse, and the nature of it, in the following lines of Horace:

Sermo oritur, non de villis domibusve alienis;
Nec male necne Lepos saltet: sed quod magis ad nos
Pertinet, & nescire malum est, agitamus: utrumne
Divitiis homines, an sint virtute beati?
Quidve ad amicitias, usus rectumne, trahat nos?
Et quæ sit natura boni, summumque quid ejus? &c.

By this means constant materials are supplied for free, easy, and spirited communication. The restraints which

Politeness. are imposed on mankind, either from what their own character may suffer, or from the apprehension of giving offence to others, are entirely taken off, and they have a sufficient quantity of current coin for all the common purposes of life.

In addition to virtue and knowledge, which are the chief ingredients in the art of pleasing, we have to consider graceful and easy manners. Lord Chesterfield indeed considers these as the most essential and important part; as if the diamond received its whole value from the polish. But though he is unquestionably mistaken, there is yet a certain sweetness of manners which is particularly engaging in our commerce with the world. It is that which constitutes the character which the French, under the appellation of *P'aimable*, so much talk of, and so justly value. This is not so easily described as felt. It is the compound result of different things; as complaisance, a flexibility but not a servility of manners, an air of softness in the countenance, gesture, and expression, equally whether you concur or differ with the person you converse with. This is particularly to be studied when we are obliged to refuse a favour asked of us, or to say what in itself cannot be very agreeable to the person to whom we say it. It is then the necessary gilding of a disagreeable pill. But this, which may be called the *suaviter in modo*, would degenerate and sink into a mean and timid complaisance and passiveness, if not supported by firmness and dignity of character. Hence the Latin sentence, *suaviter in modo, fortiter in re*, becomes a useful and important maxim in life.

Genuine easy manners result from a constant attention to the relations of persons, things, time, and places. Were we to converse with one greatly our superior, we are to be as easy and unembarrassed as with our equals; but yet every look, word, and action, should imply, without any kind of servile flattery, the greatest respect. In mixed companies, with our equals, greater ease and liberty are allowed; but they too have their proper limits. There is a social respect necessary. Our words, gestures, and attitudes, have a greater degree of latitude, though not an unbounded one. That easiness of carriage and behaviour which is exceedingly engaging, widely differs from negligence and inattention, and by no means implies that one may do whatever he pleases; it only means, that one is not to be stiff, formal, and embarrassed, disconcerted and ashamed; but it requires great attention to, and a scrupulous observation of, what the French call *les bienséances*; a word which implies "decorum, good-breeding, and propriety." Whatever we ought to do, is to be done with ease and unconcern; whatever is improper, must not be done at all. In mixed companies, also, different ages and sexes are to be differently addressed. Although we are to be equally easy with all, old age particularly requires to be treated with a degree of deference and regard. It is a good general rule, to accustom ourselves to have a kind feeling to every thing connected with man; and when this is the case, we shall seldom err in the application. Another important point in the *bienséances* is, not to run our own present humour and disposition indiscriminately against every body, but to observe and adopt theirs. And if we cannot command our present humour and disposition, it is necessary to single out those to converse with who happen to be in the humour the nearest to our own. Peppermint and decision, especially in young people, is

contrary to the *bienséances*: they should seldom seem to dissent, and always use some softening mitigating expression. *Politeness, Politian.*

There is a *bienséance* also with regard to people of the lowest degree; a gentleman observes it with his footman, and even indeed with the beggar in the street. He considers them as objects of compassion, not of insult; he speaks to neither in a harsh tone, but corrects the one coolly, and refuses the other with humanity.

The following observations perhaps contain the sum of the art of pleasing:

1. A fixed and habitual resolution of endeavouring to please, is a circumstance which will seldom fail of effect, and its effect will every day become more visible as this habit increases in strength.

2. This resolution must be regulated by a very considerable degree of good sense.

3. It is a maxim of almost general application, that what pleases us in another will also please others in us.

4. A constant and habitual attention to the different dispositions of mankind, to their ruling passions, and to their peculiar or occasional humours, is absolutely necessary.

5. A man who would please, must possess a firm, equal, and steady temper. And,

6. An easy and graceful manner, as distant from bashfulness on the one hand as from impudence on the other. "He who thinks himself sure of pleasing (says Lord Chesterfield), and he who despairs of it, are equally sure to fail." And he is undoubtedly in the right. The one, by his assuming vanity, is inattentive to the means of pleasing; and the other, from fear, is rendered incapable of employing them.

A variety of excellent rules for acquiring politeness, with strictures on particular kinds of impoliteness, may be found in the *Spectator*, *Rambler*, *Idler*, *Lounger*, *Mirror*, and other periodical works of that kind; in *Knox's Essays*, and among *Swift's Works*; see *Good MANNERS*. *Chesterfield's Art of Pleasing*, and his *Letters*, are also worthy of perusal, provided the reader be on his guard against the insincerity and other vices which those books are calculated to infuse, and provided he always bears in mind, what we have endeavoured to show in this article, that true politeness does not consist in specious manners and a dissimulating address, but that it must always be founded on real worth and intrinsic virtue.

POLITIAN, ANGELO, was born at Monte Pulciano in Tuscany in 1454. He learned the Greek tongue, of which he became a complete master, under Andronicus of Thessalonica. He is said to have written verses both in Greek and Latin when he was not more than 12 years of age. He studied also the Platonic philosophy under Marsilius Ficinus, and that of Aristotle under Argyropylos. He was one of the most learned and polite writers of his time. The first work which gained him a reputation was a poem on the tournament of Julian de Medicis. The account he wrote some time after of the conspiracy of the Pazzi's was very much esteemed. He wrote many other pieces which have merited approbation; and had he lived longer, he would have enriched the republic of letters with many excellent works; but he died at the age of 40 years. His morals answered the homeliness of his face rather than the beauty of his genius; for Paul Jovius informs us, that "he was a man of awkward and perverse manners, of

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a countenance by no means open and liberal, a nose remarkably large, and squinting eyes. He was crafty, satirical, and full of inward malice: for his constant way was, to sneer and ridicule the productions of other men, and never to allow any criticism, however just, upon his own."

He was, nevertheless, as all acknowledge, a man of most consummate erudition; and not only so, but a very polite and elegant writer. Erasmus, in his *Ciceronianus*, calls him a rare miracle of nature, on account of his excelling in every kind of writing; his words are remarkable: "*Fateor Angelum prorsus angelica fuisse mente, rarum naturæ miraculum, ad quodcumque scripti genus applicaret animum.*" Some of his poems were so much admired, that several learned men have made it their business to comment on them. It has been often reported that he spoke of the Bible with great contempt; and that, having read it but once, he complained he had never spent his time so ill. But this is not probable, for it must be remembered that he was a priest and canon of Florence; and we learn from one of his Epistles that he preached a whole Lent. It does not indeed follow hence, that he did not think contemptuously of the Bible, because many of his church, especially among the better sort, have not been very good believers, and he might be one of them: but it is not likely he would speak out so freely. "I could (as Bayle says) much more easily believe the judgement he is said to have made on the Psalms of David and the Odes of Pindar: he did not deny that there are many good and fine things in the Psalms; but he pretended that the same things appear in Pindar with more brightness and sweetness. The two Scaligers have spoken highly of Politian: the elder has preferred a consolatory elegy of his to that which Ovid sent to Livia upon the death of Drusus, and says, he had rather have been the author of it: the younger calls him an excellent poet, but thinks the style of his epistles too elate and declamatory.

His works have been printed at various times, and in various places: his epistles have probably been most read, because these are things which the generality of people are best pleased with.

POLITICAL, from πολις; "a city," signifies any thing that relates to policy or civil government.

POLITICAL Arithmetic, is the art of reasoning by figures upon matters relating to government, such as the revenues, number of people, extent and value of land, taxes, trade, &c. in any nation.

These calculations are generally made with a view to ascertain the comparative strength, prosperity, &c. of any two or more nations. With this view, Sir William Petty, in his *Political Arithmetic*, p. 74, &c. computes the land of Holland and Zealand to be about 1,000,000 acres, and that of France to be 8,000,000; and yet the former is one third part as rich and strong as the latter. The shipping of Europe he computes to be about 2,000,000: of which Britain has 500,000; Holland 900,000; France 100,000; Hamburgh, Denmark, Sweden, and Dantzic 250,000; and Spain, Portugal, Italy, &c. the rest. The exports of France he computes at 5,000,000l. of which one-fourth came to Britain; of Holland L. 18,000,000, of which L. 300,000 came to Britain. The money raised yearly by the king of France was about 6,500,000l. Sterling; that of all the Dutch provinces 3,000,000l. of which 2,100,000

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was raised in Holland and Zealand. The number of people in England he computed to be six millions, and their expences, at 7l. *per annum* a head, 42,000,000l.; the rent of land 8,000,000l.; and the interests, &c. of personal estates as much, the rents of houses 4,000,000l. and the profits of labour 26,000,000l. The people of Ireland he reckoned 1,200,000. The corn spent in England, at 5s. a bushel for wheat, and 2s. 6d. for barley, amounts to 10,000,000l. a-year. The navy of England then required 36,000 men to man it, and other trade and shipping 48,000. In France, to manage the whole shipping trade, there were then required only 1500 men. The whole people of France were 13,500,000; and those of England, Scotland, and Ireland, about 9,500,000. In the three kingdoms are about 20,000 churchmen, and in France more than 270,000. In the dominions of England were above 40,000 seamen, and in France not more than 10,000. In England, Scotland, and Ireland, and all their dependencies, there was then about 60,000 ton of shipping, worth about 4,500,000l. in money. The sea line round England, Scotland, and Ireland, and the adjacent isles, is about 3800 miles. In the whole world he reckoned about 350,000,000 of people; and those with whom the English and Dutch have any commerce, not more than eighty millions; and the value of commodities annually traded for in the whole not above 45,000,000l. That the manufactures exported from England amounted to about 5,000,000l. *per annum*; lead, tin, and coals, to 500,000l. *per annum*. The value of the French commodities then brought into England did not exceed 1,200,000l. *per annum*; and the whole cash of England in current money was then about 6,000,000l. Sterling.

With these calculations Dr Davenant was dissatisfied; and therefore, from the observations of Mr Greg. King, he advanced others of his own. He reckons the land of England 39 millions of acres: the number of people 5 millions and a half, increasing 9000 a year, making allowance for wars, plagues, and other accidents. He reckons the inhabitants of London 530,000; of other cities and market-towns in England 870,000; and those of villages, &c. 4,100,000. The yearly rent of land he reckons 10,000,000l.; of houses, &c. 2,000,000l.; the produce of all kinds of grain in a tolerable year 9,075,000l. the annual rent of corn lands 2,200,000l. and the net produce 9,000,000l.; the rent of pasture, meadows, woods, forests, commons, heaths, &c. 7,000,000l.; the annual produce by cattle in butter, cheese, and milk, about 2,500,000l.; the value of the wool yearly shorn about 2,000,000l.; of horses yearly bred about 250,000l.; of the flesh yearly spent as food about 3,350,000l.; of the tallow and hides about 600,000l.; of the hay yearly consumed by horses about 1,300,000l.; of the hay consumed by other cattle 1,000,000l.; of the timber yearly felled for building 500,000l.; and of the timber yearly felled for firing, &c. about 500,000l. The proportion of the land of England to its inhabitants is now about $7\frac{1}{4}$ acres per head; the value of the wheat, rye, and barley, necessary for the sustenance of England, amounts to at least 6,000,000l. Sterling *per annum*; of the woollen manufacture about 8,000,000l. *per annum*, and exports of all kinds of the woollen manufacture amount to above 2,000,000l. *per annum*; the annual income of England, on which the whole people subsist, and out of which all

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taxes are paid, is reckoned to be about 43,000,000l. that of France 81,000,000l. and of Holland 18,250,000l. See Davenant's *Essay on Trade*, in vol. vi. of his works. For calculations respecting mortality, see Major Grant's *Observations on the Bills of Mortality*, and our article *Bills of MORTALITY*.

In vol. xlix. of the Philosophical Transactions we have an estimate of the number of people in England by Dr Brakenridge, from considering the number of houses and quantity of bread consumed. On the former principle he computes the number of people to be 6,257,418 of all ages, counting in England and Wales 911,310 houses, and allowing six persons to a house. From a survey of the window-lights after the year 1750, the number of houses charged in England and Wales were 690,000, besides 200,000 cottages that pay nothing; the whole number therefore was 890,000, and the number of people, allowing six to a house, 5,340,000. On the latter principle, he estimates the number of quarters of wheat consumed at home to be 2,026,100; and allowing a quarter for three persons in a year, or seven ounces a day for each person, he concludes the number of people to be 6,078,300. Of this number, according to Dr Halley's rule, he supposes about 1,500,000 men able to carry arms. The country he supposes capable of supporting one half more inhabitants, or 9,000,000; for, according to Mr Templeman's survey, England contains 49,450 square miles, that is, 3,1648,000 acres, of which 23,000,000

acres are proper to be cultivated; and allowing three acres, well manured, for the maintenance of one person, there will be maintenance in England for 8,430,000 people; to which add the produce of fishing, and it will enable the country to support 9,000,000. In Ireland, Mr Templeman reckons 17,536,000 acres, of which Dr Brakenridge thinks 12,000,000 are capable of cultivation; and allowing four acres to each person, and the number of inhabitants to be only 1,000,000, Ireland could maintain 2,000,000 more people than it has now. In Scotland, containing 1,500,000 people, and 17,728,000 acres of land, of which there are 11,000,000 good acres, allowing five for each person, he supposes there may be provision for 2,200,000 people, or for 700,000 more than there are at present. Hence he infers, that were both the British isles properly cultivated, there is a provision for 6,000,000 inhabitants beyond the present number. Extending his survey to the whole globe, he supposes the whole surface to be to the quantity of land as 8 to 3, *i. e.* as 197,819,550 to 74,182,331 square miles; out of which deducting one third for waste-ground, there will be 49,454,887 square miles, or 31,651,127,680 good acres. And stating the whole number of inhabitants on the globe to be 400,000,000, there will be 79 good acres to each person. See Dr Halley's *Calculations* on the same subject, and *Dr Price's* (for a list of whose works see his life at the word PRICE), and *King on the National Debt*.

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POLITICAL ECONOMY

MAY be defined the science which relates to the production, multiplication and distribution of Wealth.

HISTORY.

The acquisition of wealth must at all times have been an object of interest and attention to mankind. Yet it was not for a long time reduced into a science, but was left merely to the industry and practical observation of men engaged in the different branches of industry. We find little or nothing in the ancient writers which can be considered as belonging to this department of science. Among them agriculture appears to have been more honoured and attended to, than either trade or manufactures. The latter especially were considered as unworthy of freemen, and were abandoned entirely to slaves. Yet the ancient world had its commercial states; and perhaps had the monuments of Phœnicia or Carthaginian literature come down to us, they might in some measure have supplied this blank.

During the middle ages, the reign of disorder and violence checked the practical, and still more the theoretical pursuit of these important objects. The feudal system, in which the lordly baron ruled with licentious sway over his little territory, and carried on almost perpetual war with his neighbours, was hostile to all improved agriculture, and absolutely precluded any progress in manufactures and commerce. These took refuge in the large maritime towns, where fortifications secured the inhabitants from lawless inroads, and a regu-

lar police placed person and property in safety. The gradual growth of these cities constituted the grand cause which induced the civilization of modern Europe. The models of beautiful workmanship which were produced, and the various means which ingenuity discovered for multiplying the accommodations of life, gradually brought about a complete change in the habits of landed proprietors. Power, not wealth, had formerly been their object; and to promote this power, they spent almost all their revenues in maintaining a crowd of idle retainers. But when, by the improvement of arts, they had got a taste for luxury, the gratification of which required an augmentation of wealth, their object came to be, how to turn their estates to the best account. This could only be done by granting the farmer a longer lease, which, enabling him to make improvements, led to a better system of agriculture. The same tastes drew them to large cities, and thus led them into extravagant habits, which often brought their estates to market, and placed them in the hands of the commercial and industrious. Thus the improvement of modern Europe, contrary to the natural course of things, began with the manufacturing and commercial classes, and was from them reflected to the agricultural part of the community. The consequence was, that commerce and manufactures were long looked upon as the grand source of wealth, and were the objects of peculiar favour to the legislator. Hence arose the mercantile system, which, till about the middle of the last century, was completely predominant in Europe. A sketch of its leading principles will be introduced in the course of the

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the present treatise, and they are fully detailed and supported in the writings of Davenant, Petty, Child, and other writers by whom its tenets were adopted.

This system had a powerful influence on the legislation of the different European nations, England not excepted. But in France, above all, it reigned with absolute sway. Colbert, the celebrated minister of Lewis XIV. in his zeal for the promotion of trade and manufactures, not only neglected, but even depressed agriculture, by laying absurd restraints on the exportation of corn. One extreme leads to another. Thinking men in France, observing the pernicious consequences of this system, were led to the adoption of one directly opposite. According to them, agriculture formed the only real source of wealth. This opinion was first advanced by M. Quesnay, a physician of Paris; he was followed by a multitude of philosophers, who espoused his opinion with all the union and zeal of a sect. Accordingly they went under the name of *Economists*, and the Economical Sect. The *Encyclopedie* of Diderot and D'Alembert was conducted entirely upon their principles, and tended to give them a wide circulation. Turgot, in the reforms which he undertook during his short administration, was chiefly guided by the principles of the Economists.

Soon after this, Scotland had the honour of producing a system, which has obtained the general approbation of thinking men, and has gradually superseded all others. Adam Smith, being professor in the first commercial city of Scotland, had his attention naturally drawn to these subjects. In his class he had already begun to illustrate the true principles of political economy. Travelling afterwards in France, he became acquainted with the leading members of the Economical school. On his return he spent nine years in maturing his ideas, and preparing his great work "On the Wealth of Nations," which was published in 1776. Here, like the Economists, he shewed the errors of the mercantile system, but in a much more solid and satisfactory manner. He shewed also their own principles to be in many respects erroneous; and he investigated the effects of the division of labour, and various other circumstances which had not occurred to any former writer.

Although the system of Smith gave general satisfaction to all who were able to investigate the subject, and though it was even adopted by Mr Pitt as the basis of his financial and commercial arrangements, yet it did not for a long time acquire a very general currency with the public. It was adopted by the learned only, and not always by them (A). In this respect, the publication of the Edinburgh Review may be considered as forming an era in the history of this science. This celebrated journal, by illustrating in a popular manner the leading subjects of political economy, and by beating down, with its keen powers of ridicule, the opinions of those who still adhered to the obsolete system, has done more towards *diffusing* the true principles of the science, than any former publication. Lord Lauderdale also has recently published a work, in which, with some paradoxes, he has

made also some important additions and corrections to the doctrine of Smith.

In the following sketch, considering Smith as the father of political economy, we shall closely follow his steps, adopting however a somewhat different arrangement, and including such improvements as the science has received since his time.

The subject, it appears to us, may be treated with advantage under the following heads:

- I. The nature and different species of wealth.
- II. The sources of wealth.
- III. The manner in which wealth is produced and distributed.
- IV. View of the mercantile and economical systems.
- V. Public revenue.

These topics will form the subjects of the following chapters.

CHAP. I. On the Nature and different Species of Wealth.

SECT. I. Of the Definition of Wealth; and of Price.

Wealth has been defined to consist of every thing which can be exchanged for another. Lord Lauderdale gives a more general definition, and considers it as consisting of every thing which is useful or agreeable to man*. We conceive, however, that this must be limited to objects of external accommodation; for knowledge and mental qualifications of every kind, though most useful and agreeable, cannot be said to constitute wealth, nor to form the subject of political economy. Again, external accommodations, which are in complete and universal abundance, the air we breathe, the light of heaven, are not wealth. To constitute this, the article must exist in some degree of scarcity. It is then only that it can possess an exchangeable value, that its possessor can procure other commodities in return for it. Thus there are two circumstances to be considered in any commodity; its *value in use*, and its *value in exchange*. Water, air, &c. are of the greatest use; but from their great abundance, nothing can be got in exchange for them. Diamonds, on the contrary, are of very little use; but from their great rarity, their exchangeable value, or *price*, is beyond that of any other substance.

The *price* of an article depends entirely upon two circumstances. 1. The *demand*, or the number of persons who desire to possess it, and have something to give in exchange. 2. The *supply*, or the quantity brought to market. The price is directly as the demand, and inversely as the supply; the former raises, the latter sinks it. Where there are many bidders, and where the quantity is small, the competition must be increased, each must seek to outbid the other, and the price of the commodity must rise. On the contrary, if the bidders are few, and the commodity in great abundance, the possessor, in order to dispose of it, will be under the necessity of offering it at a low price.

O 2

SECT.

(A) In the scarcity of 1799 or 1800, the university of Cambridge was announced in the newspapers as having subscribed 50l. to be employed in the apprehension of *regraters and forestallers!*

Nature of
Wealth,
&c.* Lauderdale on
Wealth, chr.
Edin-
burgh Re-
view, No
viii. art. 8.

Nature of
Wealth,
&c.

SECT. II. *Of Capital.*

Every man's wealth is of two kinds; the one which he lays aside for immediate consumption; the other which he reserves for the supply of future wants, or employs in such a manner as to make it produce new wealth. The former is called his *income*, the latter his *capital*. In proportion as he devotes his property to the former of these purposes, his wealth is diminished; in proportion as he devotes it to the latter, it is increased. This evidently takes place in the case of an individual; and Smith seems to consider it as taking place equally in the case of a nation*. Later inquirers, however, seem to have proved, that there is here a difference. Extreme parsimony throughout a nation, by preventing the production of all articles but those of the first necessity, would induce general poverty†. Still, however, it is essential to the prosperity of a people, that their annual produce should not be all consumed, but that a considerable portion should be set aside and converted into capital.

* Book ii.
ch. iii.

† *Lauderdale on
Wealth.*

Capital is divided into *fixed* and *circulating*. Fixed capital consists of all those articles, which, without being themselves calculated for exchange or consumption, tend to increase the production of those articles which are so. Such are all kinds of machinery, farming stock, erections for the purpose of mining or manufacture, ships, &c. These form a most valuable part of the property of the nation, and make its revenue much greater than it would otherwise be. At the same time, as they are of no use in themselves, provided the same effects can be produced without them, or by cheaper instruments, their disuse, by saving expence, forms a real addition to the national wealth.

Circulating capital consists of all those commodities which are produced or purchased for the purpose of being wrought upon, or transported elsewhere, and again sold. It comprises almost all the wealth not included under fixed capital. The seed corn of the farmer, the materials of the manufacturer, the goods purchased by the merchant, come all under this description. Lands, mines, and fisheries, are the sources from which circulating capital originally proceeds; whence, after passing through various hands, it arrives at length, and is lost, in those of the consumer.

SECT. III. *Of Money.**

* *Smith,*
book i. ch.
iv. 11. Book
ii. ch. ii.

Barter, or the exchange of one thing for another of equal value, is essential to the supply of the varied wants of man, and is the grand principle on which commerce depends. Thus it is that men, while merely consulting their own interests, minister to each others necessities. It is attended, however, with an obvious inconvenience. A man may have goods to exchange, which do not suit his neighbour. The farmer has a sheep, and is in want of cloth; but the cloth merchant may not be in want of mutton, or at least may not wish so large a quantity. Hence the necessity of finding some commodity which may at all times be in demand, and which every one may be ready to receive in exchange for every other article. This commodity ought evidently to possess some quality which may render it an object of universal estimation; it ought also to pos-

sess great value in a small compass, so as to be portable, and not to encumber its possessor; it ought to be divisible into the smallest portions; and it ought to be durable, so as to be capable of being treasured up till wanted. All these qualities are united in the precious metals. Their beauty, their durability, their very scarcity, render them better fitted than any other commodity for being the standard of value and the medium of exchange. All nations, accordingly, after a trial of some ruder expedients, have finally had recourse to them for this purpose.

Nature of
Wealth,
&c.

Money is in one view a fixed, and in another a circulating capital. To the individual it stands in the latter capacity, for no one receives money unless for the purpose of sooner or later exchanging it for something else. To the nation, however, it is a fixed capital; being not destined for consumption, but merely an instrument for transacting business with greater facility and advantage.

As the facility of exchanging the precious metals for every other commodity, renders the *demand* for them constant and universal, their price depends almost wholly on the *supply*. This, too, is more uniform than that of most other commodities. A great revolution, however, took place at the beginning of the 16th century, in consequence of the discovery of America. For some time before, the value of silver seems rather to have been rising. But the immense mines of Mexico and Peru furnished such a copious supply, as soon reduced it to about one-third of its former value. Smith is of opinion, that since that time there has been rather a rise in the value of these metals. The East Indies, where they still continue scarcer than in Europe, forms a constant drain. The mines, in the course of working, approach nearer to an exhaustion; accordingly, the king of Spain, who originally levied a tax amounting to half the produce of silver, has found it necessary to reduce it successively to one-third, one-fifth, and at last, to one-tenth. The tax on gold is reduced to one-twentieth. The annual importation of gold and silver into Spain is estimated at about six millions.

It has been a frequent practice with sovereigns to reduce the quantity of bullion in any given denomination of coin, and thus to pay their debts with a smaller amount of gold and silver. To such an extent has this practice been carried, that in England the pound sterling is not quite a third of the real pound of silver, and in France the depreciation is far greater. This practice is completely fraudulent and dishonourable. No power of the sovereign can really make this debased coin pass for as much as it formerly did; the consequence is, an immediate rise in the nominal or money price of every commodity. All those, however, who are in the pay of government, suffer, and so do all creditors both public and private; for though the law cannot compel the nation to set the same value on the new coin as on the old, it can compel the creditor to accept it in payment of the sums which he has previously advanced in good coin.

All states reserve to themselves the privilege of coining money. Some, as England, perform this office gratis; while others, as France, impose a small seignorage at the mint. The latter mode seems rather preferable; for when the circulating coin, as frequently happens, is reduced by long use and attrition beneath its real

Nature of Wealth, &c., real value in bullion, the issuing of new coin which possesses that value affords a temptation to melt it down and recoin it.

In this case there is little danger of an over issue of notes.

Nature of Wealth, &c.

SECT. IV. *Of Paper Money* *.

Money, we have had occasion to observe, considered in a national point of view, is fixed capital. Like other fixed capitals, therefore, although its functions be most essential to the maintenance of trade, yet if any less costly substitute can be found, by which the same functions may be equally well performed, the public is decidedly a gainer. Such a substitute is paper money. By employing it, a nation saves the expence of gold and silver, and at the same time derives all the commercial advantages which money can afford. It is even in some respects more convenient, as being more easily transported, and less liable to accident.

It does not appear eligible, however, that gold and silver should be entirely supplanted by paper money. In all transactions with foreign nations, the former becomes necessary; and even domestic inconveniences would arise from its absolute exclusion. For the prevention of this, it is adviseable not to issue notes below a certain value. In England, this, till of late, was fixed at five or ten pounds; though in a recent scarcity, notes for twenty shillings began to be issued. In Scotland these have long been in circulation; and notes even for five shillings were some time ago introduced, though these, as soon as the pressure of necessity admitted, have been discontinued.

SECT. V. *Of the Variations in the Price of Commodities*.

There are however, extraordinary dangers attending the excessive and incautious use of this instrument, and no cause perhaps has been productive of more signal commercial disasters. The apparent facility of thus creating wealth, as it were, tempts banks and other public bodies to an excessive issue of it. The circulation of the country, however, can absorb only a certain quantity; and as soon as more is thrown in, it immediately returns upon the issuer, in a quantity for which he is probably unprepared. As soon as he shows any hesitation in discharging the demand, the whole rushes in, and bankruptcy and ruin ensue. Where the paper indeed has been issued by the government, payment may be refused; but in this case an immediate depreciation takes place in the value of the notes, and a deep injury is sustained by all who are possessed of them. From this cause it was that the French assignats fell so far below their original value; and for the same reason the American currency is considerably beneath its nominal value. Where, however, peculiar circumstances have produced an accidental scarcity of money, a temporary suspension of payment may become necessary, and with due caution may be productive of no serious bad consequences; such has been lately the case of the bank of England †.

The price of commodities fundamentally depends on the capacity which they possess, of ministering to the use and pleasure of man. Great variations, however, are seen to take place; and in this country particularly, in consequence of national prosperity, a great rise has occurred in a variety of articles. This is vulgarly ascribed to the greater plenty of money; an assertion every way vague, and which has no foundation in fact. Had the increase taken place in consequence of any remarkable increase in the supply of gold and silver, through the discovery of new mines, the assertion would have been just. No such general increase, however, has taken place, at least to any very sensible degree. The increase in this particular country has been owing to the augmentation in the number and value of all other commodities, for the circulation of which a greater quantity of this instrument of exchange becomes necessary. The relation, however, between it and other commodities, continues unaltered; and the quantity of any particular commodity, for which a certain quantity of it can be exchanged, remains the same. Indeed the augmentation has taken place, not so much in gold and silver, as in paper money, the substitute of those metals. The same arguments would hold against a rise occasioned by the use of this instrument, which can happen only where it is depreciated, as in some government paper, by the refusal of payment on demand. This case, however, would be indicated by a difference between its value, and that of gold and silver; a difference which has no place in this country.

Banks can with no propriety advance to merchants the whole capital on which they trade, but only that part of it which they would otherwise be obliged to keep by them for the purpose of answering occasional demands. This they do in two ways. 1. By discounting bills. 2. By granting cash accounts. The former only of these is practised in England. The latter is peculiar to Scotland. It is managed thus. Two persons of respectable, commonly of landed, property, becoming cautious to the extent of a certain sum, the merchant is allowed to draw to the extent of that sum. Merchants however, do not always content themselves with the degree of assistance above pointed out. They endeavour to carry on extensive speculations merely on paper money. For this purpose they draw fictitious bills for the mere purpose of having them discounted; and by drawing a second before the first becomes due, they delay still farther the repayment of the original advance. Banks ought always, if possible, to avoid the discounting of fictitious bills; and should take care, in cash accounts, that the advances and repayments nearly keep pace with each other.

Smith has illustrated *, in a most able and satisfactory manner, the source of those variations of price, which take place in consequence of advancing cultivation. He divides commodities into three kinds, which are as follows:

The first consists of those productions of nature which human efforts have no power of multiplying. Such are a variety of rare birds and fishes, most kinds of game, and particularly birds of passage. The growth of wealth and population has a natural tendency to increase the demand for these articles; and as the supply cannot be made to meet this demand, the price must consequently rise. Accordingly, in a highly opulent state of society, it becomes, in some instances, enormous. The Roman epicures are said sometimes to have given 60l. or 80l. for a single bird.

The

* Smith, book ii. ch. ii.

† Edinburgh Review, N^o 1. art. 25.

* Book 1. chap. xi.

Nature of
Wealth,
&c.

The second sort is of those which human industry can multiply in proportion to the demand. Where the commodity, as corn, is such as cannot be produced but by human industry, the price is more uniform than in almost any other case. The increasing scarcity and consequently value of land, tends indeed to raise it; but this is counteracted by the invention of machinery, and improved methods of labour. The opposite agency of these two causes has a constant tendency to preserve uniformity in the value of grain; though we cannot, with Smith, consider this uniformity as likely to be so complete, as to render the price of grain a sure standard for the value of silver.

There are other commodities, however, which nature produces in abundance, or which, where land is plentiful, can be multiplied with little or no cultivation. Of these the principal is butcher meat. Lands can be covered with cattle or sheep by the labour of few hands, and sometimes without any labour at all. Hence, in rude times, butcher meat is always cheaper than corn; in improved periods, the reverse is the case. For a long time the price continues constantly to rise, as we have seen it do throughout Great Britain, the pasture lands being more and more converted into arable. At last, however, it becomes so high as to make it an object for the farmer to stall his cattle, and to cultivate ground for the purpose of feeding them. After this era, the price is likely to experience a certain diminution, from the improved modes of feeding and rearing, which, in consequence of this new attention, are likely to be discovered and adopted.

There are certain animals, as hogs, poultry, &c. which are fed on mere offals, and in a rude state, therefore, are still cheaper than butcher meat. In an improved state they are dearer; for they have not as yet, at least in this country, become an object of separate cultivation.

The third sort consists of those, in the multiplication of which the power of man is either limited or uncertain. In these the rule is various. Some commodities are not cultivated on their own account, but are appendages to others; as wool and hides to the carcase of the ox or sheep. Both these commodities are much more portable, and more easily preserved, than the flesh of the animals from which they are taken; the market for them is thus much more extensive, and the demand more equal at all times. Hence, in rude periods, when the flesh of animals, from its abundance, is of small value, these appendages equal or surpass it in price. At Buenos Ayres frequently, and sometimes even in Spain, an ox is killed for the sake of the hide and tallow. In an improved state of society, on the contrary, the hide and fleece become considerably inferior in value to the carcase.

Fish is an article, the supply of which is considerably limited, as man has no power of production in respect to it, though, by the exertion of industry, he can collect a greater quantity. Shoals of fish are generally copious, but uncertain.

Metals and minerals are articles, the supply of which is not precisely limited, but extremely uncertain. The discovery of new mines, or the continuance of fertility in the old, are equally beyond the reach of calculation.

CHAP. II. *Of the Sources of Wealth.*

Sources of
Wealth.

ALL wealth arises from three sources; it is either produced by the spontaneous bounty of nature, or it is the fruit of human industry, or it is generated by the judicious employment of a quantity of wealth previously accumulated. To these three heads then of *land, labour, and capital*, all national wealth may be referred.

Smith has treated of the revenue derived from these three sources as forming the constituent parts of the price of commodities; and with regard to labour in particular, repeatedly considers it as the only source of wealth*. According to the view however, given above,* Book i. ch. v. vi. vii. the price of all commodities depends entirely on the proportion between the demand and the supply. Labour, therefore, (and the same may be said of land and capital), is only a means of furnishing or increasing a supply of those articles for which there already exists a demand, and unless it be successful in so doing, the most severe labours will meet with no remuneration whatever. We shall therefore proceed to consider the revenue which arises from these different sources, and the circumstances by which it is increased or diminished.

SECT. I. *Land.*

All land which is not naturally barren, and is cultivated with any ease, affords something more than is necessary to pay the expence of labouring it. This surplus goes as a rent to the landlord, who, in consideration of receiving it without risk or trouble, relinquishes to the farmer the profits of cultivation.

The proportion of the produce of a field which is to go for rent, varies with different circumstances. The chief of these is the fertility of the soil, the extent of the market, which enables the produce to be disposed of to greater advantage, the prosperity or poverty of the country, which causes a greater or less demand for that produce, and the average skill and activity of the farmers, which will enable them to turn the fertility of the ground to better account. It is almost needless to observe, were it not for the vague language often made use of upon this subject, that the rate at which farms let, must, like all other commodities, depend altogether upon the demand and the supply. If much is to be made by farming, many will bid for farms, and the rent will be raised by their competition, and *vice versa*. The idea that all the landlords of an extensive country may combine to raise their rents, is altogether chimerical. Even could it take place, it could be accomplished only by a certain number of them allowing their lands to lie waste, which, diminishing the supply, would doubtless raise the rent of the cultivated lands. But we need not fear that any landlord should leave his lands in this condition, from a culpable scheme of aggrandizing the rest of his body at his own expence, as well as that of the public.

Land which produces food for man will at all times afford rent to the landlord, in proportion to its fertility, and the other circumstances mentioned above. Men multiply in proportion to the means of subsistence; they have even a constant tendency to multiply beyond these means; hence there is always a full demand for this species

Nature of
Wealth,
&c.

species of produce. The rent, therefore, afforded by the ground which is employed in cultivating whatever is the staple food of the community, regulates the rent of all other ground. No one, unless forced to it by peculiarities of soil, would cultivate any article which afforded less rent than this. There may be soils indeed which are only fit for the production of an inferior article, and there are others which are fitted for the production of those of higher value. In vine countries, the rent of an ordinary vineyard seems to be nearly on a level with that of corn. But there are others, whose wines being regarded as superior, make them yield a much higher rent. The West India islands, before the late depreciation of their produce, seem to have been nearly in the same predicament.

These observations, however, apply chiefly to that produce of land which is the result of human labour. In regard to the spontaneous produce of land, it depends upon circumstances, whether or not it yields any rent at all. In a rude state of society, above all, the demand is often so slender, that, unless through the intervention of foreign commerce, this produce will bear scarcely any value. Such countries are often covered with immense natural woods, the cutting down of which is a burden instead of an advantage. In an improved country this wood would afford a large revenue. Most of the materials of clothing and lodging are of this nature. In the infancy of society, the great object is food; and provided men can procure that, they are satisfied with very moderate accommodations in other respects. The hides and furs of their cattle, and of the wild animals whom they kill in hunting, are more than sufficient to supply them with coverings. But as society becomes opulent, and luxury is introduced, clothes are among the favourite objects on which this luxury is vented. A great increase therefore takes place in the demand for its materials. The same may be said of those of lodging and furniture.

Mines, in political economy, may be considered in the same light as land. Like it, they yield a rent, which however, from the difficulty of working, is generally less than that of land. Coal, an important article, is kept down both by its great bulk, which narrows the market, and by its relation to the price of wood, which price it cannot exceed, otherwise wood would be preferred as fuel. A fifth of the whole produce is reckoned a great rent for a coal mine; a tenth is the most common. Metals, even the coarse, and still more the fine, will bear very extensive carriage. In general, however, their rent is not very high. The tin mines of Cornwall, said to be the richest in the world, yield on an average only a sixth part of their gross produce. The king of Spain's tax of a fifth on the silver mines in America, formed indeed the rent of those mines; but this tax he was obliged to reduce to one tenth. It is said to be ill paid*.

Fisheries form another source of wealth similar to land and mines. The sea, however, has never yet been appropriated, nor a rent exacted for its use. The right of fishing, however, in some seas of peculiar fertility, has been claimed as national property. River fisheries let frequently at a very high rent.

SECT. II. *Labour.*

The great source of exchangeable commodities, is the labour of man. Even those powers of nature for which

rent is paid, rarely afford any thing valuable unless aided by human efforts. Capital, however powerful an instrument, consists merely of accumulated labour. Originally the fruit of every man's industry would belong entirely to himself. Soon, however, the proprietor of the land from which he drew food, would claim a share. As the structure of society became more complicated, and markets more remote, something more would be found requisite. It would be necessary to have subsistence while the article was producing and carrying to market, to be able to purchase materials on which to work, and to command machinery or fixed capital in order to render labour more productive. For all these purposes, capital would become necessary; and the person who had accumulated a portion of it would be able to command the services of several others to whom he would advance subsistence and the materials of working, and would receive in return the fruits of their labour. As capitals accumulate, this becomes almost universally the case; in a commercial state, few independent workmen are to be found.

The price of labour or wages is regulated, like every thing else, by the demand and the supply. If there are many who want and can employ workmen, and if few can be found, the competition of the masters will raise the wages, until the whole capital, not otherwise employed, is distributed among that small number. In the opposite circumstance, workmen, glad to work for any thing rather than starve, will bid against each other till are all employed, at however small a recompense. The combinations among workmen, so much complained of, can never have any permanent effect, unless accompanied by those circumstances which necessarily lead to a rise. The combination of masters, though less heard of, is more to be feared. Their numbers are smaller, and from their greater command of property, they can hold out for a longer time. From the above causes, however, there is no reason whatever to dread any serious or lasting consequences from such a measure.

The supply of labour, or the population, has a natural tendency to suit itself to the demand. High wages, by encouraging early marriage, and enabling the labourer to take better care of his children, soon cause an addition to the numbers of a state, which, in its turn brings down the wages. Hence uncommonly high wages take place chiefly in an advancing state of society, when a number of employments are open, for which a sufficiency of labourers cannot be found. When the wealth of a country is stationary, the wages will be moderate, sufficient to admit of the rearing of such a number of children, as may keep up the population, but not such as to admit of any increase. When the country is in a declining state, the wages will fall even below this. They will scarcely enable the labourer to subsist; comparatively few will be able to rear families, and population will decline †.

From what has been said above, there will appear no reason to suppose, that the price of subsistence has any immediate influence on the wages of labour; an idea which even Smith seems strangely to have entertained †. The demand for labour, the funds by which it is paid, and the number of labourers continuing the same, no alteration in its price can take place. For masters to give higher wages on account of scarcity, is, we suspect, a very injudicious benevolence. The funds for the maintenance

Nature of
Wealth,
&c.

* Smith,
book i. ch.
ii.

† Smith,
book i. ch.

viii.
; 1. 1b. book

iii.

Sources of
Wealth.

tenance of labour, far from being increased by a dearth, are rather diminished; so that the giving a greater proportion of them than before to some, must be the means of throwing others altogether out of employment; and to this cause we suspect that the want of work usually complained of at these periods, is very much to be ascribed. Where the rise of provisions is permanent, however, that of labour, though not immediate, takes place ultimately, in consequence of a diminution of the supply. The difficulty of subsistence prevents labourers from rearing such numerous families; population is thinned; and the diminished competition causes a rise in the price of wages.

Wages in general are nearly the same over a country; for if they are higher in any one place, this proves a natural attraction to those of other districts, who soon reduce the rate to its proper level. This free circulation of labour, however, may be prevented by artificial restraints, as was the case, till of late, in England, by means of the poor laws. These authorized the parish officers to prevent any one who was ever likely to become a burden on the parish from settling in it. The most obnoxious part of these laws, however, has been done away, chiefly through the exertions of Mr Rose.

Wages are generally higher in cities than in the country. The capitals there are greater. The country too is more prolific, while few towns keep up their own numbers. Many indeed migrate from the former to the latter; but the predilection for their native spot, and to more wholesome and cheerful occupations, prevents this migration from being so great as completely to equalize the rate. Another cause arises, in modern Europe, from the corporation system which has generally prevailed. Almost every trade has some regulations to limit the number of its members, and thus, by restraining competition, to increase their wages. The principal of these regulations are those regarding the duration of apprenticeship. By the fifth of Elizabeth, no trade can be exercised in England, till after an apprenticeship of seven years; and the only freedom from this statute is in the case of those trades which were at that time unknown. In Scotland, apprenticeships are in general much shorter.

Wages, however, vary not only from local causes, but from others connected with the nature of the trades by which they are earned. There seem to be five circumstances which tend to raise the wages of any class of men above the ordinary level.

First, When any employment is of an unwholesome and disagreeable nature. Thus miners, blacksmiths, butchers, and innkeepers, earn higher wages than those whose occupation is not liable to the same objections. On the other hand, hunting and fishing, being naturally agreeable, and pursued by many for mere amusement, are by no means profitable.

Secondly, Where a profession is difficult to learn, as in the fine arts and liberal professions, which require many years study before a man is qualified to exercise them.

Thirdly, Where employment is precarious. Thus masons whose employment depends on the weather, and all workmen who are liable to be called upon and dismissed at a moment's warning, receive higher wages to compensate for this uncertainty in the means of their subsistence.

Fourthly, Where great trust is reposed in the work-

man. On this ground, goldsmiths and physicians are entitled to higher gains than others, in order that such important trusts may be reposed in persons who have something to lose.

Fifthly, Where there is any peculiar risk, either of failure, or of other disasters. Thus in the case of physicians, and still more of lawyers, it is only a few of those who apply to the profession to whom it ever yields a subsistence. Those who rise to eminence, therefore, have gained prizes in a lottery, which ought to be high in proportion to the number of blanks. The effect of this circumstance, however, is diminished by the natural confidence which every one has in his talents and good fortune, and by the brilliant reputation which accompanies success in these departments. The same remark applies to those professions which present a life of danger and adventure, as the naval and military service. Fortunately for the public, notwithstanding the danger, the hardship, and the slender emolument with which these professions are accompanied, no want is found of persons who are ready to engage in them.

Lastly, There are some circumstances, to which all trades are occasionally liable. In a new trade, the wages are generally higher. The success, and consequently the duration, of such must be more or less uncertain; and men will not be inclined, without some extraordinary temptation, to quit their old and established occupations, in order to engage in it. An extraordinary demand too sometimes arises for the commodities furnished by some particular trade; more labourers than usual will consequently be wanted; and these must be allured by the offer of higher wages. Sometimes, on the other hand, work is done cheaper than usual, from being taken up as a bye-employment, by those who derive their subsistence from a different source; as for instance, stockings in the north of Scotland. This takes place, however, only where the demand for labour is slender, as otherwise the whole of a man's time may be advantageously employed.

In considering the effects of labour in the production of wealth, Smith divides it into two kinds, which he calls productive and unproductive. Productive labourers are those whose industry produces a commodity which remains and can be exchanged for another. Thus the farmer produces corn, the manufacturer cloth or hardware. The unproductive, on the contrary, are those whose services perish in the moment of performance, and never produce any commodity to which value can be attached. These include a variety of professions both the most respectable and the least so. It includes, on one hand, all those employed in the executive government, officers of the army and navy, officers of justice, public teachers of every description; on the other, menial servants, players, musicians, &c. The more a man maintains of the former kind of labourers, the richer he becomes; the more he maintains of the latter, he becomes the poorer.

The most eminent writers on this subject, in the present age, seem disposed to treat this distinction as nugatory. They urge, that wealth consists merely in the abundance of conveniences and pleasures of life; and that whoever contributes to augment these is a productive labourer, although he may not present us with any tangible commodity. The professor who gives me a lecture, and the musician who gives me a tune, give something subser-

Sources of
Wealth.

Sources of Wealth.

Sources of Wealth.

* *Smith's*,
book iii.
ch. 3.
Lauderdale;
Edin. Review,
N^o viii.
art. 3.
Fay, Elements d'Economie Politique,
book i.
ch. 42.

vient to use or pleasure, and for which other articles may be had in exchange. We are rather disposed, however, to adhere to the doctrine of Smith, and to doubt how far these perishing and immaterial commodities, however valuable they may be, can, strictly speaking, be considered as wealth*.

ent modes of employing a capital, is a most serious consideration. A man will not, without some temptation of extraordinary profit, embark in a concern where a part or the whole of his capital may be lost. We are disposed, indeed, to consider this as the only circumstance which raises the profits of stock above the market rate of interest. In almost all modes of employing capital, there is some risk; and it may be supposed, that where that risk is greatest, the profit should be greatest also. Yet employments attended with very great risk, provided that risk be compensated by the chance of very great gains, are the most crowded. Such is the sanguine and adventurous spirit of men, that speculation, as it is called in trade, as well as such uncertain trades as that of the corn-merchant or the smuggler, are always overstocked; and though productive of occasional gains, prove commonly ruinous in the end.

SECT. III. *Of Capital.*

Capital or stock, as already hinted, is merely the produce of land and labour accumulated, and employed in such a manner as to cause an augmentation of the wealth of the community. It acts, however, too important a part, not to deserve separate consideration. We have already, considering it as one of the divisions of wealth, explained, at some length, its nature and office. We shall now consider it in the relation which it bears to revenue, which, when arising from this source, is usually called the *profits of stock*.

In some of the Asiatic countries, where property is remarkably insecure, the accumulation of capital is thereby so much discouraged as to render it scarce, even where the annual produce of the land and labour is considerable. Even the quantity which is accumulated, instead of being employed in trade, is concealed or buried in the earth. The same was the case anciently in European kingdoms, before the establishment of law and order; accordingly, at that time, treasure-trove formed an important part of the revenue of the sovereign.

It is difficult to obtain direct information with regard to the rate of profit in any particular country; but it may be inferred with considerable certainty from the rate of interest, which always bears a certain relation to these profits. The more advantageously a man can employ stock, the more will he be inclined to pay for the use of it. Profit is generally supposed to be about double of the interest.

It may be observed, that what goes under the denomination of profit is often merely wages. A merchant or shopkeeper who conducts his own business, besides the profit of his stock, must receive some remuneration for the portion of time and attention he devotes to the employment. Thus, especially in a country town, a grocer or apothecary will, on a small stock, make 50 or 100 per cent.; but this may be no more than sufficient to repay him for that skill and knowledge which are equally necessary for conducting these employments on a small as on a great scale.

In poor but advancing communities profits are high. There is a great demand for stock, and little to be had; hence men are glad to pay a high premium for the use of it. In North America interest is from six to eight per cent. New colonies afford almost the only instances in which both profit and wages are high at the same time. The employment is so ample as to demand at once more men, and more stock, than can be supplied to it. As the country advances in wealth, stock becomes more abundant, and the competition of different stocks lowers the profit of each. Hence, in a rich country, profits are low. In England the current rate of interest is (or at least was, before the immense loans of the present war) from four to four and a half per cent. In Holland, the richest country perhaps in the world, interest is two or three per cent. and the Dutch are observed to trade on lower profits than any other people. But when a country is in a state of decline, in consequence of its property being plundered or destroyed, stock, from its scarcity, acquires often an enormous value. In Bengal money is said to be lent to the farmer at forty per cent. and upwards. We must observe, however, that even in opulent countries the opening of new channels of employment, by increasing the demand, tends to raise the profits of stock, while the shutting of former channels has the contrary effect.

Although however, the variations in the profits of stock occasioned by the nature of the employment be not considerable, it is otherwise with those which have been occasioned by the policy of modern Europe. As the improvements introduced into it have been chiefly by cities, and by the mercantile part of the community, that part has been extravagantly favoured. The interest of the agriculturist and of the consumer has, till of late, been uniformly sacrificed to theirs. The regulations prompted by this system have not indeed been of any real service to trade; but, by narrowing the competition, they have secured to some commercial bodies a certain monopoly of the articles in which they dealt, and thereby enabled them to raise their profits above the natural level. This they do sometimes directly, by vesting the privilege of conducting certain trades altogether in the hands of an exclusive company, who can set their own price on commodities which are produced or imported by them alone. At other times, they impose prohibitions or high duties on the importation of certain articles from abroad. Bounties are given for the encouragement of certain favourite branches of agriculture, or manufactures. These regulations form what is called the mercantile system, which we shall have occasion hereafter to consider at large, and to show its entire fallacy. The exclusive privileges of corporations operate to raise the profits of stock, as well as the wages of labour.

Profit does not vary nearly so much as labour, according to the different modes in which it is employed. Scarcely any of the five circumstances mentioned under that head, except the last, affect it at all. Smith seems indeed to consider the first, viz. the agreeableness or disagreeableness of the employment, as somewhat affecting it; but this it appears to us to do, only from the labour with which it is accompanied. It is by the drudgery and inconvenience of constant attendance on his guests that the employment of an inn-keeper is rendered disagreeable.

The safety or risk, however, attendant on the differ-



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bour. They exclude all such as have not certain qualifications from employing their stock within the corporation. Those, therefore, who possess these qualifications enjoy some degree of monopoly against the rest of the society. From all these causes the profits derived from manufactures and commerce have been on the whole greater than those of agriculture. The instances of great fortunes raised out of nothing in the former lines are frequent; in the latter, they are rare. We may observe, however, that since the general diffusion of the writings of Smith and of the economists, this system has, in a great degree, ceased to influence the legislatures of Europe; and what remains of it arises rather from the force of habit than from design. Perhaps there is now a tendency to the opposite error; to undervalue trade too much, and to grant to agriculture those exclusive privileges which were formerly lavished on manufactures and commerce.

The profits of stock are equally, with the wages of labour, liable to be affected by the introduction of new trades, and by alterations in the demand. These variations, however, like the causes which produced them, will be only of a temporary nature.

SECT. IV. *The Interest of Money.*

It may often happen, that persons are possessed of stock who want inclination or talents for engaging in trade. On the other hand, some may possess this inclination and capacity, who have no stock. In this case a natural arrangement takes place. The person possessed of the stock, which he does not employ, lends it to the other who is in want of it, and who, in consideration of the profit he derives from its use, is willing to give an annual premium to the lender. This is called the interest of money; for money, being the common exchangeable medium, is the form in which stock generally appears, when it is collected by its possessor for the purposes either of hoarding or lending.

In order to prevent the ignorant or necessitous from being imposed upon, governments have generally fixed a certain rate, which the interest of money should not be allowed to exceed. This rate ought always to be regulated by the market rate. An attempt to keep down the interest below that rate, tends only to raise it higher. The consideration given for the use of money must still be regulated, like every such transaction, by the supply and the demand: and the borrower must give a compensation to the lender, not only for the use of his money, but also for the risk which he incurs by the violation of the law. The regulated rate, however, ought to be somewhat above the market rate; though, were it too much so, its operation would become nugatory.

CHAP. III. *Of the manner in which Wealth is produced and distributed.*

AMONG the three sources of wealth above enumerated, labour is pre-eminent, not only as the most abundant, but as necessary in order to give efficacy to the rest; neither land nor stock, unless in some rare instances, being of any value, unless labour be added. The result, however, of rude and unassisted labour is

exceedingly small, when compared with what it becomes by means of certain artificial aids, which it gradually receives in an opulent and improved society. These aids are chiefly the *division of labour*, and *machinery*.

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SECT. I. *The Division of Labour.*

The division of labour, by which one employment, or one branch of that employment, forms the sole occupation of one man, produces the most wonderful effects in augmenting the productive powers of labour. The oftener that a man performs any operation, the greater power he acquires of performing it skilfully and rapidly: and when his whole life is spent in the performance of any single process, this power becomes almost incredible. Thus, too, he saves the time which is spent in passing from one work to another. He saves more indeed than the mere time, for at first beginning the new one, he commonly faunters and trifles a little, and does not at first go on heartily and vigorously.

A striking instance of the effects of division of labour is afforded in the manufacture of *pin-making*. The important occupation of making a pin affords employment to eighteen persons; or a man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top to receive the head, which two or three are employed in making. To put it on, to whiten the pin, to put it into the paper, form all distinct occupations. Smith saw a manufactory where only ten were employed, and where some consequently performed two or three operations, yet they made forty-eight thousand pins a day, or four thousand eight hundred each; whereas a single man, performing the whole process by himself, would not probably make twenty. These effects would be equally perceptible in manufactures of greater consequence, were all their processes capable of being brought as close to each other, as in this small one.

The division of labour is capable of being carried farther in manufactures than in agriculture. In the latter, a change of employment is dictated by the change of seasons; the same man must successively sow, reap, and thrash out the grain. Although, therefore, an improved society excels a rude one in agriculture, it does not, in general, excel so much as in manufactures, where man, making all the arrangements himself, can carry the division of labour as far as the extent of his undertaking will admit of.

SECT. II. *Machinery.*

As improvement advances, and the invention of man exerts itself in every direction, the labour of man is more and more seconded by the aid of machinery. This source of improvement is classed by Smith under the head of the division of labour, to which he conceives it to be indebted for its origin. We rather incline, however, to agree with Lord Lauderdale, in judging it worthy of ranking as a separate and independent principle. Some rude machinery for domestic and agricultural purposes must have been invented prior to any considerable division of labour; while those wonderful machines which have excited the admiration of the present age, the cotton mill, the steam engine, &c. are the

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the invention of ingenious men, not the casual discovery of workmen; though they may have received some improvement from the latter source.

Machinery is, in many instances, not less powerful than the division of labour, in multiplying the productions of human industry. It has besides this advantage, that there are many operations to which it is essential, and which, without it, cannot, in any degree, be performed. Without the plough or spade, the saw, the flour-mill, or some instruments corresponding to these, the unassisted efforts of man would be of no avail to effect the purposes for which they are intended.

When any machine is first introduced, the immediate consequence is, that a number of labourers are thrown out of employment; hence, according to the idea of the vulgar, which has been hastily adopted by some philosophers, such innovations are pernicious, tending to distress the poor, and to check population. There seems no good reason for this complaint. The population of a country must always depend upon the abundance of the means of subsistence; while, therefore, improved machinery has no tendency to diminish these, it cannot be injurious to population. The manufacturer, being enabled to produce the same quantity of goods, with only part of the stock before employed, will employ the other part in extending his concerns, either in the same or in other branches of industry; and even the part of his stock which is spent in the purchase of machinery, will give employment to workmen in framing that machinery. The only effect, therefore, will be that of adding, in proportion to the power of this machinery, to the comforts and conveniences of the society. A certain degree of inconvenience may no doubt be experienced by those workmen who have been accustomed to this species of employment, and are less qualified for any other. But this is merely a temporary disadvantage, such as may be expected to accompany all changes, however beneficial.

Machinery, like the division of labour, can be introduced to a much greater extent in manufactures than in agriculture. Nothing on a great scale, seems hitherto to have been introduced into the latter, except the threshing machine.

SECT. III. *Of the different Employments of Labour and Stock.*

All these seem to be included under four heads: agriculture, including mines and fisheries; manufactures; trade by wholesale; and trade by retail. Each of these will present some objects for our consideration.

SECT. IV. *Agriculture.*

Of all modes of employing labour and stock, this is the most productive. It is not here, as in other employments where every thing is to be done by man. Nature labours along with him. His object is to direct rather than to augment those powers of vegetation which the earth already possesses and exercises. No other employment yields that surplus produce obtained without labour or effort, which is called *rent*. Wherever, therefore, things are allowed to take their natural course, agriculture is the first object to which the labour of the society is directed. Till it has made con-

siderable advances, manufactures are either rudely executed as a by-work, or, where opportunity offers, are imported from abroad, in exchange for the rude produce of land. This last, where practicable, appears evidently to be the most advantageous system. The adoption of it has been one great cause of the rapid progress of the North American colonies.

Agriculture gives employment to a greater number of men than any other species of industry. These men also, are likely to be the most sound, healthy, uncorrupted part of the population; and from its local nature, they must all reside within the society, and form a constituent part of it.

SECT. V. *Manufactures.*

Manufactures do not actually produce any new commodity; but they modify in such a manner the produce of land or mines, as to increase its exchangeable value. Few things, especially in a highly cultivated state of society, are fit for use as they come out of the hands of nature, till they have been operated upon by human art. Even corn, the staple produce of land, must pass through the hands of the miller and the baker, before it can be used as food. Some manufactures add comparatively little to the value of the original article; while, in others, the latter becomes little or nothing when compared with the additional value stamped on it by the manufacture. Thus half a crown's worth of flax, when wrought into the finest cambric, will be raised perhaps to the value of twenty pounds.

Manufactures employ fewer men than agriculture, but more than any other species of industry. These men, too, must evidently reside in the country where the manufacture is carried on; though that may be different from the country where the rude material is produced, as well as from that where the finished manufacture is consumed. The cotton of America and the West Indies is imported into Britain, and after being there wrought into cloth, is re-exported to those countries.

Manufactures, as already observed, give scope beyond any other employment to the productive powers arising from machinery and the division of labour. They can be collected into the smallest space, and the instruments are completely under the controul of man. A poor nation may rival, or even surpass a rich one, in the cheapness and abundance of its corn; but in manufactures it is always inferior.

It is a general rule, that the manufactures in which a country excels, are those which are suited to the wants of her inhabitants. These she comes to produce, not only better, but cheaper, than other countries, to whom therefore those articles become, for her, the most advantageous subject of export. In France, before the revolution, the consumers were chiefly persons of very large fortune, to whom the finest manufactures and articles of ornament were alone suited. In England, on the other hand, the greater proportion of the consumers are persons of moderate fortune, and in the middling rank. Substantial articles, of moderate price, are, therefore, chiefly demanded in this country. The effect of these different habits appeared clearly in the discussions respecting the commercial treaty concluded by Mr Pitt. It appeared, that millinery, jewellery, fine manufac-

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tures of all kinds, were made both better and cheaper in France; but in hardware, cloth, common articles of every sort, she was completely underfold by England. Although woollens be the staple of England, yet in the finest woollen cloth she was surpassed by France; and though silks be the staple of France, yet common silks were sold cheaper by England. Several other curious instances are given by Lord Lauderdale, in the concluding chapter of his work on public wealth."

SECT. VI. *Commerce.*

Commerce is the grand source of all improvement in the productive powers of industry. It is founded on the principle of barter. The butcher has a quantity of beef, and the baker of bread, more than either can consume himself; but each is in want of the other's commodity. An exchange therefore being made, both the beef and the bread acquire a value which they did not possess before. Thus it is that commerce, consisting in the exchange of two articles, raises the value of both.

It is only by means of extensive commerce, that both the division of labour and machinery can be carried to any great extent. A manufactory, established for the supply of a small neighbourhood, can never be conducted on that great scale which is requisite for these improvements. The division of labour must depend on the numbers employed; and an extensive sale is necessary to repay the expence of complicated and powerful machinery. Land carriage would probably be the first employed; but as soon as navigation was invented, the cheapness and facility of water carriage would give it a decided preference. In the infancy of the art, the inland navigation of rivers would experience a preference; and it is still possessed of peculiar advantages. All the earliest improved countries have been those which possessed an extensive inland navigation; Egypt, by the Nile, Indostan by the Ganges, and China, by several great rivers which perforate it. Africa, an unbroken mass of continent, is still barbarous; the only part which affords any exception to this remark, is that situated along the Senegal and Niger. Hence the great advantage which a country derives from good roads, and still more from navigable canals, which facilitate the communication between its different parts, and extend the market of the farmer and manufacturer.

Commerce is of three kinds; the home trade, the foreign trade, and the carrying trade*.

The home trade is of all others the most advantageous. In the exchange which takes place here, both the commodities, whose value is raised, belong to the same country, and consequently a double benefit accrues to the society. The returns, also, of such a commerce are much more quick. With the same capital, therefore, a much greater number of transactions will take place in a given time. Smith calculates that the foreign trade of Great Britain does not exceed a fortieth of its home trade. The grand branch of internal trade is that between the country and the town, in which the farmer supplies provisions and raw materials, and receives in return manufactured produce.

When all the channels of domestic trade are filled, a nation naturally turns to a foreign market. Here, however, it does not trade with equal advantage. Of

the two commodities whose value is raised, one only belongs to it; and consequently it reaps only half the benefit which it reaped from the home trade. Nor is this all. The market being more distant, the returns are slower. With the same capital, twelve operations may frequently be performed in the one, in the same time that a single one was performing in the other. In this case, the former will be twenty-four times more advantageous to the country. It does not follow, however, that foreign trade is not really and greatly advantageous, when the capital is sufficient to carry it on, in addition to the home trade.

The foreign trade is sometimes modified as follows. A country exports to another some commodity, and then, with the commodity which it receives in return, purchases some article of a third country. Thus, England sends to Virginia woollens, and having received in return tobacco, exports it to the Baltic to exchange for naval stores. This roundabout trade differs from a common foreign trade in no respect, except that its returns are likely to be slower, and consequently its effects still less beneficial to the community.

When all other branches are filled, the only resource of overflowing capital is in the carrying trade. Here the merchant merely exports the produce of one foreign country to another foreign country. The country to which he belongs gains nothing but the mere profits of the trade. It receives no encouragement to its agriculture, or its manufactures. Neither of the goods whose value is raised belong to it. The carrying trade is the least advantageous of all modes of employing the national capital. It is the *symptom*, however, of a great and almost overgrown commercial prosperity; for it is not till capital is extremely abundant, that it turns into this direction. Seeing the carrying trade, therefore, the accompaniment of great national prosperity, legislators have mistaken it as a cause, and have held out peculiar encouragements with the view of forcing part of the national capital prematurely into this direction; which, from the view now given, must be evidently hurtful.

Commerce employs fewer men than either manufactures or agriculture; it employs merely the merchant, who transacts the business, and the sailors and carriers who transport the goods. These, too, may belong indifferently either to one country or the other, or even to a different one from either; and this, from the smallness of their number, is a matter of little consequence.

SECT. VII. *The Retail Trade.*

The last species of industry is the retail trade. The convenience, and indeed necessity of this, is obvious. It would be extremely troublesome if a man were obliged to purchase a whole ox or sheep at a time; if he were obliged to lay in at once six or eight months provision of every different article. Part of his stock would thus constantly lie dead, and the commodities besides would often perish in his hands. Hence the use of shop-keepers, from whom we may purchase any article in as small a quantity as suits us. Some persons have apprehended bad consequences from the multiplication of retailers, but with no good reason; for the greater the competition, on the better terms will the

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* *Smith*,
book ii.
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How public be served, each being anxious to undersell his rivals. Their multiplication might ruin themselves, which, in general, we may be sure of their guarding against; but it must be for the benefit of their customers.

SECT. VIII. *On the Coincidence between Public and Private Interest.*

As the wealth of a society consists merely of the aggregate wealth of its members, every thing which tends to increase the property of an individual, without injuring that of others, that is, every species of lawful industry, tends to augment also the riches of the society. Those branches also which are most productive to the society, will be equally so to the individual who conducts them. Such branches have, besides, peculiar recommendations, which will lead men, upon equal profits, to prefer them to others of a nature less generally beneficial.

The improvement and cultivation of land is the mode in which the greatest produce may be raised with the least capital: it has, besides, other recommendations. It is the way in which a man's property is most completely under his own eye, and most secure from accident. The pleasures of a country life, the independence by which it is generally accompanied, the healthful and animating nature of its occupations, secure it a certain preference over most other employments.

Manufactures, again, possess many advantages above commerce, at least in that early state of improvement where capitals are moderate. The capital employed in it is more secure, and more under the inspection of its owner, than that which is sent to a distance, and committed to the winds and the waves. Some trade indeed must always exist for the exchange of the surplus produce, which even the rudest society possesses. But, in the earlier period of society, it is more advantageous to allow foreigners to carry on this trade, and even to supply all the finer manufactures. The opportunities of this kind possessed by the North American colonies, have been one great cause of their rapid prosperity.

It is evident, that, in commerce, both domestic and foreign, the merchant, with equal profits, will prefer the shorter voyage, which places the business more under his own superintendance, yields him quicker returns, and subjects him to less risk. Above all the carrying trade, the whole of which must be transacted abroad, will have little attraction for him, unless strong temptation be presented.

Thus we see, that in all instances, the private interest of the individual leads him to adopt that species of employment which is most conducive to the interests of the public. In leaving him, therefore, to find out and choose the most advantageous employment for his own industry and stock, we are certainly doing that which is also best for the general good. This principle ought to be the polar star to guide the steps of the legislator in political economy. His object should be, to secure to every individual the fruit of his industry, and then to leave him at liberty to exert it in any manner he may judge advantageous. All regulations of an opposite nature, are as contrary to the interests of the society, as they are injurious to the individual.

CHAP. IV. *Of the Mercantile and Economical Systems.*

Mercantile System.

SECT. I. *General View of the Mercantile System.*

THE fundamental principle of the mercantile system, and that which its supporters are accustomed to treat as a self-evident axiom, is, that wealth consists in *money*, or in gold and silver. The facility of exchanging these metals for any other commodity, the habit thence derived, of calculating, according to their standard, the wealth belonging to each individual, has made this a natural and general error. Having laid down this principle, the next question comes to be, how the money of any nation was to be increased? Where it was possessed of gold and silver mines, the obvious policy was, to lock up the whole produce of these within itself, and to prohibit its exportation under the severest penalties. Where the nation possessed no mines of its own, gold and silver could be obtained only by giving other commodities in exchange. Supposing a nation to export to the value of a million, while it imported only to the value of half a million, the other half, it was conceived, must be paid in money, and must go to increase the wealth of the nation. To export much, and to import little, were therefore conceived to be the great means of enriching a nation. The difference between the exports and imports was called the *balance of trade*, and considered as the grand criterion of commercial prosperity. If the exports exceeded the imports, it was called a favourable balance; if the contrary, an unfavourable balance. It so happened, to the great consolation of our mercantile politicians, that the former of these cases always took place. A certain annual supply of gold and silver was actually imported for the maintenance of the current coin, and for some ornamental manufactures, and, besides, as duties are rarely levied on articles exported, the vanity or convenience of merchants led them often to enter more than they actually shipped. But though this was the case in general, it was otherwise with regard to some particular countries. If, in the case of Spain, America, and the West Indies, the result was as favourable as could be desired, many a useful look was cast upon the statements of the German, Baltic, and East India commerce; in all which the balance, as it is called, was decidedly against this country. To check this great evil, every expedient was employed which might diminish importation and encourage exportation in general, and particularly in regard to those countries with whom our balance was unfavourable. What the nature and effects of these measures really are, we shall presently have occasion to consider. We shall now make some remarks on the general principle on which they are founded.

1. Restrictions upon the intercourse with a particular country, which is supposed to have a balance against us, are unreasonable, even supposing the general principle to be sound. For if we get commodities cheaper from that nation, and sell ours to it with greater advantage, the balance will, on the whole, be more in our favour, than if we carried on the same transactions with any other nation. If we can get wine cheaper from France than from Portugal, the annual value of our imports for wine

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wine will be diminished, by dealing with the former country. Besides, what is imported may often be so, only for the purpose of re-exportation to some other country.

2. The whole idea of the balance of trade is quite fanciful and chimerical. By every exchange which takes place with a foreign country, the nation gains as well as the individual; nor does it make any difference whether goods or money be received in return. If indeed the legislature could succeed in forcing a greater importation of gold and silver than would naturally take place, it would do the country a serious injury. These metals, when converted into money, form, as above observed, a part of the fixed capital of the society, a most useful and necessary part, but still one which is merely instrumental, and does not make any direct addition to the wealth of the society. If we could have the same functions performed without it, the society would gain the whole of what it has been accustomed to pay for it. On the contrary, when a government forces upon the nation more than is requisite for the purposes of circulation, it makes it incur an expence which would otherwise have been saved. It does not appear, in the case of nations which have no mines, that any of the boasted regulations respecting import and export, will have the least effect in enlarging the importation of gold and silver. But where a people have mines within themselves, a strict prohibition, such as is usually imposed, against the export of these metals, though it will be far from absolutely preventing that export, will yet keep within the country a somewhat greater quantity than would otherwise have remained. This appears to be (or at least to have been) actually the case with Spain and Portugal, occasioning a considerable loss to both these countries.

As the principle of the mercantile system naturally leads to the supposition, that whatever is gained by one nation, is lost to another, it generally leads to violent commercial jealousies between neighbouring countries. The nearer they are to each other, the more are restrictions and prohibitions multiplied. This is altogether unreasonable. The nearer a country, the more advantageous is its trade. It approaches the more nearly to the home trade, in the quickness of its returns, and can be carried on with a smaller capital. The plan, therefore, of making our neighbours as poor as possible, is completely unwise. The richer they are, they will be the better customers for our commodities, and the greater will be the benefit which we derive from their trade.

Having thus proved, that the regulations of the mercantile system are altogether unfitted for attaining their end, and that the end, were it attainable, is useless, and even pernicious, we shall now consider what is the real effect of these regulations. With this view they may be classed under two heads, *restraints upon importation*, and *encouragements to exportation*.

SECT. II. *Restraints upon Importation.*

These are either high duties or prohibitions.

It has been an universal principle of modern taxation, that duties are to be levied only on articles imported, and not on those which are exported. This principle is found. The taxes imposed by any community ought to

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fall upon its own members, not upon those of other communities. To attempt acting otherwise, would be not only unjust, but impolitic. These articles of produce and manufacture, on which the export duty was imposed, would not, in the general market of the world, keep their ground against the same commodities from other nations, which imposed no such duty. The mercantile system, however, goes much farther. With the view of encouraging internal industry, and preventing importation, it lays higher duties upon certain articles imported, than upon the same when manufactured within the country; thus securing to the latter, a certain advantage in the home market, independent of any superiority of skill. It thus turns to certain branches of industry a greater proportion of the national industry and capital, than would naturally have gone to them. Now, we have proved, that in all cases, the direction which individual interest spontaneously gives to the national industry, is the best and most useful direction. Every thing, therefore, which tends to disturb it, to turn industry into channels, into which it would not naturally have gone, is injurious to the public, and tends to render that industry less productive. Such is precisely the operation of the duties in question, which, therefore, though they may augment the productive industry of the nation in some particular branches, tend to diminish its whole amount. Thus, in an agricultural nation, if duties are imposed upon the importation of manufactured goods, a part of the national capital which was employed in the more profitable employment of agriculture, will be forced into the less advantageous one of manufactures. The misfortune is, that in the mercantile system, from a very natural prejudice of those with whom it originates, the less advantageous branch is always rated higher than the more advantageous; manufactures than agriculture, commerce than manufactures, and foreign trade than domestic. Its operations are pernicious, not only in their general principle, but still more in their particular application.

In regard to prohibitions, their effect is the same as high duties, only greater in degree. They are seldom completely effectual, unless in the case of very bulky goods; but their operation must always be equal to the highest duty, and must therefore be equally injurious, without bringing any advantage to the revenue.

SECT. III. *Encouragements to Exportation.*

The expedients which the mercantile system employs to encourage exportation are *drawbacks* and *bounties*.

As to drawbacks, they are extremely reasonable. No government we observed, can properly, or without imprudence, attempt to tax the consumption of other nations. When, therefore, it has imposed a duty on any article produced within itself, it is quite expedient that this should be repaid on exportation; otherwise the articles, when carried to a foreign market, could not meet the competition of others, which had paid no such duty. In the same manner, when an article has paid a duty at importation, it is perfectly fair that the duty should be repaid, in the case of the article being re-exported; otherwise a severe check would be put both upon the carrying trade, and the foreign trade of consumption. Still, indeed, the merchant has the disadvantage of having advanced the tax, and consequently been deprived,

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Mercantile System. for a certain time, of the use of that portion of his capital. In some instances, a plan has been adopted, which obviates this inconvenience. The goods are placed in a warehouse, under the joint lock and key of the merchant and the officer of government. No duty is then paid upon them, unless they are taken out for the purpose of home consumption.

Bounties are expedients of a different nature. They are given upon the production and exportation of certain articles, which, it is conceived, would not otherwise pay the expence. Their tendency is, therefore, to force capital and industry into the channels which, it is admitted, are disadvantageous to the individual, and which according to the principles above explained, must be equally so to the society. Their effect, therefore, is nearly the same as that produced by restraints upon importation. Premiums are not liable to the same objections: Being only given to one or two specimens of peculiar merit, they merely stimulate to excellence in any branch of industry, without having much tendency to turn towards it a disproportionate share of the national capital.

The bounty on corn is the most important of those granted in Great Britain; and as the whole system of corn laws is not only of the utmost importance, but closely connected with the views of the mercantile system, it may not be unseasonable to introduce our sketch of them in this place.

SECT. IV. *Of the Corn Laws.*

To render the necessaries of life cheap, is a grand object of the mercantile system, since it thus expects to lower the wages of labour, and thereby lessen the expence of manufacturing. The expedients it adopts, however, are by no means judicious. The object of the legislator, on this subject, has been to prevent as much as possible all trade in corn; to urge the farmer to bring it to market as soon as possible, and to discourage to the utmost its passing through any intermediate hands between him and the consumer. All such intermediate persons are stigmatized by the opprobrious names of *regraters* and *forestallers*, and the severest penalties are enacted against them. Let us consider on what grounds these proceedings can be justified.

The great evil in the price of grain is the variations to which it is liable, which at one time produce superfluous plenty, and at another threaten the community with absolute want. The production of it being only once a year, there is a constant danger, that before next harvest, the supply may run out. Crops too vary, and sometimes fail to a distressing degree. It is most desirable, therefore, that the superabundance of one period should, if possible, be made to supply the deficiency of another. The grand interest of the public, in regard to grain, is to distribute, as equally as possible, over different years, and over different parts of the same year, the supply of grain, so that the plenty of one period may relieve the want of another, and the general price be kept as equal as possible. This is precisely what the merchant does. He buys when it is cheap, and sells again when it is dear. If he buys it even when it bears a high price, it is only from the expectation of its rising still higher, that is, of the scarcity becoming still greater; and unless this expectation be well grounded, he loses instead of

gaining by the transaction. He may miscalculate in deed; but in this case, he suffers severely for his mistake; and, he has the constant stimulus of private interest to guard him against it.

It follows, therefore, that the freer we leave the trade in corn, the better will the public be guarded against the evils of famine, and that the vulgar outcry upon this subject has no real foundation.

With regard to the bounty, it has been defended as being an artificial mode of obviating that irregularity of price, to which grain is liable. The increased quantity which the bounty tends to produce, may, it is alleged, be employed, in a year of scarcity, to alleviate the evils of dearth*.

* *Anderson on National Industry*

SECT. V. *Of Exclusive Companies.*

At the first introduction of commercial enterprise in Europe, it was frequently the practice of governments to vest particular trades, supposed to be of a peculiarly arduous nature, in the hands of an exclusive company. Such a measure is almost always hurtful to the public. The interest of all traders is to buy cheap and sell dear, and is thereby hostile to the interest, both of the producers and consumers. But an exclusive company, having no competition to dread, can carry this system into effect to a much greater extent than the private trader. It is even found that the selling a small quantity at a high price, is more profitable than the selling a large quantity at a moderate price. The Dutch East India Company are said to have destroyed a number of their plantations in the Spice islands, with the view of diminishing the supply, and thereby raising the price.

It is supposed that some very extensive branches of trade could not be carried on by individuals with safety; but in this case, either the capital of the country is not yet sufficient for such undertakings, or a company will be formed to carry them on, without the necessity of any exclusive privilege. It may be observed, that such companies, from the waste and negligence attending a large concern, managed often by persons who have no deep interest in it, and not stimulated by the dread of competitors, prove generally as ruinous to those concerned in it, as to the public. Almost all the exclusive companies, established in this and the neighbouring countries, have ended in bankruptcy.

SECT. VI. *Of Colonial Policy.*

As countries increase in populousness, and as cultivation is carried to a greater extent, the means of subsistence become continually more and more difficult. The evil most felt is a scarcity of land, of that grand source from which all revenue must originally flow. But while there are other countries comparatively unimproved, an obvious remedy presents itself. A certain portion of the inhabitants of the cultivated country removes into that which is still uncultivated, where they find land cheap, and the means of subsistence easy. Of all societies, these generally make the most rapid strides towards improvement. To the abundance and cheapness of land, which is peculiar to uncultivated countries, they join the arts and industrious habits of cultivated society. They are thus enabled to make a much more rapid progress than either. All the Grecian colonies, in Asia Minor, Italy,

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and Sicily, enjoyed an unexampled degree of prosperity. The North American colonies doubled their numbers every twenty years; and in South America, notwithstanding the injudicious restraints with which its commerce was fettered, the increase has not been much less considerable.

In spite of the temptation thus held out to colonize, men are in general not easily induced to leave their native country, till they are driven by some compulsory motive. In the ancient republics, colonies were formed by men who had been driven from their homes by civil war and faction. The North American states were peopled by refugees, criminals, and other refuse of the mother country. The case was somewhat different in the southern part of that continent, where a false but glittering lure was thrown out by the immense mines of gold and silver which it contained.

In pursuance of the monopolizing and trafficking spirit of modern Europe, each country has reserved to itself the exclusive trade of its colonies. This restriction evidently tends to cramp the improvement of the latter, and to divert the trade of the former into a less natural and advantageous channel. To Britain, and to the British colonies, however, the restriction has been little injurious. The former was in a state to carry on, and to need, the whole of this commerce; while the latter, from their infant state, could confine themselves with much more advantage to agriculture. The French colonies have probably suffered something from the restriction; but to the Spanish and Portuguese it has been very ruinous, as their mother countries were wholly unfit for carrying on so extensive a commerce*.

* Smith,
book iv.
ch. viii.
Brougham
on Colonial
Policy.

SECT. VII. *Of the Economical System.*

We have already noticed, in our historical introduction, the circumstances in which, and the persons from whom, this system originated. According to it, agriculture is the only real source of wealth, and the persons employed in it are alone to be honoured with the appellation of productive labourers. The capital spent by the landlord in improvements, and that employed by the farmer in cultivation, are in like manner represented as the only capitals which are productive of wealth. In support of this position they argue, that manufactures merely repay what has been spent upon them; the expence of materials, and the subsistence of the labourers. The only part which is gain to the nation is the profit of the manufacturer, and the portion of their wages (probably a very small portion), which the labourers save, and convert into capital. It does not follow, however, that traders and manufacturers, though under this system they receive the name of unproductive labourers, are useless to the society. They are valuable servants to the proprietors and cultivators of land. They save them the trouble of performing a variety of operations, which would distract their attention, and which they could not do equally well. By giving a greater quantity of manufactured commodities in exchange for the produce of land, they raise the value of that produce. Still, however, they act altogether a subordinate part to the agricultural portion of the community, by whom they are fed and supported†.

† Smith,
book iii.
ch. 9.
Condorcet's
Life of
Turgot;
Spence,
Britain in-
dependent
of Com-
merce,
with Mill's
Answer.

A very little consideration will shew us the fallacy of

this system. The wealth of a nation, as we observed above, consists in the total amount of external conveniences and comforts which are produced and enjoyed in it. Now every commodity, with every increase in its value, which is produced by manufactures and commerce, is so much added to national convenience and comfort, that is, to national wealth. It is of no consequence, that, while the labourer is producing it, he is also consuming a certain portion of corn and other necessaries of life. These were produced for the purpose of being consumed, and if they have perished, they have not done so without having performed their office, without having ministered to the benefit of the society, and enlarged the amount of its comforts. The whole, therefore, of what the manufacturer produces in any given time, is clear gain to the public. To be convinced of this, we have only to suppose, that, in this time, he had consumed the same quantity of goods, without working at all.

We admit indeed, and have already observed, that agriculture is more productive than any other species of industry, and alone, besides paying the labour and capital employed in it, affords a surplus as rent to the landlord. It does not follow, however, because the one employment is more productive, that the other is not productive at all. Besides manufactures, over and above the labour and circulating capital employed in them, pay often a very large fixed capital. Now land, we conceive is merely to be considered as a great fixed capital provided by nature, and rent as a consideration given for the use of that fixed capital.

The Economists conceive the rent of land to be the fund on which all taxes must ultimately fall. They therefore recommend a land-tax to be substituted instead of all others. The propriety of this system will come to be considered in the course of the following chapter.

CHAP. V. *Of Public Revenue.*

As the whole society derives from government their protection against evils internal and external, the regular administration of justice, and a variety of other benefits, without which they could not subsist, it is perfectly equitable that each, in proportion to his means, should contribute to the extent which is necessary for fulfilling these different objects. Regular government is even indispensable to the production of public wealth, as it alone affords that security of property which is the life of industry. In this view, the officers of government cannot, even upon Smith's principle, be considered as unproductive labourers. They might more properly be considered as a part of the fixed capital of the society.

SECT. I. *Of Taxes in general.*

In the composition of taxes there are four circumstances, which ought, as far as possible, to be constantly kept in view, and the observance of which forms the criterion of the propriety or impropriety of each particular tax.

1. They ought to fall as equally as possible on every member of the society, in proportion to his means of contribution. As all derive equal benefits from the establishment

blishment of regular government, all ought to contribute equally for its support. The rich, however, ought to contribute not only more, but in a greater proportion, than the poor. As by far the greater part of their expenditure is on luxuries, they can retrench a part of it much better than those who, to pay the tax, must deprive themselves of the necessaries or first comforts of life.

2. The sum paid by each person ought to be fixed, and not left to the arbitrary appointment of the collecting officers. In this last case, the security of property is in a great measure done away, and room is left for the most grievous oppression. This is a still greater evil than inequality.

3. A tax ought to be payable at the time when a man can best afford it.

4. In proportion to what it brings into the treasury, it ought to take as little as possible from the people; that is, the expence of collection ought to be as moderate as possible. There ought also to be care taken to avoid trouble and inconvenience to the people, in the way of domiciliary visits, fines, &c.

Some persons have fancied, that taxes were beneficial. They allege, that the merchant derives a profit, not only for his advance upon the article, but also for his advance upon the tax. In this way, doubtless, *he* is no loser: but neither is he a gainer; for in consequence of the increased price, the public must retrench in their use of the article, and consequently the extent of his dealings in it be diminished. Even should they not retrench in this, they must in some other article, which will fall heavy on some other class of merchants. But it is the interest, not of the merchant, but of the consumer, which ought to be the grand object in political economy; and this interest infallibly suffers. The consumers of the article taxed must inevitably have their comforts, that is, their wealth, abridged.

We admit, indeed, that taxes, where they are not so heavy as to trench on the capital of the country, do not essentially encroach on its wealth. They merely transfer income out of the pockets of one class of men into those of another. The money which a man of fortune would spend in maintaining menial servants and other instruments of luxury, when placed in the hands of government, is employed in maintaining soldiers and sailors. The amount of national income is not diminished. They have the disadvantage, however, that the money is taken out of the hands of those by whom it was earned, and put into the hands of those who contributed nothing to its production. If taxes come to fall upon capital, or to diminish its accumulation, they are then ruinous.

SECT. II. *Taxes upon Rent.*

The rent of land has always been considered as a proper object of taxation. In most of the eastern empires, the whole land belongs to the sovereign, who draws the rent of every farm throughout his dominions*. In most of the European kingdoms, a certain portion of land belongs to the sovereign, under the name of crown lands. These, however, are seldom managed in that economical manner, which would be necessary to render them productive. The only lands which a government

* *Paton on Asiatic Monarchies.*

ought to possess, are lands for the purpose of pleasure and magnificence.

The rent of land is a very proper subject of taxation. It comes to the possessors without care or trouble, and it depends, more than any other source of income, on the protection of government. The chief difficulty arises from its being so variable. Thus the English land-tax was imposed in the reign of King William. Since that time, the value of all the lands in England has risen, but that of some much more than others; so that the tax, even had it been equal at first, must now have become very unequal. The only remedies are by making a survey at certain intervals, or by keeping a register of leases. To this it is objected, that it would discourage the landlord from laying out money on improvements; but the objection might be obviated by making liberal deductions on that account.

The rent of houses is of a very different nature from the rent of land. It is a commodity produced by art; and as the builder must have his profit, the rent will be raised in consequence of the tax. The rise, however, does not take place immediately. Houses are so durable an article, that for some time there will be no diminution of the supply; the rent will continue the same; and the loss will fall on the proprietor. As a certain number of houses, however, fall to ruin, undertakers will not build new ones without adequate profits; and the rents will rise to their proper level. It is singular that this should have been overlooked by Smith.

Taxes are sometimes imposed, not on the rent, but on the produce of land. Such is that levied for the support of the church, both in England and Ireland. Such taxes are pernicious. They discourage industry. The farmer feels that the more he raises, the more will be taken from him. It would be of great advantage, therefore, to the country, if tithes were commuted for a fixed annual sum. It would then completely be the interest of the cultivator to raise as much produce as possible. The difficulty, no doubt, lies in making such an arrangement as would enable the clergy to benefit by the improvement of agriculture; but expedients might doubtless be found out, similar to those which were proposed above, in the case of land-tax.

The economists, as above observed, contend that all taxes fall finally on the rent of land; and therefore recommend, that they should be laid directly upon that subject. The only argument which they allege in support of this opinion is, that taxes cannot fall either upon the profits of stock, or the wages of labour. Now we shall, in treating of these subjects, endeavour to prove, that taxes may most readily fall upon both.

SECT. III. *Of Taxes on the Profit of Stock.*

What are usually called the *profits* of stock, may be divided into three parts. The first is equal to the market rate of interest, and constitutes what any one is willing to give for the mere use of the stock; the second is a compensation for the risk incurred; the third is a compensation for the trouble of carrying on the business. Of these, the last appears to us to belong more properly to the wages of labour, and will be considered under that head. The second evidently is not taxable, because a man would rather not employ his stock at all,

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than not receive a full compensation for the risk he runs in so doing. But the first (which perhaps ought alone to be considered, strictly speaking, as the profits of stock), is, to almost its whole extent, completely taxable. Although, out of *five* per cent. government should take *four*, it would still remain the interest of the capitalist, to lend, or to employ his stock, rather than lose the remaining *one*. The profits of stock, however, are a less proper subject of taxation, than the rent of land. They are not so easily ascertained; the capital from which they are derived has been accumulated by industry and frugality; and it is the interest of the public to encourage this accumulation. There would be a danger of driving the capitalists into other countries where they would be liable to no such imposition, to the great detriment of the country which they left.

A tax is sometimes imposed upon the profit of particular employments. Such a tax can never fall finally upon these profits. The persons engaged in this employment must have the usual profits for their stock, otherwise they will carry it into some other. Where these taxes, however, are unequal, they may favour certain classes of traders. Thus all licences, being the same whether the trader deals to a greater or less extent, fall heavier on the small than on the great dealer.

Taxes on the transference of property, stamp duties, duties of registration, &c. have been carried to a considerable extent in modern financial systems. The facility of raising a revenue by this method, has encouraged its adoption. Such taxes are unequal; for the frequency of transference has no connection with the value of property. We may conceive an estate coming so often to market, that these duties may absorb the whole of it; while another of the same value, from remaining long in the same hand, may pay nothing whatever. These taxes, too, fall chiefly upon the national capital, the fund by which its industry is supported. In many cases, they may prove a bar to the frequency and facility of mercantile exchange. Upon the whole, therefore, it is to be regretted, that they should prevail to so great an extent.

SECT. IV. *Taxes on the Wages of Labour.*

Dr Smith is of opinion, that no tax can fall upon the wages of labour; that wages, in consequence of such taxes, must immediately rise; and that the only effect will be a rise in the price of every species of produce. But how this effect can follow, we confess we do not see. A tax on the wages of labour has no tendency to increase the funds for the maintenance of labour; so far as it has any effect, it tends to diminish them. The supply and the demand will still remain the same. The only way in which such taxes can raise the price of labour, is by diminishing the supply of it, that is, the population; which, in process of time, they are very likely to do. The same funds being then distributed among a smaller number, the wages of labourers will be higher; after paying the tax, they will still subsist as well as formerly; but still a portion will remain to go into the pockets of government. It is to be fully admitted, however, that such taxes are oppressive, and by all means to be avoided. When they diminish, too, the

population and raise wages, they produce all the bad effects which Smith imputes to them, in raising the price of every manufactured commodity.

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SECT. V. *Of Capitation Taxes.*

The taxes already noticed, are destined to fall on some particular source of revenue; this, and the rest of which we are now to treat, fall indifferently on all.

Capitation taxes are obviously unequal. The same sum is paid by the richest and the poorest. They must fall chiefly, too, on the labouring classes; and what may be most oppressive to them will be scarcely felt by the more opulent. They are not arbitrary, however; they are easily levied; and in absolute governments, where the comfort of the people is little considered, they are pretty frequent. A capitation on slaves must be paid by the masters, and forms a tax on his farming or manufacturing stock.

SECT. VI. *Of Income Tax.*

A well regulated income tax is, in many respects, the most equal which can be imposed. It falls upon every one according to his ability, and it affords no one an opportunity of exempting himself from bearing a share in the public burdens. The expence of collection is small, and it takes as little as possible out of the pockets of the people, in proportion to what it places in those of the government. At the same time, it is liable to serious objections. It demands a disclosure of private circumstances, which must often be a hardship. It affords considerable room for evasion. The payment of a large sum at once is felt much more grievously than the same would be, if paid gradually and insensibly, by taxes on commodities. These causes have hitherto prevented its adoption, unless in a few rare instances, where reliance, it was supposed, could be placed on the good faith of the contributors. This seems to have happened only in some small republics, where the connection between public and private interest was very evident. By this means, however, under the present exigency, a very large sum is now raised in this country, more easily perhaps than it could be raised by any other method. To render it an equal tax, however, some further modification would still be necessary. One broad distinction is that of income which perishes with its owner, and income arising from land or capital. The last is evidently of considerably greater value, yet, under the present system it is taxed equally. Land, indeed, pays the land tax. We observed above, that the larger a man's income, the greater proportion of it can he afford to pay, since he spends the more on superfluities. In regard to the lower ranks, this is sufficiently provided for by the present income tax; but by levying 10 per. cent on all who have 150l. a year and upwards, it falls heavy on the middling ranks.

SECT. VII. *Of Taxes on Consumable Commodities.*

Of all taxes these are the least felt. Being directly paid by the merchant, they are felt by the consumers only

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only in the increased price of the goods. They are thus paid gradually and piecemeal, and every one has the power of paying or not as he chooses. These advantages, especially in countries where the comfort of the subject is much attended to, lead to the very extensive adoption of such taxes. They are attended, however, with very serious drawbacks. No taxes take so much out of the pocket of individuals, in proportion to what they put into that of government. The tax being advanced by the merchant, he expects not only to have it repaid to him in the price of his goods, but to have it repaid with a profit. The commodity will therefore be raised, not merely by the amount of the tax, but by somewhat more than that amount. These taxes also require an host of collecting officers, whose salaries considerably diminish their amount. The visits which these officers must be allowed to make into the warehouse, workshop, and even private house of the merchant and manufacturer, form also a very serious grievance.

Such taxes may be either on necessaries or luxuries. The former are avoided as much as possible, by all wise legislators, as oppressive, falling chiefly on the poor, and having at least an ultimate tendency to raise the wages of labour. In Great Britain, the only taxes on necessaries are those on salt, soap, leather, and candles.

It is of the utmost importance that these duties should be levied in such a manner as not to impede the free transference of commodities from one place to another. In France, before the Revolution, and in other European countries, duties were to be paid almost constantly in passing from one province to another. The alcavala of Spain, the most ruinous of all taxes, levied ten, though afterwards only six per cent. every time a commodity was sold; which amounted almost to an absolute prohibition of all trade.

SECT. VIII. *Of Public Debts.*

Governments are seldom economical; and besides the large expence which is regularly incurred in supporting their establishment, they are liable to great occasional demands, which their ordinary revenue is quite unable to answer. Of these demands the most frequent and pressing is war, whether offensive or defensive; nor is there any cause which so frequently deranges the finances of a nation.

In rude times, when no great capitals are accumulat-

ed, and when, from the unsettled state of things, those who have, would be unwilling to lend them, the only resource is in amassing a treasure. This was the policy of the sovereigns and great barons in the middle ages; and it still is that of most of the Asiatic princes. In a commercial state of society, however, sovereigns find ample means and temptation to spend the whole of their ordinary revenue in the luxuries which abound; while, at the same time, the great accumulation of capital enables the merchants easily to advance very large sums to government. In this transaction, they of course receive advantageous terms, and by selling their share of the public debt, (thus converting it into a species of commodity, called *stock*), they are enabled to replace their capitals, and carry on their business as before.

Loans made by the government have this disadvantage, that whereas taxes are drawn from the income of the nation, these are drawn from its capital; from the fund by which its industry is supported. They have also the disadvantage, that from the facility with which money may be borrowed, they are apt to increase to an enormous and ruinous amount. To the credit of a private person, there are limits in the extent of his fortune; but these limits do not exist in the case of a government, which possesses an unlimited, or at least indefinite, power of augmenting its means. The interest of the present funded debt of Great Britain would be nearly sufficient for carrying on the most expensive war. In such a case the only remedy is by a sinking fund. A certain annual sum is appropriated to the purpose of paying off the national debt; and the interest which consequently falls in, is added to the original sum, which thus accumulating at compound interest, will increase, after a certain period, with immense rapidity. Before the time of Mr Pitt, there was always, during peace, something in the shape of a sinking fund in Great Britain. It was frequently devoted, however, to other purposes, and never paid off any considerable portion of the debt of the preceding war. He was the first who steadily set aside, in peace and war, a million for this purpose, and allowed it to accumulate at compound interest. Whenever a new loan was raised, he laid on one per cent. as a sinking fund. In consequence of a steady perseverance in this system, there is now a fair prospect of the country being gradually relieved from the burden which pressed upon it.

P O L

P O L

Politics.

Polity.

POLITICS, the first part of economy or ethics, consisting in the well governing and regulating the affairs of a state for the maintenance of the public safety, order, tranquillity, and morals.

Lord Bacon divides politics into three parts, viz. the preservation of the state, its happiness and flourishing, and its enlargement. Of the first two he informs us, various authors have treated, but the last has never been handled; and he has given a specimen of an essay to supply the want.

POLITY, or POLICY, denotes the peculiar form and

constitution of the government of any state or nation; or the laws, orders, and regulations, relating thereto*.

* Polity differs only from politics, as the theory from the practice of any art.

* See Government.

Of the nature of our social duties, both private and political, we have already spoken at some length (see *MORAL Philosophy*, Part II. chap. iii. and particularly sect vii.); and we shall have occasion to take a view of the origin and nature of the several political establishments of Europe, &c. hereafter. (See *Civil SOCIETY*.) We shall only further remark in this place upon the necessity

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cessity of always joining politics and morality together. This view of the subject is indeed antiquated and neglected; but the connection has always been externally respected, even by those who have separated them the most widely. Politics and morality, far from standing in opposition to each other, have the most intimate connection, and exhibit the relation which the *part* bears to the *whole*; that is to say, that politics are only a part or a branch of morality. No truth can be more evident than this; for as morality is the guide of human life, the principle of order, and the universal source of real improvement and genuine happiness to all mankind, every thing relative to the direction of individuals, or the government of nations, must be comprehended within its sphere, and must be subservient to its laws. All the schemes and projects of pretended political wisdom, that deviate from or violate the rules of this master-science, turn out in the issue often to the detriment of their contrivers, always to that of the nation; and it is a palpable and absurd error to think of advancing the happiness of one country at the expence of the general good of mankind. The experience of ages, and the history of the world, confirm these assertions; from which, and from daily observation, we obtain a convincing proof of the wisdom of the good old maxim, both in its application to individuals and to nations, that "honesty is the best policy." See Baron Dahlberg's *Considerations on the Connection between Morality and Politics*, read by himself to the Academy of Sciences at Erfurt.

POLL, a word used in ancient writings for the head: hence to poll, is either to vote, or to enter down the names of those persons who give their votes at an election.

POLL-Evil, a troublesome ulcer on the back of the horse's neck, usually the consequence of external injury. See FARRIERY, N^o 395.

POLL-Money, or *Capitation*, a tax imposed by authority of parliament on the person or head; either on all indifferently, or according to some known mark or distinction, as quality, calling, &c.

Thus, by the statute 18 Car. II. every subject in the kingdom was assessed by the head, or poll, according to his degree; every duke 100l. marquis 80l. baronet 30l. knight 20l. esquire 10l. &c. and every single private person 12d.

This was no new tax, as appears by former acts of parliament.

POLLACHIUS, or POLLACK. See GADUS, ICHTHOLOGY *Index*.

POLLARD, or CROCARD, the name of a sort of base money current in Ireland in the time of Edward I. See *Simon's History of Irish Coins*, p. 15.

POLLARDS, a kind of coarse flour. When wheat is ground to meal, and divided into three kinds, according to the degree of fineness, the third or coarsest kind comes under the denomination of pollards.

POLLEN, the fecundating or fertilizing dust contained within the antheræ or tops of the stamina, and dispersed upon the female organ when ripe for the purposes of impregnation. See BOTANY.

This dust, corresponding to the seminal fluid in animals, is commonly of a yellow colour; and is very conspicuous in the summits of some flowers, as the tulip and lily. Its particles are very minute, and of extreme hard-

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Pollio.

ness. Examined by the microscope, they are generally found to assume some determinate form, which often predominates, not only through all the species of a particular genus, but also through the genera of a natural family or order. The powder in question being triturated, and otherwise prepared in the stomach of bees, by whom great quantities are collected in the hairy brushes with which their legs are covered, is supposed by some authors to produce the substance known by the name of *wax*; a species of vegetable oil, rendered concrete by the presence of an acid, which must be removed before the substance can be rendered fluid.

POLLENTIA, a town or colony of Roman citizens in the Balearis Major. It is now said to be Alcudia, situated on the north-east side of the island Majorca. There was another *Pollentia* of the Picenum, likewise a colony. It is thought to be either the same with or near to the Urbs Salvia, but is now extinct. There was a third of Liguria, situated at the confluence of the Stura and Tanarus. Suetonius calls it a municipium, and the people *Polentina Plebs*. It was famous for its abundance of black fleeces; but was afterwards, under Arcadius, stained with a defeat rather of the Romans under Stilico than of the Goths under Alaricus, though palliated by Claudian the poet; after which Rome was taken and set on fire. It is now called *Solenza*, a small town of Piedmont, not far from Asti.

POLLEX, in *Anatomy*, denotes either the thumb or great toe, according as *manus* or *pedis* is added to it.

POLLICHIA, a genus of plants belonging to the monandria class, and in the natural method ranking with those that are doubtful. See BOTANY *Index*.

POLLICIS PRESSIO, and POLLICIS VERSIO, were used at the combats of gladiators as signals of life or death to the vanquished combatant; or to the victor to spare or take the life of his antagonist. The *pollicis pressio*, by which the people granted life to the prostrate gladiator, was no more than a clenching of the fingers of both hands together, and so holding the two thumbs upright close together. The *pollicis versio*, which authorized the victor to kill the other as a coward, was the bending back of the thumbs. Such is Dacier's opinion; but others say the *pollicis pressio* was when the people held up one hand with the thumb bent, and the *pollicis versio* when they showed the hand with the thumb raised. Authors, however, are not perfectly agreed, though the phrases *pollicem premere*, and *pollicem vertere*, frequently occur in the Latin classics as indications of the people's will that a gladiator should live or die.

POLLIO, CAIUS ASINIUS, a celebrated Latin poet and orator, was of consular dignity, and composed some tragedies which were esteemed, but are now lost. He was the first who opened at Rome a library for the use of the public. He was the friend of Mark Antony; which prevented his complying with the solicitations of Augustus, who pressed him to embrace his party. At length Augustus having wrote some verses against Pollio, he was urged to answer them: on which he said, "I shall take care of writing against a man who has the power of proscribing us." He is praised by Virgil and Horace, whose patron he was.

There was another *Pollio*, a friend of Augustus, who used to feed his fishes with human flesh. This cruelty was discovered when one of his servants broke a glass in the

Pollution
||
Pollux.

the presence of Augustus, who had been invited to a feast. The master ordered the servant to be seized, but he threw himself at the feet of the emperor, and begged him to interfere, and not to suffer him to be devoured by fishes. Upon this the causes of his apprehension were examined; and Augustus, astonished at the barbarity of his favourite, caused the servant to be dismissed, all the fish ponds to be filled up, and the crystal glasses of Pollio to be broken to pieces.

POLLUTION, in general signifies defilement, or the rendering a person or place unclean or unholy. For the Jewish pollutions, see the article **IMPURITY**.

The Romanists hold a church to be polluted by the effusion of blood or of seed therein: and that it must be consecrated anew. And the Indians are so superstitious on this head, that they break all the vessels which those of another religion have drank out of, or even only touched; and drain all the water out of a pond in which a stranger has bathed.

POLLUTION, in *Medicine*, a disease which consists in an involuntary emission of the seed in time of sleep. This, in different persons, is very different in degree; some being affected with it only once in a week, a fortnight, three weeks, or a month, and others being subject to it almost every night. The persons most subject to it, are young men of a sanguineous temperament, who feed high and lead a sedentary life. When this happens to a person but once in a fortnight or a month, it is of no great consequence; but when it happens almost every night, it greatly injures the health; the patient looks pale and sickly; in some the eyes become weak and inflamed, are sometimes affected with violent desiccations, and are usually at last encircled with a livid appearance of the skin. This distemper is to be cured rather by a change of life than by medicines. When it has taken its rise from a high diet and a sedentary life, a coarser food and the use of exercise will generally cure it. Persons subject to this disease should never take any stimulating purges, and must avoid as much as possible all violent passions of the mind; and though exercise is recommended in moderation, yet if this be too violent, it will rather increase the disorder than contribute to its cure.

Self-POLLUTION. See **ONANISM**.

POLLUX, JULIUS, a Greek writer of antiquity, flourished in the reign of the emperor Commodus, and was born at Naucrates, a town in Egypt. He was educated under the sophists, and made great progress in grammatical and critical learning. He taught rhetoric at Athens, and became so famous that he was made preceptor of the emperor Commodus. He drew up for his use, and inscribed to him, while his father Marcus Antoninus was living, an *Onomasticon* or Greek vocabulary, divided into ten books. It is extant, and contains a vast variety of synonymous words and phrases, agreeable to the copiousness of the Greek tongue, ranged under the general classes of things. It was intended to facilitate the knowledge of the Greek language to the young prince; and it is still very useful to all who have a mind to be perfect in it. The first edition of it was printed at Venice by Aldus in 1502, and a Latin version was afterwards made and published with it: but there was no correct and handsome edition of it till that of Amsterdam, 1706, in folio, by Lederlinus

and Hemsterhusius. Lederlinus went through the first seven books, corrected the text and version, and subjoining his own, with the notes of Salmastius, H. Vossius, Valesius, and of Kuhniius, whose scholar he had been, and whom he succeeded in the professorship of the oriental languages in the university of Strasburg. Hemsterhusius continued the same method through the three last books: this learned man has since distinguished himself by an excellent edition of Lucian, and other monuments of solid and profound literature.

Pollux wrote many other things, none of which remain. He lived to the age of 58. Philostratus and Lucian have treated him with much contempt and ridicule. *Philostrat. de vit. Sophist. lib. ii.* and *Lucian in Rhetorum præceptore*.

POLLUX. See **CASTOR** and **POLLUX**.

POLLUX, in *Astronomy*, a fixed star of the second magnitude in the constellation Gemini, or the Twins. See **CASTOR**.

POLLUX and Castor, a fiery meteor. See **CASTOR** and *Pollux*.

POLOCSKI, a palatinate in the duchy of Lithuania, partly in Poland, and partly in Russia, and under the government of Russia since 1773; bounded on the north by the palatinate of Weytepski, on the south by the Dwina, on the north by Muscovy, and on the west by Livonia. It is a desert country, full of wood, and had formerly its own dukes.

POLOCSKI, a town of Lithuania, and capital of a palatinate of the same name, with two castles to defend it. It was taken by the Muscovites in 1563, and retaken the same year. It is seated on the river Dwina, 50 miles south-west of Weytepski, and 80 east of Breslaw. E. Long. 29. 0. N. Lat. 56. 4.

POLTROON, or **POLTRON**, a coward or dastard, wanting courage to perform any thing great or noble. The word is borrowed from the French, who according to Salmastius, derived it *à pollice truncato*; because anciently those who would avoid going to the wars cut off their thumb. But Menage, with more probability, derives it from the Italian *poltrone* and that from *poltro* a "bed;" because timorous, pusillanimous people take pleasure in lying a-bed. Others derive the word from the Italian *poltro*, a "colt," because of that creature's readiness to run away.

POLVERINE, the calcined ashes of a plant; of a similar nature with our pot-ashes or pearl-ashes. It is brought from the Levant and Syria; and in the glass-trade it is always to be preferred to any other ashes. The barilla, or pot-ashes of Spain, yield more pure salt than the pulverine of the Levant, but the glass made with it has always some blue tinge: that made with the pulverine is perfectly white, which ought always to be used for the finest crystal.

POLYADELPHIA (from *πολυς* many, and *αδελφια* brotherhood), many brotherhoods; the name of the 18th class of Linnæus's sexual system, consisting of plants with hermaphrodite flowers, in which several stamina or male organs are united by their filaments into three or more distinct bundles. See **CLASSIFICATION** under **BOTANY**.

POLYÆNUS, the name of many famous men recorded in ancient writers. Among them was Julius Polyænus, of whom we have some Greek epigrams extant

Pollux
||
Polyadelph.
phia.

Polyænus || *Polyanthus.*
 tant in the first book of the *Anthologia*. The Polyænus whom it most concerns us to know about, is the author of the eight books of the *Stratagemata* of Illustrious Commanders in War. He was probably a Macedonian, and perhaps a soldier in the early part of his life; but of this there is no certainty. He was undoubtedly a rhetorician and a pleader of causes; and appears, from the dedication of his work to the emperors Antoninus and Verus, to have lived towards the latter part of the second century. The *Stratagemata* were published in Greek by Isaac Casaubon, with notes, in 1589, 12mo; but no good edition of them appeared till that of Leyden, 1690, in 8vo. The title page runs thus: *Polyæni Stratagematum libri octo, Justo Vultio interprete, Pancratius Maaſſivicius recensuit, Iſaaci Caſauboni nec non ſuas notas adjevit.*

We have in this work the various stratagems of above 300 captains and generals of armies, chiefly Greeks and barbarians; for the Romans seldom used such fineses; and Polyænus has shown further, that he was not well versed in Roman affairs. A great number of these stratagems appear to us to be ridiculous or impracticable; and neither the generals, or even common soldiers of our days, would be found simple enough to be caught by them. Few of this order are capable of reading *Polyænus's Stratagemata*; and if they were, they would reap little benefit from it. The book is useful to such as study the Greek language and antiquity; for many things will be found in it, illustrating the customs and opinions of ancient times. The sixth and seventh books are imperfect.

Polyænus composed other works besides the *Stratagemata*. Stobæus has produced some passages out of a book *De Republica Macedonum*; and Suidas mentions a piece concerning the Thebans, and three books of Tacitus. If death had not prevented, he would have written *Memorabilia of the Emperors Antoninus and Verus*: for he makes a promise of this in the preface to his sixth book of *Stratagemata*. Casaubon, in the dedication of Polyænus to Mornæus, calls him *an elegant, acute, and learned writer*.

POLYANDRIA (from *πολυς* many, and *ανη* a man or husband), many husbands. The name of the 13th class in Linnæus's sexual method, consisting of plants with hermaphrodite flowers, which are furnished with several stamina, that are inserted into the common receptacle of the flower. See *Classification* under BOTANY.

POLYANTHÆA, a collection of common-places in alphabetical order, for the use of orators, preachers, &c. The word is formed from the Greek *πολυς* much, and *ανθος* flower; and has much the same meaning with *anthology* or *florilege*. The first author of the *polyanthea* was Dominic Nanni de Mirabello, whose labour has been improved on by Barth. Amantius, and Franc. Torfius; and since these, by Jos. Langius, under the title of *Polyanthea nova*, 1613.

POLYANTHUS. See PRIMULA, BOTANY *Index*; and for the cultivation of this early ornament of the flower-garden, see GARDENING.

POLYBIUS, a famous Greek historian, was born at Megalopolis, a city of Arcadia, 205 years before Christ; and was the son of Lycortas, chief of the republic of the Achæans. He was trained to arms under the celebrated Philopœmen, and is described by Plutarch carrying the urn of that great but unfortunate general

in his funeral procession. He arose to considerable honours in his own country, but was compelled to visit Rome with other principal Achæans, who were detained there as pledges for the submission of their state. From hence he became intimate with the second Scipio Africanus, and was present with him at the demolition of Carthage. He saw Corinth also plundered by Mummius, and thence passing through the cities of Achaia, reconciled them to Rome. He extended his travels into Egypt, France, and Spain, that he might avoid such geographical errors as he has censured in others.

It was in Rome that he composed his excellent history, for the sake of which his travels were undertaken. This history was divided into 40 books; but there only remain the five first, with extracts of some parts of the others. It has had several editions in Greek and Latin; and there is an English translation by Mr Hampton. He died at the age of 82.

POLYCARP, one of the most ancient fathers of the Christian church, was born towards the end of the reign of Nero, probably at Smyrna; where he was educated at the expence of Calista, a noble matron distinguished by her piety and charity. He was unquestionably a disciple of St John the Evangelist, and converted familiarly with other of the apostles. When of a proper age, Bucolus ordained him a deacon and catechist of his church; and upon his death he succeeded him in the bishopric, to which he is said to have been consecrated by St John, who also directed his Apocalypse, among others, to him, under the title of *the angel of the church of Smyrna*. At length the controversy about the observation of Easter beginning to grow high between the eastern and western churches, he went to Rome to discourse with those who were of the opposite party. The see was then possessed by Anicetus, with whom he had many conferences, that were carried on in the most peaceable and amicable manner; and though neither of them could bring the other to embrace his opinion, they both retained their own sentiments without violating that charity which is the great law of their religion.

Whilst at Rome he particularly opposed the heresies of Marcian and Valentinus. His conduct on this occasion is related by Irenæus; who informs us, that when Polycarp passed Marcian in the street without speaking, Marcian said, "Polycarp, own us!" To which he replied with indignation, "I own thee to be the first-born of Satan." Irenæus adds, that when any heretical doctrines were spoken in his presence, he would stop his ears and say, "Good God! to what times hast thou referred me, that I should hear such things!" and immediately left the place. He was wont to tell, that St John, going into a bath at Ephesus, and finding Cerinthus the heretic in it, immediately started back without bathing, crying out, "Let us run away, lest the bath should fall upon us while Cerinthus the enemy of truth is in it." Polycarp governed the church of Smyrna with apostolic purity, till he suffered martyrdom in the 7th year of Marcus Aurelius; the manner of which is thus related.

The persecution waxing hot at Smyrna, and many having sealed their faith with their blood, the general cry was, "Away with the impious; let Polycarp be sought for." Upon which he privately withdrew into a neighbouring village, where he continued for some time praying night and day for the peace of the church. He

was

Polycarp. was thus employed, when one night he fell into a trance, and dreamed that his pillow took fire, and was burnt to ashes; which, when he awoke, he told his friends was a preface that he should be burnt alive for the cause of Christ. Three days afterwards, in order to escape the incessant search for him, he retired into another village: his enemies, however, were at hand, who seized upon two youths (one of whom they forced by stripes to a confession), by whom they were conducted to his lodging. He might have saved himself by getting into another house; but he submitted, saying, "The will of the Lord be done." He therefore came down from his bed-chamber, and saluting his persecutors with a serene and cheerful countenance, he ordered a table to be set with provisions, invited them to partake of them, and only requested for himself one hour for prayer; after which he was set upon an ass, and conducted towards Smyrna. On the road he met Herod an irenarch or justice of the province, and his father, who were the principal instigators of the persecution. Herod took him up into his chariot, and strenuously endeavoured to undermine his constancy; but having failed in the attempt, he thrust him out of the chariot with so much violence and indignation that he bruised his thigh with the fall. When at the place of execution, there came, as is said, a voice from heaven, saying, "Polycarp, be strong, and quit thyself like a man." Before the tribunal he was urged to swear by the genius of Cæsar. "Repent (says the proconsul), and lay with us, take away the impious." Whereupon the martyr looking round at the crowd with a severe and angry countenance, beckoned with his hand, and looking up to heaven, said with a sigh, in a very different tone from what they meant, "Take away the impious." At last, confessing himself to be a Christian, the crier thrice proclaimed his confession, and the people shouted, "This is the great doctor of Asia, and the father of the Christians; this is the destroyer of our gods, that teaches men not to do sacrifice, or worship the deities." When the fire was prepared, Polycarp requested not to be nailed, as usual, but only tied to the stake; and after a short prayer, which he pronounced with a clear and audible voice, the executioner blew up the fire, which increasing to a mighty flame, "Behold a wonder seen (says my author) by us who were purposely reserved, that we might declare it to others; the flames disposing themselves into the resemblance of an arch, like the sails of a ship swelled with the wind, gently encircled the body of the martyr, who stood all the while in the midst, not like roasted flesh, but like the gold or silver purified in the furnace, his body sending forth a delightful fragrant, which, like frankincense or some other costly spices, presented itself to our senses. The infidels, exasperated by the miracle, commanded a spearman to run him through with a sword: which he had no sooner done, but such a vast quantity of blood flowed from the wound as extinguished the fire; when a

dove was seen to fly from the wound, which some suppose to have been his soul, clothed in a visible shape at the time of its departure (A)." The Christians endeavoured to carry off his body entire, but were not allowed by the irenarch, who commanded it to be burnt to ashes. The bones, however, were gathered up, and decently interred by the Christians.

Thus died St Polycarp, the 7th of the kalends of May, A. C. 167. The amphitheatre on which he suffered was mostly remaining not many years ago; and his tomb, which is in a little chapel in the side of a mountain, on the south-east of the city, was solemnly visited by the Greeks on his festival day; and for the maintenance and repairing of it, travellers were wont to throw a few aspers into an earthen pot that stands there for the purpose. He wrote some homilies and epistles, which are now lost, except that to the Philippians, which is a truly pious and Christian piece, containing short and useful precepts and rules of life, which St Jerome informs us was even in his time read in the public assemblies of the Asiatic churches. It is singularly useful in proving the authenticity of the books of the New Testament; for he has several passages and expressions from Matthew, Luke, the Acts, St Paul's Epistles to the Philippians, Ephesians, Galatians, Corinthians, Romans, Thessalonians, Colossians, 1st Timothy, 1st Epistle of St John, and 1st of Peter; and makes particular mention of St Paul's Epistle to the Ephesians. Indeed his whole Epistle consists of phrases and sentiments taken from the New Testament (B).

POLYCARPON, a genus of plants, belonging to the triandria class; and in the natural method ranking under the 22d order, *Caryophyllei*. See *BOTANY Index*.

POLYCHREST, in *Pharmacy*, signifies a medicine that serves many uses, or that cures many diseases.

Sal POLYCHREST, a compound salt made of equal parts of saltpetre and sulphur, deslagrated in a red-hot crucible. See *MATERIA MEDICA*.

POLYCNEMUM, a genus of plants, belonging to the triandria class; and in the natural method ranking under the 12th order, *Holoraceæ*. See *BOTANY Index*.

POLYCRATES, was a tyrant of Samos, famous for the good fortune which always attended him. He became very powerful; and got possession not only of the neighbouring islands, but also of some cities on the coast of Asia. He had a fleet of 100 ships of war, and was so universally esteemed, that Amasis the king of Egypt made a treaty of alliance with him. The Egyptian king was, however, afraid of his continued prosperity, and advised him to chequer his enjoyments, by relinquishing some of his most favourite objects. Polycrates, in compliance, threw into the sea a beautiful seal, the most valuable of his jewels. The loss of so precious a seal afflicted him for some time; but soon after he received as a present a large fish, in whose belly it was found. Amasis no sooner heard this, than he gave up all

Polycarp
||
Polycrates.

(A) The miraculous part of this account is ridiculed by Dr Middleton in his *Free Enquiry and Defence of it*; but something is offered in its favour by Mr Jortin, who observes, "the circumstances are sufficient only to create a pause and a doubt." *Remarks on Eccl. Hist.* vol. i.

(B) Jortin, vol. i. p. 68. who to the particulars made out by Cotelarius, has added one from Galat. iv. 26. and another from Hebr. iv. 12, 13.

Polycrota
||
Polygala.

all alliance with the tyrant of Samos, and observed, that sooner or later his good fortune would vanish. Some time after Polycrates visited Magnesia on the Mæander, where he had been invited by Orontes the governor. Here he was shamefully put to death, merely because the governor wished to terminate his prosperity. The daughter of Polycrates had dissuaded her father from going to the house of Orontes, on account of the bad dreams which she had, but in vain.

POLYCROTA, in the naval architecture of the ancients, is a word used to express such of their galleys as had three, four, five, or more tiers of rowers, seated at different heights; they were distinguished by this term from the *monocrota*, or those which had only single rows of oars. The number of rows of rowers in the poly-crota galleys has given occasion to some to suppose those vessels of such a height from the water as is scarce credible. Commentators are not at all agreed upon the construction of these vessels.

POLYDAMAS, was a famous athlete, who imitated Hercules in whatever he did. He killed a lion with his fist; and it is reported he could stop a chariot with his hand in its most rapid course. He was one day with some of his friends in a cave, when on a sudden a large piece of rock came tumbling down, and while all fled away, he attempted to receive the falling fragment in his arms. His prodigious strength, however, was insufficient, and he was instantly crushed to pieces under the rock.

POLYDECTES, a son of Magnes, was king of the island of Seriphos. He received with great kindness Danae and her son Perseus, who had been exposed on the sea by Acrisius. He took great care of the education of Perseus; but becoming enamoured of Danae, he removed her from his kingdom, apprehensive of his resentment. He afterwards paid his addresses to Danae; and being rejected, he prepared to offer her violence. Danae fled to the altar of Minerva for protection; and Dictys, the brother of Polydectes, who had himself saved him from the sea-waters, opposed her ravisher, and armed himself in her defence. At this critical moment Perseus arrived; and with Medusa's head he turned into stones Polydectes, with the associates of his guilt. The crown of Seriphos was given to Dictys, who had shown himself so active in the cause of innocence.

POLYDORE VIRGIL. See VIRGIL.

POLYDORUS, a son of Priam by Hecuba, or, according to others, by Laothoe, the daughter of Altes, king of Pedasus. Being young and inexperienced when Troy was besieged by the Greeks, his father removed him to the court of Polymnestor, king of Thrace, to whose care he entrusted the greatest part of his treasures, till his country should be freed from foreign invasion. On the death of Priam, Polymnestor made himself master of the riches which were in his possession; and to ensure them the better, he murdered the young prince, and threw his body into the sea, where it was found by Hecuba. According to Virgil, his body was buried near the shore by his assassin; and there grew on his grave a myrtle, whose boughs dropped blood, when Æneas going to Italy, attempted to tear them from the tree.

POLYGALA, MILKWORT: a genus of plants belonging to the diadelphia class; and in the natural me-

thod ranking under the 33d order, *Lomentaceæ*. See *Polygamia* BOTANY Index.

POLYGAMIA (*πολυς many*, and *γαμος marriage*), is a term expressing an intercommunication of sexes, and is applied by Linnæus both to plants and flowers. A polygamous plant is that which bears both hermaphrodite flowers, and male or female, or both.

POLYGAMY, a plurality of wives or husbands, in the possession of one man or woman at the same time.

Polygamy is so universally esteemed unlawful, and even unnatural, through Europe, and in all Christian countries, that we have generally reasoned upon this conviction. Both religion and reason appear at first sight at least to condemn it; and with this view of the subject mankind in general rest satisfied: but some bolder geniuses have taken the opposite side of the question; have cast off the prejudices of education, and attempted to show that polygamy is not unlawful, but that it is just and necessary, and would be a public benefit. Such writers, to use the words of an intelligent critic*, "re-
* *Monthly Review*, vol. lxi. p. 274.
cur to the common subterfuge, of which every *setter* Review, *up of strange gods*, and every CONSCIENTIOUS trouble-
of the public peace, have artfully availed themselves
to silence the clamour of expostulation. 'TRUTH!
TRUTH!' is their general cry: and with this hopeful pretence, prudence and humility, and every amiable and useful virtue, are left behind: while CONSCIENCE (*conscience!*) blindly rushes forward to oppose order, insult authority, and overturn the customs of ages."

But notwithstanding these fair pretences, it will, we doubt not, be easy to show that truth is not upon their side; prudence and delicacy are certainly at open war with them: for Dr Percival, *Phil. Trans.* vol. lxxi. part i. p. 163. has very justly observed, that the practice is brutal, destructive to friendship and moral sentiment, inconsistent with one great end of marriage, the education of children, and subversive of the natural rights of more than half of the species. Besides, it is injurious to population, and therefore can never be countenanced or allowed in a well-regulated state; for though the number of females in the world may considerably exceed the number of males, yet there are more men capable of propagating their species than women capable of bearing children; and it is a well known fact, that Armenia, in which a plurality of wives is not allowed, abounds more with inhabitants than any other province of the Turkish empire.

Indeed it appears, that in some countries where it is allowed, the inhabitants do not take advantage of it. "The Europeans (says M. Niebuhr †) are mistaken in thinking the state of marriage so different among the
† *Heron's Translation of Niebuhr's Travels*.
Mussulmans from what it is with Christian nations. I could not discern any such difference in Arabia. The women of that country seem to be as free and as happy as those of Europe possibly can be. Polygamy is permitted, indeed, among Mahometans, and the delicacy of our ladies is shocked at this idea; but the Arabians rarely avail ‡ themselves of the privilege of marrying
‡ See *Hindoo's*, N° 9.
four lawful wives, and entertaining at the same time any number of female slaves. None but rich voluptuaries marry so many wives, and their conduct is blamed by all sober men. Men of sense, indeed, think this privilege rather troublesome than convenient. A husband is by law obliged to treat his wives suitably to their condition, and to dispense his favours among them with perfect

Polygamy. perfect equality: but these are duties not a little disagreeable to most Mussulmans; and such modes of luxury are too expensive to the Arabians, who are seldom in easy circumstances. I must, however, except one case; for it sometimes happens that a man marries a number of wives in the way of commercial speculation. I know a Mullah, in a town near the Euphrates, who had married four wives, and was supported by the profits of their labour."

See a curious kind of polygamy under the article NAYRES. The ancient Britons, too, had a kind of polygamy among them, 12 women being common to 12 men.

Selden has proved, in his *Uxor Hebraica*, that plurality of wives was allowed of, not only among the Hebrews, but also among all other nations, and in all ages. It is true, the ancient Romans were more severe in their morals, and never practised it, though it was not forbid among them: and Mark Antony is mentioned as the first who took the liberty of having two wives.

From that time it became pretty frequent in the empire till the reigns of Theodosius, Honorius, and Arcadius, who first prohibited it by express law in 393. After this the emperor Valentinian, by an edict, permitted all the subjects of the empire, if they pleased, to marry several wives: nor does it appear, from the ecclesiastical history of those times, that the bishops made any opposition to the introduction of polygamy. In effect, there are some even among the Christian casuists who do not look on polygamy as in itself criminal. Jurieu observes, that the prohibition of polygamy is a positive law, but from which a man may be exempted by sovereign necessity. Baillet adds, that the example of the patriarchs is a powerful argument in favour of polygamy: of these arguments we shall speak hereafter.

It has been much disputed among the doctors of the civil law whether polygamy be adultery. In the Roman law it is called *stuprum*, and punished as such, that is, in some cases, capitally. But a smaller punishment is more consistent with the Jewish law, wherein the prohibition of adultery is perpetual, but that of polygamy temporary only.

In Germany, Holland, and Spain, this offence is differently punished. By a constitution of Charles V. it was a capital crime. By the laws of ancient and modern Sweden it is punished with death. In Scotland it is punished as perjury.

In England it is enacted by statute 1 Jac. I. cap. 11. that if any person, being married, do afterwards marry again, the former husband or wife being alive, it is felony, but within the benefit of clergy. The first wife, in this case, shall not be admitted as an evidence against her husband, because she is the true wife; but the second may, for she is indeed no wife at all; and so *vice versa* of a second husband. This act makes an exception to five cases, in which such second marriage, though in the three first it is void, is however no felony. 1. Where either party hath been continually abroad for seven years, whether the party in England had notice of the other's being living or not. 2. Where either of the parties hath been absent from the other seven years within this kingdom, and the remaining party hath had no notice of the other's being alive within that time. 3. Where there is a divorce or separation *à mensa et thoro* by sen-

tence in the ecclesiastical court. 4. Where the first *Polygamy* marriage is declared absolutely void by any such sentence, and the parties loosed *à vinculo*. Or, 5. Where either of the parties was under the age of consent at the time of the first marriage; for in such case the first marriage was voidable by the disagreement of either party, which this second marriage very clearly amounts to. But if at the age of consent the parties had agreed to the marriage, which completes the contract, and is indeed the real marriage, and afterwards one of them should marry again, Judge Blackstone apprehends that such second marriage would be within the reason and penalties of the act.

Bernardus Ochinus, general of the order of Capuchins, and afterwards a Protestant, published, about the middle of the 16th century, Dialogues in favour of Polygamy, which were answered by Theodore Beza. And about the conclusion of the last century we had at London an artful treatise published in behalf of a plurality of wives, under the title of *Polygamia Triumphatrix*: the author whereof assumes the name of *Theophilus Aletheus*; but his true name was *Lyserus*. He was a native of Saxony. It has been answered by several.

A new argument in favour of polygamy has been adduced by Mr Bruce, on this principle, that in some parts of the world the proportion of female children is much greater than that of the males. "From a diligent inquiry (says he) into the south and scripture part of Mesopotamia, Armenia, and Syria, from Moulou or Nineveh to Aleppo and Antioch, I find the proportion to be fully two women to one man. There is indeed a fraction over, but it is not a considerable one. From Latikea, Laodicea *ad mare*, down the coast of Syria to Sidon, the number is nearly three, or two and three-fourths, to one man. Through the Holy Land, the country called *Horan*, in the isthmus of Suez, and the parts of the Delta unfrequented by strangers, it is something less than three. But from Suez to the straits of Babelmandel, which contains the three Arabias, the proportion is fully four women to one man; which I have reason to believe holds as far as the line, and 30° beyond it. The Imam of Sama was not an old man when I was in Arabia Felix in 1769; but he had 88 children then alive, of whom 14 only were sons. The priest of the Nile had 70 and odd children: of whom, as I remember, above fifty were daughters.

"It may be objected, that Dr Arbuthnot, in quoting the bills of mortality for 20 years, gave the most unexceptionable grounds for his opinion; and that my single exception of what happens in a foreign country, without further foundation, cannot be admitted as equivalent testimony: and I am ready to admit this objection, as there are no bills of mortality in any of these countries. I shall therefore say in what manner I attained the knowledge which I have just mentioned. Whenever I went into a town, village, or inhabited place, dwelt long in a mountain, or travelled journeys with any set of people, I always made it my business to inquire how many children they had, or their fathers, their next neighbours or acquaintance. I then asked my landlord at Sidon, suppose him a weaver, how many children he has had? He tells me how many sons and how many daughters. The next I ask is a tailor, a smith, &c. in short every man who is not a stranger,

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from

Polygamy. from whom I can get the proper information. I say, therefore, that a medium of both sexes, arising from three or four hundred families, indiscriminately taken, shall be the proportion in which one differs from the other; and this, I am confident, will give the result to be three women in 50° of the 90° under every meridian of the globe."

Our author corroborates this argument by supposing that Mahomet perceived this disproportion, and that upon it he founded his institution allowing one man to have four wives. "With this view he enacted, or rather revived, the law which gave liberty to every individual to marry four wives, each of whom was to be equal in rank and honour, without any preference but what the predilection of the husband gave her."

Having thus established, as he supposes, the necessity of polygamy in the East, Mr Bruce proceeds to consider whether there is not some other reasons why it should not be practised in Britain farther than the mere equality in numbers of the sexes to one another. This reason he finds in the difference between the constitutions of the Europeans and eastern nations. "Women in England (says he) are capable of child-bearing at 14; let the other term be 48, when they bear no more; 34 years therefore an English woman bears children. At the age of 14 or 15 they are objects of our love; they are endeared by bearing us children after that time; and none, I hope, will pretend, that at 48 and 50 an Englishwoman is not an agreeable companion. The Arab, on the other hand, if she begins to bear children at 11, seldom or never has a child after 20. The time, then, of her child-bearing is nine years; and four women, taken altogether, have then the term of 36. So that the English woman that bears children for 34 years has only two years less than the term enjoyed by the four wives whom Mahomet has allowed; and if it be granted that an English wife may bear at 50, the terms are equal. But there are other grievous differences. An Arabian girl, at 11 years old, by her youth and beauty, is the object of man's desire: being an infant, however, in understanding, she is not a rational companion for him. A man marries there, say at 20; and before he is 30, his wife, improved as a companion, ceases to be the object of his desires and a mother of children: so that all the best and most vigorous of his days are spent with a woman he cannot love; and with her he would be destined to live 40, or 45 years, without comfort to himself by increase of family, or utility to the public. The reasons, then, against polygamy, which subsist in England, do not by any means subsist in Arabia; and that being the case, it would be unworthy of the wisdom of God, and an unevenness in his ways, which we shall never see, to subject two nations under such different circumstances absolutely to the same observances."

To all this argumentation, however, it may be replied, that whatever we may now suppose to be the constitution of nature in the warmer parts of the globe, it certainly was different at the beginning. We cannot, indeed, ascertain the exact position of the Garden of Eden; but it is with reason supposed not to have been far from the ancient seat of Babylon. In that country, therefore, where Mr Bruce contends that four women are necessary to the comfort of one man, it pleased God to grant only one to the first man; and that, too,

when there was more occasion for population than ever there has been since, because the whole earth was to be peopled from a single pair. Matters were not altered at the flood; for Noah had but one wife. And this is the very argument used by our Saviour himself when speaking of divorce without any sufficient cause, and then marrying another woman, which is a species of polygamy.—Again, with respect to the alleged multiplicity of females in the eastern part of the world, it is by no means probable that the calculations of Mr Bruce or any other person can be admitted in this case. History mentions no such thing in any nation; and considering the vast destruction among the male part of the human species more than that of the females by war and other accidents, we may safely say, that if four women were born for every single male, there would in such countries be five or six grown up women for every man; a proportion which we may venture to affirm does not, nor ever did, exist any where in the world. That it was not so in former times, we can only judge from the particular examples recorded in history, and these are but few. We read in the Greek history, indeed, of the fifty daughters of Danaus; but these were matched by as many sons of another man. Job had only one wife, yet had seven sons and but three daughters. Jacob had two wives, who bore twelve sons, and only one daughter. Abraham had only one child by his first wife, and that was a son. By his second wife Keturah he had six sons; and considering his advanced age at the time he married her, it is by no means probable that he could have 24 daughters; nay, if, as Mr Bruce tells us, the women in the eastern countries bear children only for nine years, it was impossible she could have so many. Gideon, who had many wives, had no fewer than seventy sons by these wives, and even his concubine had a son; so that if all these women had produced according to Mr Bruce's proportion, of nearly three females to one male, he must have had almost 284 children; a better family than any of Mr Bruce's eastern acquaintance can probably boast of.

With regard to the subject, however, it must be observed, that the procreation of male or female children depends in some degree on the health and vigour of the parents. It is by no means improbable, therefore, that the eastern voluptuaries, whose constitutions are debilitated by their excesses, may have many more female than male children born to them. The women themselves, by premature enjoyment, will also be inclined to produce females instead of males; but neither of these circumstances can prove this to be an original law of nature. Something like this may be gathered from sacred history. Gideon above-mentioned, who was a hardy and active warrior, had many sons. The same was the case with David, who led an active and laborious life; while Solomon, who was a voluptuary, had only one son, notwithstanding his multitude of wives.

The most barefaced defence of polygamy that has appeared in modern times is by the Rev. Mr Madan, who published a treatise, artfully vindicating, and strongly recommending it, under the title of *Thelyphithora*; or, *A Treatise on Female Ruin, in its Causes, Effects, Consequences, Prevention, and Remedy, &c.* Marriage, according to this writer, simply and wholly consists in the act of personal union, or *actus coitus*. Adultery, he says,

Polygamy.

Polygamy. says, is never used in the sacred writings but to denote the defilement of a betrothed or married woman, and to this sense he restricts the use of the term; so that a married man, in his opinion, is no adulterer, if his commerce with the sex be confined to single women, who are under no obligations by espousals or marriage to other men: but, on the other hand, the woman who should dare to have even but once an intrigue with any other man besides her husband, (let him have as many wives as Solomon), would, *ipso facto*, be an adulteress, and ought, together with her gallant, to be punished with immediate death. This, he boldly says, is the law of God: and on this foundation he limits the privilege of polygamy to the man; in support of which he refers to the polygamous connections of the patriarchs and saints of the Old Testament, and infers the lawfulness of their practice from the blessings which attended it, and the laws which were instituted to regulate and superintend it. He contends for the lawfulness of Christians having, like the ancient Jews, more wives than one; and labours much to reconcile the genius of the evangelical dispensation to an arrangement of this sort. With this view he asserts, that there is not one text in the New Testament that even hints at the criminality of a polygamous connection; and he would infer from St Paul's direction, that bishops and deacons should have but one wife, that it was lawful for laymen to have more. Christ, he says, was not the giver of a new law; but the business of marriage, polygamy, &c. had been settled before his appearance in the world, by an authority which could not be revoked. Besides, this writer not only thinks polygamy lawful in a religious, but advantageous in a civil light, and highly politic in a domestic view.

In defence of his notion of marriage, which, he says, consists in the union of man and woman as one body, the effects of which in the sight of God no outward forms or ceremonies of man's invention can add to or detract from, he grounds his principal argument on the Hebrew words made use of in Gen. ii. 24. to express the primitive institution of marriage, viz. *כִּרְכַּב כְּאִשְׁוֹ*, rendered by the LXX. *προσηλληθησέναι προς την γυναικα αυτην*, which translation is adopted by the evangelist (Mat. xix. 5.) with the omission only of the superfluous preposition (*προς*) after the verb. Our translation, "shall cleave to his wife," doth not, he says, convey the idea of the Hebrew, which is literally, as Montanus renders the words, "shall be joined or cemented *in* his woman, and they shall become (i. e. by this union) one flesh." But on this criticism it is well remarked, that both the Hebrew and Greek terms mean simply and literally attachment or adherence; and are evidently made use of in the sacred writings to express the whole scope of conjugal fidelity and duty, though he would restrain them to the grosser part of it.

With respect to the Mosaic law, for which Mr Madan is a warm advocate, it was certainly a local and temporary institution, adapted to the ends for which it was appointed, and admirably calculated, in its relation to marriage, to maintain and perpetuate the separation of the Jewish people from the Gentiles. In attempting to depreciate the outward forms of marriage, this writer would make his readers believe, that because none are explicitly described, therefore none existed; and consequently that they are the superfluous ordinances of human policy. But it is evident, from comparing

Ruth iv. 10, 13. with Tobit vii. 13, 14. and from the case of Dinah, related Gen. xxxiv. that some forms were deemed essential to an honourable alliance by the patriarchs and saints under the Old Testament, exclusive of the carnal knowledge of each other's persons. It is also evident in the case of the woman of Samaria, whose connection with a man not her husband is mentioned in John iv. that something besides cohabitation is necessary to constitute marriage in the sight of God.

Having stated his notion of marriage, he urges, in defence of polygamy, that, notwithstanding the seventh commandment, it was allowed by God himself, who made laws for the regulation of it, wrought miracles in support of it by making the barren woman fruitful, and declared the issue legitimate to all intents and purposes. God's allowance of polygamy is argued from Exod. xxi. 10. and particularly from Deut. xxi. 15. which, he says, amounts to a demonstration. This passage, however, at the utmost, only presupposes that the practice might have existence among so hard-hearted and fickle a people as the Jews; and therefore wisely provides against some of its more unjust and pernicious consequences, such as tended to affect the rights and privileges of heirship. Laws enacted to regulate it cannot be fairly urged in proof of its lawfulness on the author's own hypothesis; because laws were also made to regulate divorce, which Mr Madan condemns as absolutely unlawful, except in cases of adultery. Besides, it is more probable that the "hated wife" had been dismissed by a bill of divorcement, than that she was retained by her husband: and moreover, it is not certain but that the two wives, so far from living with the same husband at the same time, might be dead; for the words may be rendered thus, "if there *should have been* to a man two wives, &c." The words expressing the original institution of marriage, Gen. ii. 24. compared with Mat. xix. 4, 5, 8. afford insuperable objections against Mr Madan's doctrine of polygamy.

If we appeal on this subject, from the authority of Scripture to the writings of the earliest fathers in the Christian church, there is not to be found the faintest trace of any thing resembling a testimony to the lawfulness of polygamy; on the contrary, many passages occur, in which the practice of it is strongly and explicitly condemned.

We shall close this article with the words of an excellent anonymous writer already quoted, and to whose critique on Mr Madan's work we are indebted for the above remarks: "In a word, when we reflect that the primitive institution of marriage limited it to one man and one woman; that this institution was adhered to by Noah and his sons, amidst the degeneracy in which they lived, and in spite of the examples of polygamy which the accursed race of Cain had introduced; when we consider how very few (comparatively speaking) the examples of this practice were among the faithful; how much it brought its own punishment with it; and how dubious and equivocal those passages are in which it appears to have the sanction of divine approbation; when to these reflections we add another, respecting the limited views and temporary nature of the more ancient dispensations and institutions of religion—how often the imperfections and even vices of the patriarchs and people of God, in old time, are recorded, without any express notification of their criminality—how much is said to be commanded, which our reverence for the holiness

Monthly Review,
vol. lxi.
p. 338.
See also
vol. lxx.

^{Polygamy,}
^{Polygars.} of God and his law will only suffer us to suppose, were, for wife ends, permitted—how frequently the messengers of God adapted themselves to the genius of the people to whom they were sent, and the circumstances of the times in which they lived:—above all, when we consider the purity, equity, and benevolence of the Christian law; the explicit declarations of our Lord, and his apostle St Paul, respecting the institution of marriage, its design and limitation;—when we reflect, too, on the testimony of the most ancient fathers, who could not possibly be ignorant of the general and common practice of the apostolic church; and, finally, when to these considerations we add those which are founded on justice to the female sex, and all the regulations of domestic economy and national policy—we must wholly condemn the revival of polygamy; and thus bear our honest testimony against the leading design of this dangerous and ill-advised publication.”

We would advise our readers to peruse the whole criticisms on Madan's book in the Monthly Review, together with their account of the several answers to it. The reverend author of the *Thelyphthora* has there met with a most able antagonist, who traces him through all his deceitful windings, and exposes the futility and falsehood of his arguments with singular ability. See *Monthly Review*, vol. lxiii. p. 273, &c.; see also *Paley's Moral Philosophy*, 4to. p. 262.

POLYGARS, are natives of Hindostan. They inhabit almost impenetrable woods, and are under the absolute direction of their own chieftains. In time of peace they are professionally robbers, but in times of war are the guardians of the country. The general name of these people is *Polygar*. Their original institution, for they live in distinct clans, is not very well understood. It probably took its rise from the municipal regulations relative to the destruction of tygers and other ferocious beasts. Certain tracts of woodland were indisputably allotted as rewards to those who should slay a certain number of those animals; and those lands approximating, probably laid the foundation of the several confederacies of Polygars.

“The Pollams, or woods, from which is derived the word *Polygar*, lying in profusion through all the southern parts of Hindostan, the ravages committed in the open countries by these adventurous clans, are both frequent and destructive. Cattle and grain are the constant booty of the Polygars. They not unfrequently even despoil travellers of their property, and sometimes murder, if they meet with opposition: yet these very Polygars are the hands into which the aged and infirm, the wives, children, and treasure, of both Hindoos and others are entrusted, when the circumjacent country unfortunately happens to be the seat of war. The protection they afford is paid for; but the price is inconsiderable, when the helpless situation of those who fly to them for shelter is considered, and especially when their own very peculiar character is properly attended to. The native governments of Hindostan are under the necessity of tolerating this honourable banditti. Many of them are so formidable as to be able to bring 15,000 and 20,000 men into the field.

“The Hindoo code of laws, in speaking of robberies, hath this remarkable clause, ‘The mode of shares amongst robbers shall be this:—If any thief or thieves, by the command of the magistrate, and with his assist-

ance, have committed depredations upon, and brought away any booty from, another province, the magistrate shall receive a share of one-sixth part of the whole. If they received no command or assistance from the magistrate, they shall give the magistrate in that case one-tenth part for his share, and of the remainder their chief shall receive four shares; and whosoever among them is perfect master of his occupation, shall receive three shares: also, whichever of them is remarkably strong and stout, shall receive two shares, and the rest shall receive each one share.’ Here, then, we see not only a sanction, but even an inducement, to fraudulent practices.—Another singular inconsistency among a people who, in many periods of their history, have been proverbial for innocency of manners, and for uncommon honesty in their conduct towards travellers and strangers.

“At the first sight, it would appear that the toleration of the Polygars, is owing to their great numbers, and to the security of their fortresses, which are in general impenetrable but to Polygars; that the government licence, in this manner given to them, to live on the spoils of the industrious, might have originally occasioned the formal division, and encouragement to perseverance, which we have just quoted: but the cause I should rather suppose to lie in the nature of certain governments, than to have arisen from any accidental circumstance afterwards: and I am the more inclined to this opinion, from the situation of the northern parts of Hindostan, which are, and always have been, uninfested by these freebooters.

“The dominion of the East was, in former days, most probably divided and subdivided into all the various branches of the feudal system. The vestiges of it remain to this hour: rajahs and zemindars are nothing more than chieftains of a certain degree of consequence in the empire. If, then, experience has shown, in other parts of the world, that clans have always been observed to commit the most pernicious acts of depredation and hostility on each other, and that the paramount lord has seldom been able effectually to crush so general and so complicated a scene of mischief—may we not reasonably venture to suppose, that the Hindoo legislature passed this ordinance for the suppression of such provincial warfare, and for the wholesome purpose of drawing the people, by unalarming degrees, more immediately under the controul of the one sovereign authority? The conclusion, I own, appears to me satisfactory. Moreover, Polygars cannot but be of modern growth; for the law relative to thefts is antecedent to the mention of Polygars in history.” *Sullivan's Philosophical Rhapsodies*.

POLYGLOTT, among divines and critics, chiefly denotes a Bible printed in several languages. See BIBLE and PRINTING.

POLYGLOTTUS, a species of bird, belonging to the genus *turdus*. See TURDUS, ORNITHOLOGY *Index*.

POLYGNOTUS, a famous painter of Thasos, flourished about 422 years before the Christian era, and was the son and scholar of Aglaophon. He adorned one of the public porticoes of Athens with his paintings, in which he had represented the most striking events of the Trojan war. The Athenians were so pleased with him, that they offered to reward his labours with whatever he pleased to accept; but he declined the offer; and the Amphictyonic

Polygars
||
Polygnotus.

Polygnotus Amphictyonic council, which was composed of the representatives of the principal cities of Greece, ordered that Polygnotus should be maintained at the public expense wherever he went.

Of the talents of Polygnotus much honourable mention is made by many of the best authors of antiquity, as Aristotle and Plutarch, Dionysius Halicarnassensis, &c. Pausanias speaks of his pictures of the events of the Trojan war, and, in his Tenth Book, introduces a very long description of other pictures by the same artist, painted also from Homer in the temple at Delphos. The passage, however, gives but a confused and imperfect idea of the painter's performance. How much the art is indebted to this ancient master, what grace and softness he gave to the human countenance, what embellishments he added to the female figure and dress, are much more happily described by Pliny. "Primus mulieres lucida veste pinxit, capita earum mitris versicoloribus operuit, plurimumque picturæ primus contulit: siquidem instituit os adaperire, dentes ostendere, vultum ab antiquo rigore variare."—The same author likewise bears honourable testimony to the liberal spirit of this great artist, who refused any reward for his ingenious labours in the portico.—"Porticum gratuito, cum partem ejus Mycon mercede pingeret." Plin. lib. xxxv. cap. 8.

POLYGON, in *Geometry*, a figure with many sides, or whose perimeter consists of more than four sides at least; such are the pentagon, hexagon, heptagon, &c.

POLYGONUM, **KNOT-GRASS**: a genus of plants belonging to the octandria class; and in the natural method ranking under the 12th order, *Holoraceæ*. See **BOTANY Index**.

POLYGRAPHY, **POLYGRAPHIA**, or *Polygraphice*, the art of writing in various unusual manners or ciphers; as also of deciphering the same. The word is formed from the Greek, *πολυ*, *multum*, and *γραφή*, *scriptura*, "writing."

The ancients seem to have been very little acquainted with this art; nor is there any mark of their having gone beyond the Lacedæmonian scytala. Trithemius, Porta, Vigenere, and Father Nicéron, have written on the subject of polygraphy or ciphers. See **CIPHER**.

POLYHYMNIA, in the pagan mythology, one of the nine muses, thus named from the Greek words *πολυς* "much," and *μνησια* "memory." She presided over history, or rather rhetoric; and is represented with a crown of pearls and a white robe; her right hand in action as if haranguing, and holding in her left a caduceus or sceptre to show her power.

POLYHEDRON, in *Geometry*, denotes a body or solid comprehended under many sides or planes.

POLYHEDRON, in *Optics*, is a multiplying glass or lens, consisting of several plane surfaces disposed into a convex form. See **OPTICS**.

POLYMATHY, denotes the knowledge of many arts and sciences. The word is derived from the Greek, *πολυ*, *multum*, and *μαθησια*, *disco*.

POLYMNESTOR, was a king of the Thracian Chersonesus. He married Ilione, Priam's eldest daughter; and for the sake of the treasure with which he was entrusted by Priam during the siege of Troy, he murdered Polydorus, (see **POLYDORUS**). The fleet in which the victorious Greeks returned, together with their Trojan captives, among whom was Hecuba, stopped on the coast of Thrace, where one of the female captives dis-

covered on the shore the body of Polydorus, whom Polymnestor had thrown into the sea. The dreadful intelligence was immediately communicated to Hecuba his mother, who recollecting the frightful dreams she had the preceding night, did not doubt but Polymnestor was the cruel assassin. Resolved to revenge her son's death, she immediately called out Polymnestor, as if to impart to him something of importance. He was drawn into the snare; and no sooner was he introduced into the apartment of the Trojan princess, than the female captives rushing upon him, put out his eyes with their pins, while Hecuba murdered his two children, who had accompanied him. Euripides informs us, that the Greeks condemned Polymnestor to be banished into a distant island for his perfidy. Hyginus, however, relates the whole differently, and tells us, that when Polydorus was sent to Thrace, Ilione his sister took him instead of her son Deiphilus, who was of the same age, being fearful of her husband's cruelty. The monarch, unacquainted with the imposition, looked upon Polydorus as his own son, and treated Deiphilus as her brother. After the destruction of Troy, the conquerors wished the house and family of Priam to be extirpated, and therefore offered Electra the daughter of Agamemnon to Polymnestor, if he would destroy Ilione and Polydorus. He accepted the offer, and immediately dispatched his own son Deiphilus, whom he took for Polydorus. Polydorus, who passed as the son of Polymnestor, consulted the oracle after the murder of Deiphilus, and being informed that his father was dead, his mother a captive in the hands of the Greeks, and his country in ruins, he communicated the answer to Ilione, whom he had always regarded as his mother. She told him the measures she had pursued to save his life, upon which he avenged the perfidy of Polymnestor by putting out his eyes.

POLYMNIA, a genus of plants belonging to the syngenesia class, and in the natural method ranking under the 49th order, *Compositæ*. See **BOTANY Index**.

POLYNICES, the son of Oedipus by his mother Jocasta. See **JOCASTA**, **OEDIPUS**, and **ETEOCLES**.

POLYPE. See **POLYPUS**.

POLYPETALOUS, among botanists, an epithet applied to such flowers as consist of several petals or flower-leaves.

POLYPHEMUS, (fab. hist.), a celebrated Cyclops, and king of all the Cyclops in Sicily, was the son of Neptune and Thoosa the daughter of Phorcys. He is said to have been a monster of great strength, very tall, and with one eye in the middle of the forehead. He ate human flesh, and kept his flocks on the coasts of Sicily, when Ulysses, at his return from the Trojan war, was driven there. Ulysses, together with 12 of his companions, visited the coast, and with them was seized by the Cyclops, who confined them in his cave, and daily devoured two of them. Ulysses would have shared the fate of the rest, had he not intoxicated the Cyclops, and put out his eye with a firebrand when he was asleep. Polyphemus was awakened by the sudden pain, and stopped the entrance of his cave; but Ulysses escaped, by creeping between the legs of the rams of the Cyclops, as they were led out to feed on the mountains. Polyphemus became enamoured of Galatæa; but his addresses were disregarded, and the nymph shunned his presence. The Cyclops was still more earnest; and when he saw Galatæa

Polymnestor
||
Polyphemus

Polypodium
||
Polypus.

tæa surrender herself to the pleasures of Acis, he crushed his rival with a piece of a broken rock.
POLYPODIUM, a genus of plants belonging to the cryptogamia class. See BOTANY Index.

POLYPREMUM, a genus of plants belonging to the tetrandria class, and in the natural method ranking under the 22d order, *Caryophillei*. See BOTANY Index.

POLYPUS, a species of fresh-water insects, belonging to the genus of hydra, of the order of zoophytes, and class of vermes. See HELMINTHOLOGY. The name of *hydra* was given them by Linnæus, on account of the property they have of reproducing themselves when cut in pieces, every part soon becoming a perfect animal. Dr Hill called them *biota*, on account of the strong principle of life with which every part of them is endowed.

These animals were first discovered by Leeuwenhoek, who gave some account of them in the Philosophical Transactions for 1703; but their wonderful properties were not thoroughly known till the year 1740, when Mr Trembley began to investigate them. Previous to his discoveries, indeed, Leibnitz and Boerhaave, by reasonings *à priori*, had concluded that animals might be found which would propagate by slips like plants. Their conjectures have been verified.

Marine POLYPUS, is different in form from the fresh-water polype already described; but is nourished, increases, and may be propagated, after the same manner; Mr Ellis having often found, in his inquiries, that small pieces cut off from the living parent, in order to view the several parts more accurately, soon gave indications that they contained not only the principles of life, but likewise the faculty of increasing and multiplying into a numerous issue. It has been lately discovered and sufficiently proved by Peyssonel, Ellis, Jussieu, Reaumur, Donati, &c. that many of those substances which had formerly been considered by naturalists as marine vege-

tables or sea-plants, are in reality animal-productions; and that they are formed by polypes of different shapes and sizes, for their habitation, defence, and propagation. To this class may be referred the corals, corallines, keratophyta, echara, sponges, and alcyonium: nor is it improbable, that the more compact bodies, known by the common appellations of *star-stones*, *brain-stones*, *petrified fungi*, and the like, brought from various parts of the East and West Indies, are of the same origin. To this purpose Mr Ellis observes, that the ocean, in all the warmer latitudes, near the shore, and wherever it is possible to observe, abounds so much with animal life, that no inanimate body can long remain unoccupied by some species. In those regions, ships bottoms are soon covered with the habitations of thousands of animals: rocks, stones, and every thing lifeless, are covered with them instantly; and even the branches of living vegetables that hang into the water are immediately loaded with the spawn of different animals, shell-fish of various kinds: and shell-fish themselves, when they become impotent and old, are the basis of new colonies of animals, from whose attacks they can no longer defend themselves. See CORALLINA, HELMINTHOLOGY Index.

POLYPUS of the Heart. See MEDICINE, N^o 97, 98, 274, and 290.

POLYSARCIA, or CORPULENCY. See MEDICINE, N^o 335.

POLYSPERMOUS (from πολυ and σπέρμα *seed*), in Botany, is applied to such plants as have more than four seeds succeeding each flower, without any certain order or number.

POLYSYLLABLE, in Grammar, a word consisting of more than three syllables; for when a word consists of one, two, or three syllables, it is called a *monosyllable*, a *disyllable*, and *trisyllable*.

POLYSYNDETON. See ORATORY, N^o 97.

Polypus
||
Polysyn-
ton.

P O L Y T H E I S M,

I
Definition.

THE doctrine of a plurality of gods or invisible powers superior to man.

*Sketches
of the Hist.
of Man.

“That there exist beings, one or many, powerful above the human race, is a proposition (says Lord Kames*) universally admitted as true in all ages and among all nations. I boldly call it *universal*, notwithstanding what is reported of some gross savages; for reports that contradict what is acknowledged to be general among men, require more able vouchers than a few illiterate voyagers. Among many savage tribes, there are no words but for objects of external sense: is it surprising that such people are incapable of expressing their religious perceptions, or any perception of internal sense? The conviction that men have of superior powers, in every country where there are words to express it, is so well vouched, that in fair reasoning it ought to be taken for granted among the few tribes where language is deficient.”

2
Source of
religious
principles
traced

These are judicious observations, of which every man will admit the force who has not some favourite system to build upon the unstable foundation which his Lordship overturns. Taking it for granted, then, that our

conviction of superior powers has long been universal, the important question is, From what cause it proceeds? The same ingenious author shows, with great strength of reasoning, that the operations of nature and the government of this world, which to us loudly proclaim the existence of a Deity, are not sufficient to account for the universal belief of superior beings among savage tribes. He is therefore of opinion, that this universality of conviction can spring only from the image of Deity stamped upon the mind of every human being, the ignorant equally with the learned. “Nothing less (he says) is sufficient: and the original possession which we have of Deity must proceed (he thinks) from an internal sense, which may be termed the *sense of Deity*.”

We have elsewhere expressed our opinion of that philosophy which accounts for every phenomenon in human nature, by attributing it to a particular instinct (see INSTINCT); but to this instinct or *sense of Deity*, considered as complete evidence, many objections, more than usually powerful, force themselves upon us. All nations, except the Jews, were once polytheists and idolaters. If therefore his Lordship’s hypothesis be admitted,

^{Theism.} mitted, either the doctrine of polytheism must be true theology, or this instinct or sense is of such a nature as to have at different periods of the world misled all mankind. All savage tribes are at present polytheists and idolaters; but among savages every instinct appears in greater purity and vigour than among people polished by arts and sciences; and instinct never mistakes its object. The instinct or primary impression of nature, which gives rise to self-love, affection between the sexes, love of progeny, &c. has in all nations, and in every period of time, a precise and determinate object which it inflexibly pursues. How then comes it to pass, that this particular instinct, which if real is surely of as much importance as any other, should have uniformly led those who had no other guide to pursue improper objects, to fall into the grossest errors and the most pernicious practices? To no purpose are we told, that the sense of Deity, like the moral sense, makes no capital figure among savages. There is reason to believe that the feeling or perception, which is called the *moral sense*, is not wholly instinctive; but whether it be or not, a single instance cannot be produced in which it multiplies its objects, or makes even a savage express gratitude to a thousand persons for benefits which his prince alone had power to confer.

For these, and other reasons which might easily be assigned, we cannot help thinking, that the first religious principles must have been derived from a source different as well from internal sense as from the deductions of reason; from a source which the majority of mankind had early forgotten; and which, when it was banished from their minds, left nothing behind it to prevent the very first principle of religion from being perverted by various accidents or causes, or, in some extraordinary concurrence of circumstances, from being perhaps entirely obliterated. This source of religion every consistent theist must believe to be revelation. Reason, it is acknowledged, and we shall afterwards show (see RELIGION), could not have introduced savages to the knowledge of God; and we have just seen, that a *sense* of Deity is an hypothesis clogged with insuperable difficulties. Yet it is undeniable, that all mankind have believed in superior invisible powers: and if reason and instinct be set aside, there remains no other origin of this universal belief than primeval revelation, corrupted, indeed, as it passed by oral tradition from father to son, in the course of many generations. It is no slight support to this doctrine, that if there really be a Deity*, it is highly presumable that he would reveal himself to the first men—creatures whom he had formed with faculties to adore and to worship him. To other animals, the knowledge of a Deity is of no importance; to man, it is of the first importance. Were we totally ignorant of a Deity, this world would appear to us a mere chaos. Under the government of a wise and benevolent Deity, chance is excluded; and every event appears to be the result of established laws. Good men submit to whatever happens without repining, knowing that every event is ordered by Divine Providence: they submit with entire resignation; and such resignation is a sovereign balsam for every misfortune or evil in life.

⁴ which taught pure theism. Admitting, then, that the knowledge of Deity was originally derived from revelation, and that the first men professed pure theism, it shall be our business in the

present article to trace the rise and progress of *polytheism* and *idolatry*; and to ascertain, if we can, the real opinions of the Pagan world concerning that multitude of gods with which they filled heaven, earth, and hell. In this inquiry, though we shall have occasion to appeal to the writings of Moses, we shall attribute to them no other authority than what is due to records of the earliest ages, more ancient and authentic than any others which are now extant.

Whether we believe, with the author of the book of Genesis, that all men have descended from the same progenitors; or adopt the hypothesis of modern theorists, that there have been successive creations of men, and that the *European* derives his origin from one pair, the *Asiatic* from another, the woolly-headed *African* from a third, and the copper-coloured *American* from a fourth—polytheism and idolatry will be seen to have arisen from the same causes, and to have advanced nearly in the same order from one degree of impiety to another. On either supposition, it must be taken for granted, that the original progenitors were instructed by their Creator in the truths of genuine theism: and there is no room to doubt, but that those truths, simple and sublime as they are, would be conveyed pure from father to son as long as the race lived in one family, and were not spread over a large extent of country. If any credit be due to the records of antiquity, the primeval inhabitants of this globe lived to so great an age, that they must have increased to a very large number long before the death of the common parent, who would of course be the bond of union to the whole society, and whose dictates, especially in what related to the origin of his being and the existence of his Creator, would be listened to with the utmost respect by every individual of his numerous progeny.

Many causes, however, would conspire to dissolve this family, after the death of its ancestor, into separate and independent tribes, of which some would be driven by violence, or would voluntarily wander, to a distance from the rest. From this dispersion great changes would take place in the opinions of some of the tribes respecting the object of their religious worship. A single family, or a small tribe banished into a desert wilderness (such as the whole earth must then have been), would find employment for all their time in providing the means of subsistence, and in defending themselves from beasts of prey. In such circumstances they would have little *leisure* for meditation, and, being constantly conversant with objects of sense, they would gradually lose the *power* of meditating upon the spiritual nature of that Being by whom their ancestors had taught them that all things were created. The first wanderers would no doubt retain in tolerable purity their original notions of Deity; and they would certainly endeavour to impress those notions upon their children: but in circumstances infinitely more favourable to speculation than theirs could have been, the human mind dwells not long upon notions purely intellectual. We are so accustom'd to sensible objects, and to the ideas of space, extension, and figure, which they are perpetually impressing upon the imagination, that we find it extremely difficult to conceive any being without assigning to him a form and a place. Hence a learned writer* has supposed, that the earliest generations of men (even those to whom

^{Theism.}

³ to revelation,

* See *Sketches of the Hist. of Man.*

⁵ Circumstances which led to polytheism.

*Bishop Laro in his *Considerations on the Theory of the Religion.*

Origin of
Polytheism.

he contends that frequent revelations were vouchsafed) may have been no better than *anthropomorphites* in their conceptions of the Divine Being.

Be this as it may, it is not conceivable but that the members of those first colonies would quickly lose many of the arts and much of the science which perhaps prevailed in the parent state; and that, fatigued with the contemplation of intellectual objects, they would relieve their overstrained faculties, by attributing to the Deity a place of abode, if not a human form. To men totally illiterate, the place fittest for the habitation of the Deity would undoubtedly appear to be the sun, the most beautiful and glorious object of which they could form any idea; an object, too, from which they could not but be sensible that they received the benefits of light and heat, and which experience must soon have taught them to be in a great measure the source of vegetation. The great spirit therefore inhabiting the sun, which they would consider as the *power* of light and heat, was in all probability the first object of idolatrous adoration.

7
The spirit
of light the
first god of
paganism.

From looking upon the sun as the habitation of their God, they would soon proceed to consider it as his body. Of pure mind entirely separated from matter, men in their circumstances could not long retain the faintest notion; but conscious each of power in himself, and experiencing the effects of power in the sun, they would naturally conceive that luminary to be animated as their bodies were animated. They would feel his influence when above the horizon; they would see him moving from east to west; they would consider him when set as gone to take his repose: and those exertions and intermissions of power being analogous to what they experienced in themselves, they would look upon the sun as a real animal. Thus would the Divinity appear to their untutored minds to be a compound being like man, partly corporeal and partly spiritual; and as soon as they imbibed such notions, though perhaps not before, they may be pronounced to have been absolute idolaters.

8
The spirit
or power of
darkness
the second.

When men had once got into this train, their gods would multiply upon them with wonderful rapidity. Darkness and cold they could not but perceive to be contrary to light and heat; and not having philosophy enough to distinguish between mere privations and positive effects, they would consider darkness and cold as entities equally real with light and heat; and attribute these different and contrary effects to different and contrary powers. Hence the spirit or power of darkness was in all probability the second god in the Pagan calendar; and as they considered the power of light as a benevolent principle, the source of all that is good, they must have looked upon the contrary power of darkness as a malevolent spirit, the source of all that is evil. This we know from authentic history to have been the belief of the Persian magi, a very ancient sect, who called their good god *Yazdan*, and also *Ormuzd*, and the evil god *Ahraman*. Considering light as the symbol, or perhaps as the body, of *Ormuzd*, they always worshipped him before the fire, the source of light, and especially before the sun, the source of the most perfect light; and for the same reason fires were kept continually burning on his altars. That they sometimes addressed prayers to the evil principle, we are informed by Plutarch in his *life of Themistocles*; but with what particular rites he

9
Polytheism
of the Per-
sian magi.

was worshipped, or where he was supposed to reside, is not so evident. Certain it is, that his worshippers held him in detestation; and when they had occasion to write his name, they always inverted it (*uuvuuyv*), to denote the malignity of his nature.

The principles of the magi, though widely distant from pure theism, were much less absurd than those of other idolaters. It does not appear that they ever worshipped their gods by the medium of graven images, or had any other emblems of them than light and darkness. Indeed we are told by Diogenes Laertius and Clemens Alexandrinus, that they condemned all statues and images, allowing fire and water to be the only proper emblems or representatives of their gods. And we learn from Cicero*, that at their instigation * *De Legibus*, lib. ii. § 10. Xerxes was said to have burnt all the temples of Greece, because the builders of those edifices impiously presumed to inclose within walls the gods, to whom all things ought to be open and free, and whose proper temple is the whole world. To these authorities we may add that of all the historians, who agree, that when magianism was the religion of the court, the Persian monarchs made war upon images, and upon every emblem of idolatry different from their own.

The Magi, however, were but one sect, and not the largest sect of ancient idolaters. The worship of the sun, as the source of light and heat, soon introduced into the calendar of divinities the other heavenly bodies, the moon, the planets, and the fixed stars. Men could not but experience great benefit from those luminaries in the absence of their chief god; and when they had proceeded so far as to admit two divine principles, a good and an evil, it was natural for minds clouded with such prejudices to consider the moon and the stars as benevolent intelligences, sent to oppose the power of darkness whilst their first and greatest divinity was absent or asleep. It was thus, as they imagined, that he maintained (for all held that he did maintain) a constant superiority over the evil principle. Though to astronomers the moon is known to be an opaque body of very small dimensions when compared with a planet or a fixed star, to the vulgar eye she appears much more magnificent than either. By those early idolaters she was considered as the divinity second in rank and in power; and whilst the sun was worshipped as the king, she was adored as the queen, of heaven.

The earth, considered as the common mother of all things; the ocean, whose waters are never at rest; the air, the region of storms and tempests, and indeed all the elements—were gradually added to the number of divinities; not that mankind in this early age had so far degenerated from the principles of their ancestors as to worship brute matter. If such worship was ever practised, which to us is hardly conceivable, it was at a later period, when it was confined to the very lowest of the vulgar, in nations otherwise highly civilized. The polytheists, of whom we now treat, conceived every thing in motion to be animated, and animated by an intelligence powerful in proportion to the magnitude of the body moved.

This sect of idolaters, which remains in some parts of the east to this day, was known by the name of *Sabians*, which they pretend to have derived from *Sabius* a son of Seth; and among the books in which their sacred doctrines are contained, they have one which they call

10
Sabian
polytheism.

Sabiism. call the book of *Seth*. We need hardly observe, that these are senseless and extravagant fables. The name *Sabian* is undoubtedly derived from the Hebrew word *Tfaba*, which signifies "an host or army;" and this class of polytheists was so called, because they worshipped "the host of heaven;" the *Tfaba hesemim*, against which Moses so pathetically cautions the people of Israel*.

* Deut. iv. 19.
II
Arose in Chaldea.

This species of idolatry is thought to have first prevailed in Chaldea, and to have been that from which Abraham separated himself, when, at the command of the true God, he "departed from his country, and from his kindred, and from his father's house." But as it nowhere appears that the Chaldeans had fallen into the savage state before they became polytheists and idolaters, and as it is certain that they were not savages at the call of Abraham, their early Sabiism may be thought inconsistent with the account which we have given of the origin of that species of idolatry. If a great and civilized nation was led to worship the host of heaven, why should that worship be supposed to have arisen among savages? Theories, however plausible, cannot be admitted in opposition to facts.

True: but we beg leave to reply, that our account of the origin of polytheism is opposed by no fact; because we have not supposed that the worship of the host of heaven arose among savages *only*. That savages, between whom it is impossible to imagine any intercourse to have had place, have universally worshipped, as their first and supreme divinities, the *sun*, *moon*, and *stars*, is a fact evinced by every historian and by every traveller; and we have shown how their rude and uncultivated state naturally leads them to that species of idolatry. But there may have been circumstances peculiar to the Chaldeans, which led them likewise to the worship of the heavenly host, even in a state of high civilization.—We judge of the philosophy of the ancients by that of ourselves, and imagine that the same refined system of metaphysics was cultivated by them as by the followers of *Descartes* and *Locke*. But this is a great mistake; for so gross were the notions of early antiquity, that it may be doubted whether there was a single man uninspired, who had any notion of mind as a being distinct and entirely separated from matter (see METAPHYSICS, Part III. chap. iv.). From several passages in the books of Moses, we learn, that when in the first ages of the world the Supreme Being condescended to manifest his presence to men, he generally exhibited some sensible emblem of his power and glory, and declared his will from the midst of a preternatural *fire*. It was thus that he appeared to the Jewish lawgiver himself, when he spoke to him from the midst of a bush; it was by a pillar of cloud and *fire* that he led the Israelites from Egypt to the Land of Promise; and it was in the midst of smoke, and *fire*, and thunderings, that the law was delivered from Mount Sinai.—That such manifestations of the Divine Presence would be occasionally made to the descendants of Noah who settled in Chaldea soon after the deluge, must appear extremely probable to every one who admits the authority of the Hebrew Scriptures: and he who questions that authority, has no right to make the objection to which we now reply; because it is only from the book of Genesis that we know the Chaldeans to have been a civilized people when they fell into idolatry. All histories agree in representing the in-

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habitants of Chaldea as at a very early period corrupted by luxury and sunk in vice. When this happened, we must suppose that the moral Governor of the universe would withdraw from them those occasional manifestations of himself, and leave them to their own inventions. In such circumstances, it was not unnatural for a people addicted to the study of astronomy, who had been taught to believe that the Deity frequently appeared to their ancestors in a flame of fire, to consider the sun as the place of his permanent residence, if not as his body. But when either opinion was firmly established, polytheism would be its inevitable consequence, and the progress of Sabiism would, in the most polished nation, be such as we have traced it among savage tribes.

From Chaldea the idolatrous worship of the host of heaven spread itself over all the east, passed into Egypt, and thence into Greece; for Plato affirms †, that "the first inhabitants of Greece seemed to him to have worshipped no other gods but the sun, moon, earth, stars, and heavens, as most barbarous nations (continues he) still do." That Sabiism, or the worship of the host of heaven, was the first species of idolatry, besides the probability of the thing, and the many allusions to it in sacred Scripture, we have the positive evidence of the most ancient pagan historians of whose writings any part has been transmitted to us. Herodotus*, speaking of the religion of the Persians, says, that "they worship the *sun*, *moon*, and *earth*, *fire*, *water*, and the *winds*; and this adoration they have all along paid from the beginning." He testifies the same thing of the savage Africans, of whom he affirms †, that they all worshipped the *sun* and *moon*, and no other divinity. Diodorus Siculus, writing of the Egyptians †, tells us, that "the first men looking up to the world above them, and terrified and struck with admiration at the nature of the universe, supposed the sun and moon to be the principal and *eternal gods*." And Sanchoniathon the Phœnician, a more ancient writer than either of these, informs us, in the fragment of his history preserved by Eusebius, that "the two first mortals were *Æon* and *Protogonus*; and their children were *Genus* and *Genea*, who inhabited Phœnicia; and when they were scorched with the heat, they lifted up their hands to the sun, whom they believed to be the Lord of Heaven, and called him *Baal-famen*, the same whom the Greeks call *Zeus*."

Hitherto those divinities were worshipped in person, or, as Dr Prideaux expresses it, in their *facella*, or sacred tabernacles; for the votaries of each directed their devotions towards the planet which they supposed to be animated by the particular intelligence whom they meant to adore. But these orbs, by their rising and setting, being as much below the horizon as above it, and their grossly ignorant worshippers not supposing it possible that any intelligence, however divine, could exert its influence but in union with some body, statues or pillars were soon thought of as proper emblems of the absent gods. Sanchoniathon, in the fragment already quoted, informs us, that "*Hyspouanios* and his brother *Ousous*, Phœnician patriarchs, erected two pillars, the one to *fire* and the other to *air* or *wind*, and worshipped those pillars, pouring out to them libations of the blood of the wild beasts hunted down in the chase." As these early monuments of idolatry were called *βουθουα*, a word evidently derived from the Hebrew *Bethel*, the

Sabiism.

† In *Cratyl.*
12
Passed into
Egypt, &c.

* Lib. i.
cap. 131.

† Lib. iv.
cap. 188.

† Lib. i.

13
and produced
statue
worship,

Statue-
worship.
§ *Genesis*,
ch. xxxv.

probability is, that they were altars of loose stones, such as that which was built by Jacob §, and from him received the same name. As his was consecrated to the true God, theirs were consecrated to the host of heaven; and the form of consecration seems to have been nothing more than the anointing of the stone or pillar with oil (A), in the name of the divinity whom it was intended to represent. When this ceremony was performed, the ignorant idolaters, who fancied that their gods could not hear them; but when they were visible, supposed that the intelligences by which the sun and planets were animated, took possession, in some inexplicable manner, of the consecrated pillars, and were as well pleased with the prayers and praises offered up before those pillars, as with the devotions which were addressed towards the luminaries themselves.—Hence Sanchoniathon calls them *animated* or *living stones*, *λιθους ἐμψυχους*, from the portion of the Divine Spirit which was believed to reside in them; and as they were dedicated to the host of heaven, they were generally crested on the tops of mountains; or in countries which, like Egypt, were low and level, they were elevated to a great height by the labour of men.

14
with the
idolatry of
high places.

It has been supposed, that this practice of raising the pillars on *high places* proceeded from a desire to make the objects of worship conspicuous and magnificent: but we are strongly inclined to believe, that the erectors of *βαιβυλια* had something farther in view, and that they thought of nothing less than to bring the sacred stone or pillar as near as possible to the god whom it represented. Whatever be in this, we know that the practice itself prevailed universally through the east; and that there was nothing which the Jewish legislator more strictly enjoined his people to destroy, than the altars, statues, and pillars, erected for idolatrous worship upon mountains and high places. “Ye shall utterly destroy (says he) all the places wherein the nations which ye shall possess served their gods, upon the *high mountains*, and upon the *hills*, and under every green tree. And ye shall overthrow their *altars*, and break down their *pillars*, and burn their *groves* with fire*.”

* *Deut.* xii.
23.

The mention of *groves* by the Hebrew lawgiver, brings to our recollection another species of idolatry, which was perhaps the second in order, as men deviating from the principles of pure theism were more and more intangled in the labyrinths of error. The Chaldeans, Egyptians, and all the eastern nations who believed in a superintending providence, imagined that the government of this world, the care of particular nations, and even the superintendence of groves, rivers, and mountains, in each nation, was committed by the gods to a class of spirits superior to the soul of man, but inferior to those heavenly intelligences which animated the sun, the moon, and the planets. These spirits were by the Greeks called *δαίμονες*, *dæmons*, and by the Romans *genii*. Timæus the Locrian, who flourished before Plato, speaking of the punishment of wicked men, says†, all these things hath Nemesis decreed to be executed in the second period, by the ministry of vindictive terrestrial dæmons, who are overseers of human affairs; to

† *De Anima Mundi*, inter script. à T. Gale editos.

which dæmons the Supreme God, the ruler over all, hath committed the government and administration of this world, which is made up of *gods, men, and animals*. Dæmons.

—Concerning the origin of these intermediate beings, 15
scholars and philosophers have framed various hypotheses. The belief of their existence may have been derived æmon-
worship.
from five different sources.

1. It seems to have been impossible for the limited capacities of those men, who could not form a notion of a God divested of a body and a place, to conceive how the influence and agency of such a being could every instant extend to every point of the universe. Hence, as we have seen, they placed the heavenly regions under the government of a multitude of heavenly gods, the *sun*, the *moon*, and the *stars*. But as the nearest of those divinities was at an immense distance from the earth, and as the intelligence animating the earth itself had sufficient employment in regulating the general affairs of the whole globe, a notion insinuated itself into the untutored mind, that these superior governors of universal nature found it necessary, or at least expedient, to employ subordinate intelligences or *dæmons* as ministers to execute their behests in the various parts of their widely extended dominions.

2. Such an universal and uninterrupted course of action, as was deemed necessary to administer the affairs of the universe, would be judged altogether inconsistent with that state of *indolence*, which, especially in the east, was held an indispensable ingredient in perfect felicity. It was this notion, absurd as it is, which made Epicurus deny the *providence*, whilst he admitted the *existence*, of gods. And if it had such an effect upon a philosopher who in the most enlightened ages had many followers, we need not surely wonder if it made untaught idolaters imagine that the governor or governors of the universe had devolved a great part of their trouble on deputies and ministers.

3. When men came to reflect on the infinite distance between themselves and the gods, they would naturally form a wish, that there might somewhere exist a class of intermediate intelligences, whom they might employ as mediators and intercessors with their far distant divinities. But what men earnestly wish, they very readily believe. Hence the supposed distance of their gods would, among untutored barbarians, prove a fruitful source of intermediate intelligences, more pure and more elevated than human souls.

4. These three opinions may be denominated popular; but that which we are now to state, wherever it may have prevailed, was the offspring of philosophy.—On this earth we perceive a scale of beings rising gradually above each other in perfection, from mere brute matter through the various species of fossils, vegetables, insects, fishes, birds, and beasts, up to man. But the distance between man and God is infinite, and capable of admitting numberless orders of intelligences, all superior to the human soul, and each rising gradually above the other till they reach that point, wherever it may be, at which creation stops. Part of this immense chasm

(A Hence the proverb of a superstitious man, *πᾶσι λίθον λιπαρὸν προσκυνεῖ*, *he kisses or adores every anointed stone*; which Arnobius calls *lubricatam lapidem, et ex olivi unguine sordidatum*.—Stillingfleet's *Origines Sacrae*.)

Dæmons. chasm the philosophers perceived to be actually filled by the heavenly bodies; for in *philosophical* polytheism there was one invisible God supreme over all these: but still there was left an immense vacuity between the human species and the moon, which was known to be the lowest of the heavenly host: and this they imagined must certainly be occupied by invisible inhabitants of different orders and dispositions, which they called good and evil *dæmons*.

sometimes visible and sometimes invisible. When they do appear, though faintly observable by the human eye, they strike the beholder with terror and astonishment." *Dæmons* of this last order were supposed to have passions and affections similar to those of men; and though all nature was full of them, they were believed to have local attachments to mountains, *rivers*, and *groves*, where their appearances were most frequent. The reason of these attachments seems to be obvious. Polytheism took its rise in countries scorched by a burning sun; and *dæmons* by their composition being necessarily subject in some degree to the influence of heat and cold, it was natural to suppose that they, like men, would delight in the shady grove and in the purling stream. Hence the earliest altars of paganism were generally built in the midst of *groves*, or on the banks of *rivers*; because it was believed that in such places were assembled multitudes of those intelligences, whose office it was to regulate the affairs of men, and to carry the prayers and oblations of the devout to the far-distant residence of the celestial gods. Hence too are to be derived the mountain and river gods, with the dryads and hamadryads, the satyrs, nymphs, and fauns, which held a place in the creed of ancient paganism, and make so conspicuous a figure in the Greek and Roman poets.

Dæmons.
16
In groves
and on the
banks of
rivers.

5. There is yet another source from which the universal belief of good and evil demons may be derived, with perhaps greater probability than from any or all of these. If the Mosaic account of the creation of the world, the peopling of the earth, and the dispersion of mankind, be admitted as true (and a more consistent account has not as yet been given or devised), some knowledge of good and evil *angels* must necessarily have been transmitted from father to son by the channel of oral tradition. This tradition would be corrupted at the same time, and in the same manner, with others of greater importance. When the true God was so far mistaken as to be considered, not as the sole governor of the universe, but only as the self-extant power of light and good, the Devil would be elevated from the rank of a rebellious created spirit to that of the independent power of darkness and evil; the angels of light would be transformed into good demons, and those of darkness into demons that are evil. This account of the origin of *dæmonology* receives no small support from Plato, who derives one branch of it wholly from tradition. "With respect to those demons (says he †) who inhabit the space between the earth and the moon, to understand and declare their generation is a task too arduous for my slender abilities. In this case we must credit the report of men of other times, who, according to their own account, were the descendants of the gods, and had, by some means or other, gained exact intelligence of that mystery from their ancestors. We must not question the veracity of the children of the gods, even though they should transgress the bounds of probability, and produce no evidence to support their assertions. We must, I say, notwithstanding, give them credit, because they profess to give a detail of facts with which they are intimately acquainted, and the laws of our country oblige us to believe them."

16
In groves
and on the
banks of
rivers.

† *Timæus*.

These different orders of intelligences, which, though worshipped as gods or demigods, were yet believed to partake of human passions and appetites, led the way to the deification of departed heroes and other eminent benefactors of the human race. By the philosophers all souls were believed to be emanations from the divinity; but "gratitude † and admiration, the warmest and most active affections of our nature, concurred to enlarge the object of religious worship, and to make men regard the inventors of arts and the founders of society as having in them more than a common ray of the divinity. So that god-like benefits, bespeaking as it were a god-like mind, the deceased parent of a people was easily advanced into the rank of a *dæmon*. When the religious bias was in so good a train, natural affection would have its share in promoting this new mode of adoration. Piety to parents would naturally take the lead, as it was supported by gratitude and admiration, the *primum mobile* of the whole system: and in those early ages, the *natural father* of the tribe often happened to be the *political father* of the people, and the founder of the state. Fondness for the offspring would next have its turn; and a disconsolate father, at the head of a people, would contrive to soothe his grief for the untimely death of a favourite child, and to gratify his pride under the want of *succession*, by paying divine honours to its memory." "For a father † afflicted with untimely mourning, when he had made an image of his child soon taken away, now honoured him as a god, who was then a dead man, and delivered to those that were under him ceremonies and sacrifices." That this was the origin and progress of the worship of departed souls, we have the authority of the famous fragment of Sanchoniathon already quoted, where the various motives for this species of idolatry are recounted in express words. "After many generations (says he) came *Chryfor*; and he invented many things useful to civil life, for which, after his decease, he was worshipped as a *god*. Then flourished *Ouranos* and his sister *Ge*, who deified and offered sacrifices to their father *Hypsis*;

17
Deification
of departed
heroes.

† *Warbur-*
ton's Div.
Leg.

† *Wisdom of*
Solomon,
xiv. 15.

* *Epinio-*
niv.

Though these *dæmons* were generally invisible, they were not supposed to be pure disembodied spirits.—Proclus, in his Commentary upon Plato's *Timæus*, tells us, that "every *dæmon* superior to human souls consisted of an intellectual mind and an ethereal vehicle." Indeed it is very little probable, that those who gave a body and a place to the Supreme God, should have thought that the inferior orders of his ministers were spirits entirely separated from matter. Plato himself divides the class of *dæmons* into three orders*; and whilst he holds their souls to be particles or emanations from the divine essence, he affirms that the bodies of each order of *dæmons* are composed of that particular element in which they for the most part reside. "Those of the first and highest order are composed of pure ether; those of the second order consist of grosser air; and *dæmons* of the third or lowest rank have vehicles extracted from the element of water. *Dæmons* of the first and second orders are invisible to mankind. The aquatic *dæmons*, being invested with vehicles of grosser materials, are

Hero-Worship.

when he had been torn in pieces by wild beasts. Afterwards Cronos consecrated Muth his son, and was himself consecrated by his subjects."

18 a political invention, which introduced

In the reign of Cronos flourished a personage of great reputation for wisdom, who by the Egyptians was called Thoth, by the Phœnicians Taaotos, and by the Greeks Hermes. According to Plutarch, he was a profound politician, and chief counsellor to Osiris, then the king, and afterwards the principal divinity, of Egypt: and we are told by Philo Byblus, the translator of Sanchoniathon, "that it was this Thoth or Hermes who first took the matters of religious worship out of the hands of unskilful men, and brought them into due method and order." His object was to make religion servicable to the interests of the state. With this view he appointed Osiris and other departed princes to be joined with the stars and worshipped as gods; and being by Cronos made king of Egypt, he was, after his death, worshipped himself as a god by the Egyptians. To this honour, if what is recorded of him be true, he had indeed a better title than most princes; for he is said to have been the inventor of letters, arithmetic, geometry, astronomy, and hieroglyphics, and was therefore one of the greatest benefactors of the human race which any age or country has ever produced.

That the gods of Greece and Rome were derived from Egypt and Phœnicia, is so universally known, that it is needless to multiply quotations in order to prove that the progress of polytheism among the Greeks and Romans was the same with that which we have traced in more ancient nations. The following translation, however, of the account given by Hesiod of the deification of departed heroes, with which we have been favoured by a learned and ingenious friend, is so just, and in our opinion so beautiful, that we cannot deny ourselves the pleasure of giving it to our readers.

"The gods who dwell on high Olympus' hill,
First fram'd a golden race of men, who liv'd
Under old Saturn's calm auspicious sway.
Like gods they liv'd, their hearts devoid of care,
Beyond the reach of pain and piercing woes;
Th' infirmities of age nor felt, nor fear'd.
Their nerves with youthful vigour strung, their days
In jocund mirth they past, remote from ills.—
Now when this godlike race was lodg'd in earth,
By Jove's high will to demigods they rose,
And airy dæmons, who benign on earth
Converse—the guides and guardians of mankind.
In darkness veil'd, they range earth's utmost bound,
Dispensing wealth to mortals. This reward
From bounteous Jove awaits illustrious deeds ||."

|| Εργων και ημερων, lib. i. vers. 100, &c. 19 national and tutelar gods.

The deification of departed heroes and statesmen was that which in all probability introduced the universal belief of national and tutelar gods, as well as the practice of worshipping those gods through the medium of statues cut into a human figure. When the founder of a state or any other public benefactor was elevated to the rank of a god, as he was believed still to retain human passions and affections, it was extremely natural to suppose that he would regard with a favourable eye that nation for which he had done so much upon earth; that he would oppose its enemies, and protect the laws and institutions which he himself had given it. By indul-

Hero-Worship.

ging the same train of sentiment, each city, and even every family of consequence, found Lares and Penates among their departed ancestors, to whom they paid the warmest adoration, and under whose protection they believed their private affairs to be placed. As those national and household gods were believed to be in their deified state clothed with airy bodies, so those bodies were supposed to retain the form which their grosser bodies had upon earth. The image of a departed friend might perhaps be formed by the hand of sorrowful affection, before the statue or the shrine of a deity was thought of; but when that friend or benefactor became the object of religious adoration, it was natural for his votaries to enliven their devotion by the view of his similitude. Maximus Tyrius tells us §, that "there is no race of men, whether barbarian or Grecian, living on the sea-coast or on the continent, wandering in deserts or living in cities, which hath not consecrated some kind of symbol or other in honour of the gods." This is certainly true; but there is no good evidence that the first symbols of the gods were statues of men and women. Whilst the sun and other heavenly bodies continued to be the sole objects of religious worship, the symbols consecrated to them were pillars of a conical or pyramidal figure; and if such pillars are ever called graven images by Moses and other ancient writers, it was probably on account of the allegoric figures and characters, or hieroglyphic writing, with which they were inscribed.

§ Dissert. 38.

Hitherto we have considered the souls of departed heroes as holding the rank only of demons or demigods; but they gradually rose in the scale of divinities, till they dethroned the heavenly bodies, and became themselves the dii majorum gentium. This revolution was effected by the combined operation of the prince and the priest; and the first step taken towards it seems to have been the complimenting of their heroes and public benefactors with the name of that being which was most esteemed and worshipped. "Thus a king for his beneficence was called the sun, and a queen for her beauty the moon. Diodorus relates, that SOL first reigned in Egypt, called so from the luminary of that name in the heavens. This will help us to understand an odd passage in the fragment of Sanchoniathon, where it is said that Cronus had seven sons by Rhea, the youngest of whom was a GOD as soon as BORN. The meaning probably is, that this youngest son was called after some luminary in the heavens to which they paid divine honours; and these honours came in process of time to be transferred to the terrestrial namesake. The same historian had before told us, that the sons of Genos, mortals like their father, were called by the names of the elements—light, fire, and flame, of which they had discovered the use."

20 Hero-worship engrafted on the planetary,

"As this adulation advanced into an established worship, they turned the compliment the other way, and called the planet or luminary after the hero, the better to accustom the people, even in the act of Planet-worship, to this new adoration. Diodorus, in the passage already quoted, having told us, that by the first inhabitants of Egypt the sun and moon were supposed to be the principal and eternal gods, adds, that the former was called OSIRIS, and the latter ISIS. This was indeed the general practice; for we learn from Macrobius, that the Ammonites called the sun Moloch; the Syrians

21 which in time it sup- planted.

Hero-
Worship.

Syrians *Adad*; the Arabs *Dionysus*; the Assyrians *Belus*; the Phœnicians *Saturn*; the Carthaginians *Hercules*; and the Palmyrians *Elegabalus*. Again, by the Phrygians the moon was called *Cybele*, or the mother of the gods; by the Athenians *Minerva*; by the Cyprians *Venus*; by the Cretans *Diana*; by the Sicilians *Proserpine*; by others *Hecate*, *Bellona*, *Vesta*, *Urania*, *Lucina*, &c. Philo Byblius explains this practice: "It is remarkable (says he) that the ancient idolaters imposed on the *elements*, and on those parts of nature which they esteemed gods, the names of their kings; for the natural gods which they acknowledged were only the sun, moon, planets, elements, and the like; they being now in the humour of having gods of both classes, the mortal and the immortal."

"As a farther proof that hero-worship was thus superinduced upon the planetary, it is worthy of observation, that the first statues consecrated to the greater hero-gods—those who were supposed to be supreme—were not of a human form, but conical or pyramidal, like those which in the earliest ages of idolatry were dedicated to the sun and planets. Thus the scholiast on the *Vespæ* of Aristophanes tells us, that the statues of Apollo and Bacchus were conic pillars or obelisks; and Pausanias, that the statue of Jupiter Meilichius represented a pyramid; that of the Argive Juno did the same, as appears from a verse of Phoronis quoted by Clemens Alexandrinus †; and indeed the practice was universal as well amongst the early barbarians as amongst the Greeks. But it is well known that the ancients represented the rays of light by pillars of a conical or pyramidal form; and therefore it follows, that when they erected such pillars as representatives of their hero-gods, these latter had succeeded to the titles, rights, and honours of the natural and celestial divinities*."

† Strom. l. i.

* Warburton's Div. Leg. book 3 sect. 6.

22 Progress of this revolution in theology.

But though it seems to be certain that hero-worship was thus engrafted on the planetary, and that some of those heroes in process of time supplanted the planets themselves, this was such a revolution in theology as could not have been suddenly effected by the united influence of the prince and the priest. We doubt not the fact that SOL was believed to have reigned in Egypt, and was afterwards worshipped under the name of *Osiris*; but it was surely impossible to persuade any nation, however stupid or prone to idolatry, that a man, whom they remembered discharging the duties of their sovereign and legislator, was the identical sun whom they beheld in the heavens. *Osiris*, if there was in Egypt a king of that name, may have been deified immediately after his death, and honoured with that worship which was paid to good demons; but he must have been dead for ages before any attempt was made to persuade the nation that he was the supreme God. Even then great address would be requisite to make such an attempt successful. The prince or priest who entered upon it would probably begin with declaring from the oracle, that the divine intelligence which animates and governs the sun had descended to earth and animated the person of their renowned legislator; and that, after their laws were framed, and the other purposes served for which the descent was made, the same intelligence had returned to its original residence and employment among the celestials. The possibility of this double transmigration from heaven to earth and from earth to heaven, would without difficulty be admitted in an age when

the pre-existence of souls was the universal belief. Having proceeded thus far in the apotheosis of dead men, the next step taken in order to render it in some degree probable that the early founders of states, and inventors of arts, were divine intelligences clothed with human bodies, was to attribute to one such benefactor of mankind the actions of many of the same name. Vossius, who employed vast erudition and much time on the subject, has proved, that before the æra of the Trojan wars most kings who were very powerful, or highly renowned for their skill in legislation, &c. were called *Jove*; and when the actions of all these were attributed to one *Jove* of Crete, it would be easy for the crafty priest, supported by all the power and influence of the state, to persuade an ignorant and barbarous people, that he whose wisdom and heroic exploits so far surpassed those of ordinary men must have been the supreme God in human form.

This short sketch of the progress of polytheism and idolatry will enable the reader to account for many circumstances recorded of the pagan gods of antiquity, which at first view seem very surprising, and which at last brought the whole system into contempt among the philosophers of Athens and Rome. The circumstances to which we allude are the immoral characters of those divinities, and the abominable rites with which they were worshipped. Jupiter, Apollo, Mars, and the whole rabble of them, are described by the poets as ravishers of women and notorious adulterers. *Hermes* or *Mercury* was a thief, and the god of thieves. *Venus* was a prostitute, and *Bacchus* a drunkard. The malice and revenge of Juno were implacable; and so little regard was any of them supposed to pay to the laws of honour and rectitude, that it was a common practice of the Romans, when besieging a town, to evocate the tutelary deity, and to tempt him by a reward to betray his friends and votaries †. In a word, they were, in the language of the poet,

"Gods partial, changeful, passionate, unjust,
"Whose attributes were rage, revenge, and lust."

This was the natural consequence of their origin. Having once animated human bodies, and being supposed still to retain human passions and appetites, they were believed, in their state of deification, to feel the same sensual desires which they had felt upon earth, and to pursue the same means for their gratification. As the men could not well attempt to surpass the gods in purity and virtue, they were easily persuaded by artful and profligate priests, that the most acceptable worship which could be rendered to any particular deity was to imitate the example of that deity, and to indulge in the practices over which he presided. Hence the worship of *Bacchus* was performed during the night by men and women mixing in the dark after intemperate eating and drinking. Hence too it was the practice in Cyprus and some other countries to sacrifice to *Venus* the virginity of young women some days before their marriage, in order, as it was pretended, to secure their chastity ever afterwards; and, if *Herodotus* may be credited, every woman among the Babylonians was obliged once in her life to prostitute herself in the temple of the goddess *Myllite* (*Venus*), that she might thence forward be proof against all temptation.

The progress of polytheism, as far as we have traced

Hero-
Worship.

23 Vices of the Pagan gods.

† T. Livii lib. v. c. 21. et Macrob. Satur. lib. iii. c. 9.

24 Accounted for.

Hero-
Worship.
25
Progress of
idolatry re-
gular and
universal.

† *Asiatic
Researches*,
vol. i.

26
Indian ido-
latry.

it, has been regular; and after the enormous error of forsaking the worship of the true God was admitted, every subsequent step appears to be natural. It would be no difficult task to prove that it has likewise been universal. Sir William Jones, the learned president of the Asiatic Society, has discovered such a striking resemblance between the gods of Ancient Greece and those of the pagans of Hindoستان †, as puts it beyond a doubt that those divinities had the same origin. The GANESA of the Hindoos he has clearly proved to be the JANUS of the Greeks and Romans. As the latter was represented with two and sometimes with four faces, as emblems of prudence and circumspection, the former is painted with an elephant's head, the well-known symbol among the Indians of sagacious discernment. The SATURN of Greece and Rome appears to have been the same personage with the MENU or SATYAVRATA of Hindoستان, whose patronymic name is VAIVASWATA, or *child of the sun*; which sufficiently marks his origin. Among the Romans there were many Jupiters, of whom one appears from Ennius to have been nothing more than the firmament personified.

Aspice hoc sublime candens, quem invocant omnes
JOVEM.

But this Jupiter had the same attributes with the Indian god of the visible heavens called INDRA or the *king*, and DIVESPETIR or the *lord of the sky*, whose consort is *Sachi*, and whose weapon is *vajra* or the thunderbolt. INDRA is the regent of winds and showers; and though the east is peculiarly under his care, yet his Olympus is the north-pole, allegorically represented as a mountain of gold and gems. With all his power he is considered as a subordinate deity, and far inferior to the Indian triad BRAHMA, VISHNOU, and MAHADEVA or SIVA *, who are three forms of one and the same godhead. The president having traced the resemblance between the idolatry of Rome and India through many other gods, observes, that "we must not be surpris'd at finding, on a close examination, that the characters of all the pagan deities melt into each other, and at last into one or two; for it seems a well-founded opinion, that the whole crowd of gods and goddesses in ancient Rome, and likewise in Hindoستان, mean only the powers of nature, and principally those of the sun, express'd in a variety of ways, and by a multitude of fanciful names."

Nor is it only in Greece, Rome, Egypt, and India, that the progress of idolatry has been from planetary to hero-worship. From every account which modern travellers have given us of the religion of savage nations, it appears that those nations adore, as their first and greatest gods, the sun, moon, and stars; and that such of them as have any other divinities have proceeded in the same road with the celebrated nations of antiquity, from the worship of the heavenly bodies to that of celestial demons, and from celestial demons to the deification of dead men. It appears likewise that they universally believe their hero-gods and demigods to retain the passions, appetites, and propensities of men.

That the Scandinavians and our Saxon ancestors had the same notions of the gods with the other pagans whose opinions we have stated, is evident from their calling the days of the week by the names of their divinities, and from the forms of the statues by which those divinities were represented †. 1. The idol of the sun,

from which *Sunday* is derived, among the Latins *dies Solis*, was placed in a temple, and adored and sacrificed to; for they believed that the sun did co-operate with this idol. He was represented like a man half naked, with his face like the sun, holding a burning wheel with both hands on his breast, signifying his course round the world; and by its fiery gleams, the light and heat with which he warms and nourisheth all things.— 2. The idol of the moon, from which cometh our *Monday*, *dies Lunæ*, anciently *Moonday*, appears strangely singular, being habited in a short coat like a man. Her holding a moon expresses what she is; but the reason of her short coat and long-eared cap is lost in oblivion.— 3. *Tuisco*, the most ancient and peculiar god of the Germans, represented in his garment of a skin according to their ancient manner of clothing, was next to the sun and moon, the idol of highest rank in the calendar of northern paganism. To him the third day in the week was dedicated; and hence is derived the name *Tuesday*, anciently *Tuisday*, called in Latin *dies Martis*, though it must be confessed that Mars does not so much resemble this divinity as he does Odin or Woden.

4. *Woden* was a valiant prince among the Saxons. His image was prayed to for victory over their enemies; which, if they obtained, they usually sacrificed the prisoners taken in battle to him. Our *Wednesday* is derived from him, anciently *Wodensday*. The northern histories make him the father of *Thor*, and *Friga* to be his wife.

5. *Thor* was placed in a large hall, sitting on a bed canopied over, with a crown of gold on his head, and 12 stars over it, holding a sceptre in his right hand. To him was attributed the power over both heaven and earth; and that as he was pleased or displeas'd he could send thunder, tempests, plagues, &c. or fair, seasonable weather, and cause fertility. From him our *Thursday* derives its name, anciently *Thorfsday*; among the Romans *dies Jovis*, as this idol may be substituted for Jupiter.

6. *Friga* represented both sexes, holding a drawn sword in the right hand and a bow in the left; denoting that women as well as men should fight in time of need. She was generally taken for a goddess; and was reputed the giver of peace and plenty, and causer of love and amity. Her day of worship was called by the Saxons *Frigedeag*, now *Friday*, *dies Veneris*; but the habit and weapons of this figure have a resemblance of Diana rather than Venus.

7. *Seater*, or *Crodo*, stood on the prickly back of a perch. He was thin-visaged and long-haired, with a long beard, bare-headed and bare-footed, carrying a pail of water in his right hand wherein are fruit and flowers, and holding up a wheel in his left, and his coat tied with a long girdle. His standing on the sharp fins of this fish signified to the Saxons, that by worshipping him they should pass through all dangers unhurt: by his girdle flying both ways was shown the Saxons freedom; and by the pail with fruit and flowers, was denoted that he would nourish the earth. From him, or from the Roman deity Saturn, comes *Saturday*.

Such were the principal gods of the northern nations: but these people had at the same time inferior deities, who were supposed to have been translated into heaven for their heroic deeds, and whose greatest happiness consisted in drinking *ale* out of the skulls of their enemies in the *hall of Woden*. But the limits prescribed

Hero-
Worship.

* Plate
cccxxxv.

27
Scandina-
vian and
Saxon ido-
latry.

† Plate
cccxxxv.

Brute-
Worship.

to the present article do not permit us to pursue this subject; nor is it necessary that we should pursue it. The attentive reader of the article MYTHOLOGY, of the histories given in this work of the various divinities of paganism, and of the different nations by whom those divinities were worshipped, will perceive that the progress of polytheism and idolatry has been uniform over the whole earth.

There is, however, one species of idolatry more wonderful than any thing that has yet been mentioned, of which our readers will certainly expect some account. It is the worship of *brutes*, *reptiles*, and *vegetables*, among the Egyptians. To the Greeks and Romans, as well as to us, that superstition appeared so monstrous, that to enumerate every hypothesis, ancient and modern, by which philosophers have endeavoured to account for it, would swell this article beyond all proportion. Brute-worship prevailed at so early a period in Egypt, that the philosophers of antiquity, whose writings have descended to us, had little or no advantage over the moderns in pursuing their researches into its origin; and among the modern hypotheses, those of *Mosheim* and *Warburton* appear to us by much the most probable of any that we have seen (B). The former of these learned writers attributes it wholly to the policy of the prince and the craft of the priest. The latter contends, with much earnestness and ingenuity, that it resulted from the use of hieroglyphic writing. We are strongly inclined to believe that both these causes contributed to the production of so portentous an effect; and that the use of hieroglyphics as sacred symbols, after they were laid aside in civil life, completed that wonderful superstition which the craft of the priest and the policy of the prince had undoubtedly begun.

We learn from Herodotus*, that in his time the number of useful animals in Egypt was so small as hardly to be sufficient for tillage and the other purposes of civil life; whilst serpents and other noxious animals, such as the crocodile, wolf, bear, and hippopotamus, abounded in that country. From this fact Mosheim very naturally concludes†, that the founders of society and government in Egypt would by every art endeavour to increase the number of useful animals as the number of inhabitants increased; and that with

this view they would make it criminal to kill or even to hurt sheep, cows, oxen, or goats, &c. whilst they would wage perpetual war upon the noxious animals and beasts of prey. Such animals as were assisting to them in the carrying on of this warfare would be justly considered as in a high degree useful to society. Hence the most grievous punishments were decreed against the killing, or so much as the wounding, of the *ichneumon* and *ibis*; because the former was looked upon as the instinctive enemy of the crocodile, and the latter of every species of serpents. The learned writer, however, observes, that in Egypt as in other countries, people would be tempted to sacrifice the good of the public to the gratification of their own appetites, and some times even to the indulgence of a momentary caprice. He thinks it was found necessary to strengthen the authority of the laws enacted for the preservation of useful animals by the sanctions of religion: and he says, that with this view the priests declared that certain animals were under the immediate protection of certain gods; that some of those animals had a divine virtue residing in them; and that they could not be killed without the most sacrilegious wickedness, incurring the highest indignation of the gods. When once the idolatrous Egyptians were persuaded that certain animals were sacred to the immortal gods, and had a divine virtue residing in them, they could not avoid viewing those animals with some degree of veneration; and the priests, taking advantage of the superstition of the people, appointed for each species of sacred animals appropriated rites and ceremonies, which were quickly followed with building shrines and temples to them, and approaching them with oblations, and sacrifices, and other rites of divine adoration.

To corroborate this hypothesis, he observes, that, besides the animals sacred over all Egypt, each province and each city had its particular animal to which the inhabitants paid their devotions. This arose from the universal practice among idolaters of consecrating to themselves *Lares* and *Penates*; and as the animals which were worshipped over the whole kingdom were considered as sacred to the *Dii majorum gentium*, so the animals whose worship was confined to particular cities or provinces, were sacred to the *Lares* of those cities and provinces. Hence there was in Upper Egypt a city

Brute-
Worship.28
Brute-wor-
ship of the
Egyptians* Lib. ii.
c. 65.
29
introduced
with a po-
litical view;† Cudworth,
Intellect.
Syst. cap. iv.
No 153.

(B) There is, however, another hypothesis worthy of some attention, if it were only for the learning and ingenuity of its author. The celebrated Cudworth infers, from the writings of Philo and other Platonists of the Alexandrian school, that the ancient Egyptians held the Platonic doctrine of ideas existing from eternity, and constituting, in one of the persons of the godhead, the intelligible and archetypal world. (See PLATONISM). Philo, he observes, did not himself consider those ideas as so many distinct *substances* and *animals*, much less as *gods*; but he mentions others who deified the whole of this intelligible system as well as its several parts. Hence, when they paid their devotions to the *sensible sun*, they pretended to worship only the divine *idea* or *archetype* of that luminary: and hence, thinks our learned author, the ancient Egyptians, by falling down to bulls, and cows, and crocodiles, meant at first to worship only the divine and eternal *ideas* of those animals. He allows, indeed, that as few could entertain any thoughts at all of those eternal ideas, there were scarcely any who could persuade themselves that the *intelligible system* had so much reality in it as the *sensible things of nature*; and hence he thinks the devotion which was originally paid to the divine ideas had afterwards no higher object than the brutes and vegetables of which those ideas were the eternal patterns.

This hypothesis is ingenious, but not satisfactory. There is no evidence that the mysterious doctrine of Plato concerning *ideas* had anywhere been thought of for ages after brute-worship was established in Egypt. Of the state of Egyptian theology at that early period, Philo, and the others philosophers of the Alexandrian school, had no better means of forming a judgement than we have; and they laboured under many Grecian prejudices, which must have prevented them from judging with our impartiality.

Brute-
Worship.

city called *Lycopolis*, because its inhabitants worshipped the wolf, while the inhabitants of *Thebes* or *Heliopolis* paid their devotions to the eagle, which was probably looked upon as sacred to the sun. Our author, however, holds it as a fact which will admit of no dispute, that there was not one noxious animal or beast of prey worshipped by the Egyptians till after the conquest of their country by the Persians. That the earliest gods of Egypt were all benevolent beings, he appeals to the testimony of Diodorus Siculus; but he quotes Herodotus and Plutarch, as agreeing that the latter Egyptians worshipped an evil principle under the name of *Typhon*. This *Typhon* was the inveterate enemy of *Osiris*, just as *Ahraman* was of *Ormuzd*; and therefore he thinks it in the highest degree probable that the Egyptians derived their belief of two self-existent principles, a good and an evil, from their Persian conquerors, among whom that opinion prevailed from the earliest ages.

From whatever source their belief was derived, *Typhon* was certainly worshipped in Egypt, not with a view of obtaining from him any good, for there was nothing good in his nature, but in hopes of keeping him quiet, and averting much evil. As certain animals had long been sacred to all the benevolent deities, it was natural for a people so besotted with superstition as the Egyptians to consecrate emblems of the same kind to their god *Typhon*. Hence arose the worship of *serpents, crocodiles, bears*, and other noxious animals and beasts of prey. It may indeed seem at first sight very inconsistent to deify such animals, after they had been in the practice for ages of worshipping others for being their destroyers; but it is to be remembered, that long before the deification of crocodiles, &c. the real origin of brute worship was totally forgotten by the people, if they were ever acquainted with it. The crafty priest who wishes to introduce a gainful superstition, must at first employ some plausible reason to delude the multitude; but after the superstition has been long and firmly established, it is obviously his business to keep its origin out of sight.

Such is Mosheim's account of the origin and progress of that species of idolatry which was peculiar to Egypt; and with respect to the *rise* of brute worship, it appears perfectly satisfactory. But the Egyptians worshipped several species of vegetables; and it surely could be no part of the policy of wise legislators to preserve *them* from destruction, as vegetables are useful only as they contribute to animal subsistence. We are therefore obliged to call in the aid of Warburton's hypothesis to account for this branch of Egyptian superstition.

* Div. Leg.
book iv.
Act 4.

That learned and ingenious author having proved*, with great clearness and strength of argument, that hieroglyphic writing was prior to the invention of alphabetic characters; and having traced that kind of writing

from such rude pictures, as those which were in use among the Mexicans, through all the different species of what he calls *eurilogic, tropical, and symbolic* hieroglyphics (see *HIEROGLYPHICS*)—shows, by many quotations from ancient authors, that the Egyptian priests wrapt up their theology in the symbolic hieroglyphics, after alphabetic characters had banished from the transactions of civil life a mode of communicating information necessarily so obscure. These symbols were the figures of animals and vegetables, denoting, from some imaginary analogy, certain attributes of their divinities; and when the vulgar, forgetting this analogy, ceased to understand them as a species of writing, and were yet taught to consider them as sacred, they could not well view them in any other light than as emblems of the divinities whom they adored. But if rude sculptures upon stone could be emblematical of the divinities, it was surely not unnatural to infer, that the living animals and vegetables which those sculptures represented must be emblems of the same divinities more striking and more sacred. Hence the learned author thinks arose that wonderful superstition peculiar to the Egyptians, which made them worship not only animals and vegetables, but also a thousand chimeras of their own creation; such as figures with human bodies and the heads or feet of brutes, or with brutal bodies and the heads and feet of men.

Brute-
Worship.30
continued
by the
means of
hierogly-
phic writ-
ting, and

These two hypotheses combined together appear to us to account sufficiently for the idolatry of Egypt, monstrous as it was. We are persuaded, that with respect to the *origin* of brute-worship, Mosheim is in the right (c); and it was a very easy step for people in so good training to proceed upon the crutches of hieroglyphics to the worship of plants and those chimeras, which, as they never had a real existence in nature, could not have been thought of as emblems of the divinity, had they not been used in that symbolic writing which Warburton so ably and ingeniously explains.

To this account of the origin of brute-worship, we are fully aware that objections will occur. From a learned friend, who perused the article in manuscript, we have been favoured with one which, as it is exceedingly plausible, we shall endeavour to obviate. "Brute-worship was not peculiar to Egypt. The Hindoos, it is well known, have a religious veneration for the cow and the alligator; but there is no evidence that in India the number of useful animals was ever so small as to make the interference of the prince and the priest necessary for their preservation; neither does it appear that the Hindoos adopted from any other people the worship of a self-existent principle of evil." Such is the objection. To which we reply,

That there is every reason to believe that brute-worship was introduced into India by a colony of Egyptians at a very remote period. That between these two nations there was an early intercourse, is univer-
31
carried
from Egypt
into India.
ly

(c) To prove that it was merely to preserve and increase the breed of useful animals in Egypt, that the prince and the priest *first* taught the people to consider such animals as sacred, he argues thus: "Hæc ita esse, non ex eo tantum liquet, quod paulo ante observavi, nullas bestias universo Ægyptiorum populo sacras fuisse, præter eas, quæ manifestam regioni utilitatem comparent; sed inde quoque apparet, quod longe major ratio habita fuit famellarum inter animalia, quam marium. Boves diis immolare licebat, vaccas nullo modo. Canes feminae contumulabantur, non item mares." *Lege HERODOT. Histor. lib. ii. cap. 41. & cap. 67.*



The Principal Idols of the Saxons worshipped in Britain.



Theogony. ly allowed: and though the learned president of the Asiatic Society has laboured to prove, that the Egyptians derived all that wisdom for which they were famed, as well as the rudiments of their religious system, from the natives of Hindostan, he does not appear to us to have laboured with success. To examine his arguments at length would swell this article beyond its due proportion; and we have noticed some of them elsewhere (see PHILGLOGY, N^o 33 and 39). At present we shall only observe, that Sesostris undoubtedly made an inroad into India, and conquered part of the country, whilst we nowhere read of the Hindoos having at any time conquered the kingdom of Egypt. Now, though the victors have sometimes adopted the religion of the vanquished, the contrary has happened so much more frequently, and is in itself a process so much more natural, that this single circumstance affords a strong presumption that the Egyptian monarch would rather impose his gods upon the Hindoos than adopt theirs and carry them with him to Egypt. Brute-worship might likewise be introduced into Hindostan by those vast colonies of Egyptians who took refuge in that country from the tyranny and oppression of the shepherd kings. That such colonies did settle on some occasion or other in India, seems undeniable from monuments still remaining in that country, of forms which could hardly have occurred to a native of Asia, though they are very natural as the workmanship of Africans. But we need not reason in this manner. We have seen a manuscript letter from Mr Burt, a learned surgeon in Bengal, and a member of the Asiatic Society, which puts it beyond a doubt that great numbers of Egyptians had at a very early period not only settled in Hindostan, but also brought with them writings relating to the history of their country. As the shepherd-kings were enemies to the arts and to literature, it is probable that this settlement took place on their conquest of Egypt. Mr Burt's words are: "Mr Wilford, lieutenant of engineers, has extracted most wonderful discoveries from the Shanferit records; such as the origin and history of the Egyptian pyramids, and even the account of the expence in their building." Upon our hypothesis there is nothing incredible in this account; upon the hypothesis of Sir William Jones, it is not easy to be conceived how the history of Egyptian pyramids could have found a place in the Shanferit records.

We may admit that the Hindoos have never adopted from the Persians or Egyptians the worship of an independent principle of evil, and yet dispose of the other part of the objection with very little difficulty. It will be seen by and bye, that the bramins believe a kind of triad of hypostases in the divine nature, of which one is viewed as the *destroyer*, and known by several names, such as *Siva* and *Isvara*. When brute-worship was introduced into Hindostan, it was not unnatural to consider the alligator as emblematical of *Isvara*; and hence in all probability it is that the Hindoos believe that a man cannot depart more happily from this world than by falling into the Ganges, and being devoured by one of those sacred animals. Upon the whole, the brute-worship of the Hindoos, instead of militating against our account of that monstrous superstition as it prevailed in Egypt, seems to lend no small support to that account, as there was unquestionably an early intercourse between the two nations, and as colonies of Egyptians

settled in India. To him who is not satisfied with our reasoning on this subject, we beg leave to recommend an attentive perusal of Maurice's *Indian Antiquities*, where he will find many facts brought together, which tend to prove that Egypt has a just claim to a higher antiquity than India.

Having thus traced the rise and progress of polytheism and idolatry as they prevailed in the most celebrated nations of antiquity, we now proceed to inquire into the real opinions of those nations concerning the nature of the gods whom they adored. And here it is evident from the writings of Homer, Hesiod, and the other poets, who were the principal theologians among the Greeks and Romans, that though heaven, earth, hell, and all the elements, were filled with divinities, there was yet one who, whether called *Jove*, *Ojiris*, *Ormuzd*, or by any other title, was considered as supreme over all the rest. "Whence each of the gods was generated (says Herodotus*), or whether they have all existed from eternity, and what are their forms, is a thing that was not known till very lately; for Hesiod and Homer were, as I suppose, not above four hundred years my seniors; and these were they who introduced the theogony among the Greeks, and gave the gods their several names." Now Hesiod †, towards the beginning of his theogony, expressly invokes his muse to celebrate in suitable numbers the generation of the immortal gods who had sprung from the earth, the dark night, the starry heavens, and the salt sea. He calls upon her likewise to say, "in what manner the gods, the earth, the rivers, ocean, stars, and firmament, were generated, and what divine intelligences had sprung from them of benevolent dispositions towards mankind." From this invocation, it is evident, that the poet did not consider the gods of Greece as self-existent beings: neither could he look upon them as creatures; for of creation the ancient Greeks had no conception (see METAPHYSICS, N^o 264.); but he considered them as emanations coeval with the earth and heavens, from some superior principles; and by the divine intelligences sprung from them, there cannot be a doubt but that he understood benevolent dæmons. The first principles of all things, according to the same Hesiod, were *Chaos*, and *Tartarus*, and *Love*; of which only the last being active, must undoubtedly have been conceived by this father of Grecian polytheism to be the greatest and only self-existing god. This we say must undoubtedly have been Hesiod's belief, unless by *Tartarus* we here understand a self-existent principle of evil; and in that case his creed will be the same with that of the ancient Persians, who, as we have seen, believed in the self-existence as well of *Ahraman* as of *Ormuzd*.

Hesiod is supposed to have taken his theology from Orpheus; and it is evident that his doctrine concerning the generation of the gods is the same with that taught in certain verses* usually attributed to Orpheus, in which Love and Chaos are thus brought together. "We will first sing (says the poet) a pleasant and delightful song concerning the ancient Chaos, how the heavens, earth, and seas, were formed out of it; as also concerning that all-wise Love, the oldest and self-perfect principle, which actively produced all these things, separating one from another." In the original passage, Love is said not only to be πολυμηνης, of much wisdom or sagacity, and therefore a real intelligent substance; but

Theogony.
32
Polytheism
acknowledged one
supreme
God,

* Lib. ii. c. 51.

† Verf. 104—112.

33
from whom the other divinities were generated;

* Argonaut. p. 17. edit. Steph.

Theogony. also to be *πρεσβυτατος* and *αυτοταλεις*, the *oldest* and *self-perfect*, and therefore a being of superior order to the other divinities who were generated together with the elements over which they were conceived to preside.

34
though each was by the vulgar considered as unaccountable in his own province.

With the theology of Homer our readers of all descriptions are so well acquainted, that we need not swell the article with quotations, to prove that the father of epic poetry held *Jove* to be the father of gods and men. But the doctrine of the poets was the creed of the vulgar Greeks and Romans; and therefore we may conclude, that those nations, though they worshipped gods and lords innumerable, admitted but one, or at the most two (D), self-existent principles; the one good and the other evil. It does not indeed appear, that in the system of vulgar paganism the subordinate gods were accountable to their chief for any part of their conduct, except when they transgressed the limits of the provinces assigned them. Venus might conduct the amours of heaven and earth in whatever manner she pleased; Minerva might communicate or withhold wisdom from any individual with or without reason; and we find, that in Homer's battles the gods were permitted to separate into parties, and to support the Greeks or Trojans according as they favoured the one or the other nation. Jove indeed sometimes called them to order; but his interference was thought partial, and an instance of tyrannical force rather than of just authority. The vulgar Greeks, therefore, although they admitted but one, or at most two, self-existent principles, did not consider the inferior divinities as mediators between them and the supreme, but as gods to whom their worship was on certain occasions to be ultimately directed.

35
Creed of the philosophers and

The creed of the philosophers seems to have been different. Such of them as were theists, and believed in the administration of Providence, admitted of but one God, to whom worship was ultimately due; and they adored the subordinate divinities as his children and ministers, by whom the course of Providence was carried on. With respect to the origin of those divinities, Plato is very explicit; where he tells us*, that "when

* *Timæus*.

all the gods, both those who move visibly round the heavens, and those who appear to us as often as they please, were generated, that God, who made the whole universe, spoke to them after this manner: Ye gods of gods, of whom I myself am father, attend." Cicero teaches the very same doctrine with Plato concerning the gods †; and Maximus Tyrius, who seems to have understood the genius of polytheism as thoroughly as any man, gives us the following clear account of that system as received by the philosophers.

Theogony. † *Tusc. Quest. lib. i. c. 29. et de Nat. Deorum, passim.* ‡ *Disfert. r.*

"I will now more plainly declare my sense † by this similitude: Imagine a great and powerful kingdom or principality, in which all agree freely and with one consent to direct their actions according to the will and command of one supreme king, the oldest and the best; and then suppose the bounds and limits of this empire not to be the river Halys, nor the Hellespont, nor the Meotian lake, nor the shores of the ocean; but heaven above, and the earth beneath. Here then let that great king sit immoveable, prescribing to all his subjects laws, in the observance of which consist their safety and happiness: the partakers of his empire being many, both visible and invisible gods; some of which that are nearest, and immediately attending on him, are in the highest regal dignity, feasting as it were at the same table; others again are their ministers and attendants; and a third sort are inferior to them both: and thus you see how the order and chain of this government descends down by steps and degrees from the supreme god to the earth and men." In this passage we have a plain acknowledgement of one supreme God, the sovereign of the universe, and of three inferior orders of gods, who were his ministers in the government of the world: and it is worthy of observation, that the same writer calls these intelligences *θεους θεου παιδας και φιλους*, gods, the sons and friends of gods. He likewise affirms, that all ranks of men, and all nations on earth, whether barbarous or civilized, held the same opinions respecting one supreme Numen and the generation of the other gods.

"If there were a meeting (says he*) called of all these

* *Ibid.*

(D) Plutarch is commonly supposed, and we think justly supposed, to have been a believer in two self-existent principles, a good and an evil. His own opinion, whatever it was, he declares (*de Iside et Osiride*) to have been most ancient and universal, and derived from theologians and lawgivers, by poets and philosophers. "Though the first author of it be unknown, yet (says he) it hath been so firmly believed everywhere, that traces of it are to be found in the sacrifices and mysteries both of the *barbarians* and the *Greeks*. There is a confused mixture of good and evil in every thing, and nothing is produced by nature *pure*. Wherefore it is not one only dispenser of things, who, as it were, out of several vessels distributeth these several liquors of good and evil, mingling them together, and dashing them as he pleases; but there are two distinct and contrary powers or principles in the world, one of them always leading, as it were, to the right hand, but the other tugging the contrary way. For if nothing can be made without a cause, and that which is good cannot be the cause of evil, there must needs be a distinct principle in nature for the production of evil as well as good."

That this is palpable manicheism (see MANICHEISM), appears to us so very evident, as to admit of no debate. It appeared in the same light to the learned Cudworth; but that author labours to prove that Plutarch mistook the sense of Pythagoras, Empedocles, Heraclitus, Anaxagoras, and Plato, when he attributed to them the same opinions which were held by himself. Mosheim, on the other hand, has put it beyond a doubt, that whatever was Plutarch's belief respecting the origin of evil, and the existence of two independent principles, it was taken implicitly from the writings of Plato. But the pious chancellor of *Göttingen*, actuated by the same motives with Cudworth, wishes to persuade his readers, that by Plato and Plutarch nothing *active* was understood by their evil principle but only *that tendency to confusion* which was then deemed inseparable from matter. But that something more was meant seems undeniable: for immediately after the words which we have quoted, Plutarch proceeds to affirm that the wisest men declare *θεους ειναι δυο καταπερ ανιλεχνους*, that there are two gods, as it were of contrary trades or crafts, of which one is the author of all good and the other of all evil. See *Mosheim. ed. Cudworth. System. Intellect. lib. i. cap. 4.*

Theogony. these several professions, a painter, a statuary, a poet, and a philosopher, and all of them were required to declare their sense concerning *the God*; do you think that the painter would say one thing, the statuary another, the poet a third, and the philosopher a fourth? No; nor the Scythian neither; nor the Greek, nor the Hyperborean. In other things we find men speaking very discordantly, all men as it were differing from all. But amidst this war, contention, and discord, you may find everywhere, throughout the whole world, one uniform law and opinion, that there is ONE GOD, THE KING AND FATHER OF ALL, and many gods, the sons of GOD, who reign with God. These things both the Greek and Barbarian affirm, both the inhabitants of the continent and of the sea-coast, both the wife and the unwise."

36
Indian Bra-
mins.

Plate
cccxxxv.

This account of philosophical polytheism receives no small support from the Asiatic Researches of Sir William Jones. "It must always be remembered (says that accomplished scholar), that the learned Indians, as they are instructed by their own books, acknowledge only one supreme Being, whom they call BRAHME, or THE GREAT ONE, in the neuter gender. They believe his essence to be infinitely removed from the comprehension of any mind but his own; and they suppose him to manifest his power by the operation of his divine spirit, whom they name VISHNOU the *pervader*, and NE'RA'YAN or *moving on the waters*, both in the masculine gender; whence he is often denominated the *first male*. When they consider the divine power as exerted in *creating* or giving existence to that which existed not before, they call the deity BRAHMA'; when they view him in the light of *destroyer*, or rather *changer of forms*, they give him a thousand names, of which SIVA, ISWARA, and MAHADEVA, are the most common; and when they consider him as the preserver of created things, they give him the name of VISHNOU. As the soul of the world, or the pervading *mind*, so finely described by Virgil, we see JOVE represented by several Roman poets; and with great sublimity by Lucan in the well known speech of Cato concerning the Ammonion oracle, 'Jupiter is wherever we look, wherever we move.' This is precisely the Indian idea of VISHNOU: for since the power of preserving created things by a superintending providence belongs eminently to the godhead, they hold that power to exist transcendently in the *preserving* member of the triad, whom they suppose to be EVERYWHERE ALWAYS, not in substance, but in spirit and energy." This supreme god BRAHME, in his triple form, is the only self-existent divinity acknowledged by the philosophical Hindoos. The other divinities GENESA, INDRA, CUVERA, &c. are all looked upon either as his creatures or his children; and of course are worshipped only with inferior adoration.

37
Why the
philoso-
phers wor-
shipped the
inferior di-
vinities.

It was upon this principle of the generation of the gods, and of their acting as ministers to the supreme

Numen, that all the philosophers of Greece, who were not atheists, worshipped many divinities, though they either openly condemned or secretly despised the traditions of the poets respecting the amours and villainies of Jupiter, Venus, Mercury, and the rest of the tribe. It was the same principle sincerely admitted, and not an ill-timed jest, as has been absurdly supposed, that made Socrates, after he had swallowed the poison, request his friend to offer a votive cock for him to Esculapius.

Theogony.

But a theogony was not peculiar to the Greeks, Romans, and the Hindoos; it made part of every system of polytheism. Even the Egyptians themselves, the grossest of all idolaters, believed in one self-existing God, from whom all their other divinities descended by generation. This appears probable from the writings of Horus Apollo, Jamblicus, Porphyry, and many other ancient authors; but if the inscription on the gates of the temple of *Neith* in *Sais*, as we have it from Plutarch and Proclus, be genuine, it will admit of no doubt. This famous inscription, according to the last of these writers, was to this purpose: "I am whatever is, whatever shall be, and whatever hath been. My veil no man hath removed. The offspring which I brought forth was the sun (E)."

The Persian magi, as we have seen, believed in two self-existent principles, a good and an evil: but if Diogenes Laertius deserves to be credited, they held that fire, earth, and water, which they called gods, were generated of these two. It was observed in the beginning of this article, that the first object of idolatrous worship was probably the sun, and that this species of idolatry took its rise in Chaldea or Persia. But when it became the practice of eastern monarchs to conceal themselves wholly from their people, the custom, as implying dignity, was supposed to prevail as well in heaven as on earth; and Zoroaster, the reformer of the Persian theology, taught*, that "Ormuzd was as far removed from the sun as the sun is removed from the earth." According to this modification of magianism, the sun was one of the generated gods, and held the office of prime minister or vicegerent to the invisible fountain of light and good. Still, however, a self-existent principle of evil was admitted; but though he could not be destroyed or annihilated by any power, it was believed that he would at last be completely vanquished by Ormuzd and his ministers, and rendered thenceforward incapable of producing any mischief.

* Plutarch,
de Iside et
Osiride.

From this short view of polytheism, as we find it delineated by the best writers of antiquity, we think ourselves warranted to conclude, that the whole pagan world believed in but *one*, or at most *two*, SELF-EXISTENT GODS, from whom they conceived all the other divinities to have descended in a manner analogous to human generation. It appears, however, that the vulgar pagans considered each divinity as supreme and unaccountable within his own province, and therefore intitled to worship, which rested ultimately in himself. The

T 2

philosophers,

(F) Τα οὐρα, και τα εσομένα. και τα γεγονότα, οὐα ειμι. Τον τρονον χιτωνα ουδεις απεκαλυψεν. 'Ον εγω καρπων, ήλιος ενεβελο. The antiquity of this inscription is admitted by Cudworth, denied by Mosheim, and doubted by Jablonki. The reader who wishes to know their arguments may consult Mosheim's edition of the *Intellectual System*, and Jablonki's *Pantheon Ægyptiorum*.

Theogony.
 35
 Vulgar polytheists less culpable than the philosophers.

* Varro apud D. August. de Civ. Dei.

philosophers, on the other hand, seem to have viewed the inferior gods as accountable for every part of their conduct to him who was their sire and sovereign, and to have paid to them only that inferior kind of devotion which the church of Rome pays to departed saints. The vulgar pagans were sunk in the grossest ignorance, from which statesmen, priests, and poets, exerted their utmost influence to keep them from emerging; for it was a maxim which, however absurd, was universally received, that "there were many things true in religion", which it was not convenient for the vulgar to know; and some

things which, though false, it was yet expedient that they should believe." The polytheism and idolatry of the vulgar, therefore, was their misfortune rather than their fault. But the philosophers were wholly "without excuse"; because that when they knew God, they glorified him not as God, neither were thankful, but became vain in their imaginations, and their foolish heart was darkened. Professing themselves wise, they became fools, and worshipped and served the creature more than the Creator, who is God blessed for ever." * Rom. i. 20, 21, 22, 25.

P O L

POLYTRICHUM, a genus of plants belonging to the cryptogamia class. See *BOTANY Index*. The anthera is operculated, and placed upon a very small apophysis or articulation; the calytra villous; the star of the female is on a distinct individual. There are 16 species; the most remarkable of which, natives of Britain, is the *commune*, or great golden maiden-hair, frequently to be met with in bogs and wet places. It grows in patches; the stalks erect, generally single and unbranched, from three inches to a foot or even a yard high. The leaves are numerous, stiff, lanceolate, acute, growing round the stalk without order, and, if viewed with a microscope, appear to have their edges finely serrated. There are two varieties of this moss: the first has much shorter stalks than the preceding, and often branched; the leaves stiffer, erect, and more crowded; in other respects the same. The other has a stalk scarcely more than half an inch high, terminated with a cluster of linear, erect, rigid leaves, for the most part entire on the edges, and tipped each with a white hair. The filament is about an inch high, and the capsule quadrangular. The female flower, or gem, is of a bright red colour.

The first kind, when it grows long enough for the purpose, is sometimes used in England and Holland to make brooms or brushes. Of the female sort the Lappers, when obliged to sleep in desert places, frequently make a speedy and convenient bed, in the following manner: Where the moss grows thick together, they mark out, with a knife, a piece of ground, about two yards square, or of the size of a common blanket; then beginning at one corner, they gently sever the turf from the ground, and as the roots of the moss are closely interwoven and matted together, they by degrees strip off the whole circumscribed turf in one entire piece; afterwards they mark and draw up another piece, exactly corresponding with the first; then, shaking them both with their hands, they lay one upon the ground, with the moss uppermost, instead of a mattress, and the other over it, with the moss downwards, instead of a rug; and between the two pieces they enjoy a comfortable sleep.

POLYXÆNUS, or **POLYÆNUS**. See **POLYÆNUS**.

POLYXO, a priestess of Apollo's temple in Lemnos. She was likewise nurse to Queen Hypsipyle. It was by her advice that the Lemnian women murdered all their husbands.—There was another Polyxo, a native of Ar-

P O M

gos, who married Tlepolemus son of Hercules. She followed him to Rhodes after the murder of his uncle Lycymnius; and when he departed for the Trojan war with the rest of the Greek princes, she became the sole mistress of the kingdom. After the Trojan war, Helen fled from Peloponnesus to Rhodes, where Polyxo reigned. Polyxo detained her; and to punish her as being the cause of a war in which Tlepolemus had perished, she ordered her to be hanged on a tree by her female servants, disguised in the habit of Furies.

POMACEÆ, (*pomum* "an apple,") the name of the 36th order in Linnæus's Fragments of a Natural Method, the genera of which have a pulpy esculent fruit, of the apple, berry, and cherry kind. See *BOTANY, Natural Orders*.

POMATUM, an unguent generally used in dressing the hair. It is also employed as a medicine.

POMEGRANATÉ. See **PUNICA**, *BOTANY Index*.

POMERANIA, a province in Germany, in the circle of Upper Saxony, having formerly the title of a duchy. It is bounded on the north by the Baltic sea, on the east by Prussia and Poland, on the south by the marquise of Brandenburg, and on the west by the duchy of Mecklenburg; and is about 250 miles in length, and in some places 75 miles and in others 50 in breadth. It is watered by several rivers, the most considerable of which are the Oder, the Pene, the Rega, the Persant, the Wipper, the Stolp, the Lupo, and the Lobo. The air is cold; but the soil abounds in pastures, and produces corn, of which a great deal is exported. It is a flat country; containing many lakes, woods, and forests, and has several good harbours. It is divided into the Hither and Farther Pomerania, and the former territories of the kings of Sweden and Prussia in this duchy are divided by the river Pene; but since the north of Europe was overrun by the French, Pomerania has changed masters. See **PRUSSIA**.

POMFRET, JOHN, an English poet, son of the rector of Luton in Bedfordshire, was born in 1667, and educated at Cambridge; after which he took orders, and was presented to the living of Malden in Bedfordshire. About 1703 he went to London for institution to a larger and very considerable living; but was stopped some time by Compton, then bishop of London, on account of these four lines of his poem, entitled the Choice:

"And

Pomfret
||
Pomœrium

“ And as I near approach'd the verge of life,
Some kind relation (for I'd have no wife,)
Should take upon him all my worldly care,
While I did for a better state prepare.”

The parentheses in these lines were so maliciously represented, that the good bishop was made to believe that Pomfret preferred a mistress to a wife. But he was soon convinced that this representation was the mere effect of malice, as Pomfret at that time was actually married. The opposition, however, which his slanderers had made to him had its effect; for, being by this obliged to stay in London longer than he intended, he caught the small-pox, and died of it, aged 35.

He published a volume of his poems in 1699, with a very modest and sensible preface. Two pieces of his were published after his death by his friend Philaethes; one intitled Reason, and written in 1700, when the disputes about the Trinity ran high; the other *Dies Novissima*, or the “Last Epiphany,” a Pindaric ode. His versification is not unmusical; but there is not the force in his writings which is necessary to constitute a poet. A dissenting teacher of his name, and who published some rhymes upon spiritual subjects, occasioned fanaticism to be imputed to him; but his friend Philaethes has justly cleared him from the imputation. Pomfret had a very strong mixture of devotion in him, but no fanaticism.

“The Choice (says Dr Johnson) exhibits a system of life adapted to common notions, and equal to common expectations; such a state as affords plenty and tranquillity, without exclusion of intellectual pleasures. Perhaps no composition in our language has been oftener perused than Pomfret's Choice. In his other poems there is an easy volubility; the pleasure of smooth metre is afforded to the ear, and the mind is not oppressed with ponderous, or intangled with intricate, sentiment. He pleases many; and he who pleases many must have merit.”

POMME, or POMMETTE, in *Heraldry*, is a cross with one or more balls or knobs at each of the ends.

POMMEL, or PUMMEL, in the *Manège*, a piece of brass or other matter at the top and in the middle of the saddle-bow.

POMMEREULLIA, a genus of plants belonging to the triandria class, and in the natural method ranking under the 4th order, *Gramina*. See *BOTANY Index*.

POMOERIUM, in Roman antiquity, was, according to Livy, that space of ground, both within and without the walls, which the augurs, at the first building of cities, solemnly consecrated, and on which no edifices were allowed to be raised. Plutarch gives this account of the ceremony of drawing the pomœrium: “They dug a trench, and threw into it the first-fruits of all things, either good by custom, or necessary by nature; and every man taking a small turf of earth of the country from whence he came, they cast them in promiscuously. Then making this trench their centre, they described the city in a circle round it. After this, the founder yoking a bull and a cow together, ploughed a deep furrow, with a brazen ploughshare, round the bounds. The attendants took care that all the clods fell inwards, i. e. toward the city. This furrow they called *Pomœrium*, and built

the wall upon it.”—Plutarch, in this account, is to be understood as speaking of Rome.

POMOERIUM Proferre, signifies to extend or enlarge a city, which could not be done by any, but those who had taken away some part of an enemy's country in war. But this qualification was sometimes dispensed with. *Pomœrium* is *quasi pone mœnia*, “behind the walls.”

POMONA, in fabulous history, the tutelary deity of orchards and fruit-trees. See *VERTUMNUS*.

POMPEII (anc. geog.) a town of Campania near Herculaneum, and destroyed along with it by the great eruption of Vesuvius in the time of Titus. See *HERCULANEUM*. It is about 15 miles from Naples, and six or seven from Portici—So much has been said and written on the discovery of this place, as makes it unnecessary for us to say much: we shall therefore only give a short extract on the subject from an anonymous work lately published, apparently of considerable merit. “On entering the city (says our author*), the first object is a pretty square, with arcades, after the present manner of Italy. This was, as it is imagined, the quarter of the soldiers; numbers of military weapons being found here.

“A narrow, but long street, with several shops on each side, is now perfectly cleared of its rubbish, and in good preservation. Each house has a court. In some of them are paintings *al fresco*, principally in *chiaroscuro*; and their colours not the least injured by time. The few colours which the ancients knew were extracted only from minerals; and this may be a sufficient reason for their freshness. The street is paved with irregular stones of a foot and a half or two feet long, like the Appian way.

“In discovering this city, it was at first doubted whether it were actually Pompeii: but the name inscribed over the gateway put it beyond all doubt. The skeletons found were innumerable. It is said that many had spades in their hands, endeavouring, probably at first, to clear away the torrent of ashes with which they were deluged. Indeed the satisfaction which is felt at the view of ancient habitations, is much allayed by inevitable reflections on this frightful scene of desolation, though at the distance of so many centuries.

“An ancient villa is also seen entire at a little distance from Pompeii. The house is really elegant and spacious, but only two stories high. The pavement of the chambers is composed of tessellated marble, and, when polished, displays the design perfectly well.—There is some at the museum of Portici brought from this place, which the eye would really mistake for painting. Under the house is a fine triangular cellar, of which each part is 100 feet long, well filled with amphoræ. The skeletons of 29 persons were found here, supposed to have fled to it for safety. Each house is filled with ashes: they have almost penetrated through every crevice; and it is incredible how such a volume of them could have been thrown out by Vesuvius with sufficient force to have reached so far.” It has been observed by some travellers that spoons were found among the ruins of Pompeii, but no forks, from which it is concluded, that table utensils of the latter description were not known to the Romans at that period. Forks, it is supposed, were invented at Constantinople, and were not in use in Italy till about the year 1000 of the Christian era.”

Pomœrium
||
Pompeii.

* Comparative Sketch of England and Italy, with Disquisitions on National Advantages.

Pompeii.

In concluding our account of Herculaneum, it was stated that the means attempted for unrolling the manuscripts found among the ruins, had been unsuccessful, and that the plan had been dropped. It will not, we presume, be a little gratifying to the admirers of ancient literature, to be informed that this difficult labour has been resumed under the auspices of his Royal Highness the Prince of Wales; and that six volumes of Papyri presented to his Royal Highness by the king of Naples have reached London.

In the year 1800 the Rev. Mr Hayter, an excellent scholar, with a liberal provision from the prince, and with permission of the king of Naples, went to Italy for the purpose of unrolling and transcribing the Papyri. The following narrative extracted from a letter addressed to his royal patron by Mr Hayter, will, we doubt not, be interesting to our readers:

“The numerous settlements (says the author) of the Greeks in Italy received the name of Magna Græcia, because their mother country was of a size considerably less than that in which they were planted: among these were nearly all the cities in the province of Campania, including Naples, the capital of his Sicilian majesty, and also Herculaneum and Pompeii, which are supposed to boast a foundation coeval with Hercules himself, three thousand and fifty years ago, or twelve hundred and fifty years before the Christian era. This province, more than any other part of Magna Græcia, was always celebrated for the studious and successful cultivation of the arts and sciences. The two cities of Herculaneum and Pompeii ranked next to that of Naples in every respect, as places of considerable note; they had their public theatres, with every other attendant of great population, splendour, opulence, and general prosperity. These, in common with all the rest of Campania, became the elegant and favourite resort of the Romans, for the different purposes of health, luxury, repose, and erudition.

“In the ninth year of Nero’s reign, these two cities experienced a most formidable shock from an earthquake, which overthrew a great part of them. Nor had they recovered altogether from the effects of this calamity by their own exertions, and the aid of imperial munificence, when a second calamity, of a different nature, but equally unexpected, consigned them both at once to the most complete oblivion. This calamity was the great eruption of Vesuvius, which happened on the 24th day of August, two full months from the accession of the emperor Titus Vespasian. Herculaneum was buried under a mass of lava, and volcanic matter, to the depth of 24 feet. Pompeii, being more distant from the mountain, was overwhelmed principally with a shower of ashes, nor in any place more than half the depth of the other city. But the fate of both was sudden and inevitable; and yet it appears that almost all of the inhabitants, and, what is an equally surprising circumstance, more of the Herculaneans than the Pompeians, escaped. By the few skeletons which have been found in either place, the relation of Dio Cassius, who states the destruction of the people while assembled at the theatre, is proved to be totally erroneous. It may be proper to remark, that before this eruption the whole of Vesuvius was in a state of cultivation and fertility, from the top to the bottom; and though the form and soil of the mountain in one particular spot seemed to denote the traces of some for-

mer explosion, yet no extant memorial of any kind had recorded it.

Pompeii.

“Neither of these two cities was discovered again till a long period of sixteen hundred and thirty-four years had elapsed. It was in the year 1713, that some labourers, in sinking a well, struck their tools against a statue, which was on a bench in the theatre of Herculaneum. Forty years afterwards Pompeii was excavated with much less difficulty, as the incumbent stratum was neither so hard nor so deep as that of the former city.

“The number of the manuscripts saved from both these cities is said to be about 500; but, if I am rightly informed by those whose official situation must give them a competent knowledge of the subject, your royal highness, by facilitating the development of these volumes, will probably be the means of further excavation, and of rescuing from their interment an infinite quantity of others. About thirty years ago, his Sicilian majesty ordered the development, the transcription, and the printing of the volumes which had then been saved, to be undertaken. This operation was accordingly begun, and has never been discontinued till the late invasion of the French. But its mode, however excellent, was extremely slow; it has been performed by a single person, with a single frame only, under the direction of the marquis del Vasto, chamberlain to the king, and president of the royal academy.

“The frame consists of several taper and oblong pieces of wood, with parallel threads of silk that run on each side, the length of each piece: when the frame is laid on any volume, each piece of wood must be fixed precisely over each line of the page, while the respective threads being worked beneath each line, and assisted by the corresponding piece of wood above, raise the line upwards, and disclose the characters to view.

“The operation seems ingenious, and well adapted to the purpose: it was, I believe, invented by a capuchin at Naples. The fruits of it are said to be two publications only; one on music, by the celebrated Philodemus, who was a cotemporary of Cicero; and the other on cookery. The first is in his majesty’s library, at the queen’s palace. Through the obliging politeness of Mr Barnard, the king’s librarian, I have had the advantage of perusing it. Indeed I hope your royal highness will not disapprove my acknowledging in this place the very warm and respectful interest which both this gentleman and the right honourable the president of the Royal Society have expressed for the furtherance of your royal highness’s great and good design. Meanwhile, by this specimen of Philodemus, I am convinced that, if the frames should be multiplied to the proposed extent, several pages of thirty different manuscripts might be disclosed and transcribed within the space of one week.

“But the very period at which the manuscripts were buried, serves to point out to your royal highness that you may expect the recovery of either the whole, or at least parts, of the best writers in antiquity, hitherto deemed irrecoverable. All of these, in truth, had written before that period, if we except Tacitus, whose inestimable works were unfortunately not composed till twenty years afterwards, during the reign of Trajan.

“Nor can it be imagined for a moment, that among five or six hundred manuscripts, already excavated, and especially

^{Pompeii.} especially from the numberless ones which further excavations may supply, lost at such a period in two of the most capital cities, in the richest, most frequented, and most learned province in Italy, each of them an established seat of the arts and sciences, each of them the resort of the most distinguished Romans, not any part of those illustrious authors should be discovered.

“ But the manuscript of Philodemus itself makes the reverse of such an idea appear much more probable. To the moderns, who have

“ Untwisted all the chains that tie
The hidden soul of harmony,”

his Treatise on Music cannot, indeed, be supposed to communicate much information; yet the subject is scientific, and scientifically treated. The author himself, too, was one of the most eminent men in his time for wit, learning, and philosophy. But in the rest of the arts and sciences, in history, in poetry, the discovery of any lost writer, either in whole or part, would be deemed a most valuable acquisition and treasure, and form a new era in literature.

“ It is extremely fortunate that the characters of these manuscripts, whether they should be Greek or Latin, must be very obvious and legible. Before the year of our Lord 79, and some time after it, the Majuscule or Unciales Litteræ, capital letters, were solely used. A page, therefore, in one of these manuscripts, would present to your royal highness an exact image of some mutilated inscription in those languages on an ancient column, statue, or sepulchre.

“ There cannot remain a doubt, even omitting the assurances from men of official situation to that effect, that your royal highness's superintendant will receive every possible assistance from the marquis del Vasto; and in that case it seems improbable that the object of this mission can be altogether fruitless.

“ With such a termination of it, however, your royal highness, by having proposed to concur with his Sicilian majesty in the quicker and more effectual development, transcription, and publication of these manuscripts, will reap the satisfaction of having made a most princely attempt in behalf of knowledge and literature, on an occasion where their interests might be affected most materially, and in a manner of which no annals have afforded, or can hereafter afford, an example. Your very interposition will be your glory: your want of success will only make the learned world feel with gratitude what you would have done.

“ The interposition of his royal highness has had the happiest effect. The splendid encouragement which he gave to the work revived the drooping spirits of the Italian literati; and the consequence has been, that the business of unrolling and transcribing the manuscripts now proceeds with an alacrity which promises the most brilliant success. In forty-six years not more than eighteen rolls were developed before the interference of our prince. Under his encouragement, ninety have been recovered in two years! What new facilities may not now be expected when all the vigour of British intelligence is exerted on the subject!”—See Swinburne's *Travels in the Two Sicilies*, vol. ii. p. 98, &c.; Lady Miller's *Letters*, or *De la Lande*; Captain Sutherland's *Tour up the Straits, from Gibraltar to Constantinople*, p. 75, &c.; Dr Smith's *Sketch of a Tour on the Continent*, in 1786 and

1787, vol. ii. p. 118, &c.; and Watkin's *Tour through Swisserland, Italy, &c.*

POMPEY the GREAT, CNEIUS POMPEIUS MAGNUS, the renowned rival of Julius Cæsar. Being defeated by him at the battle of Pharsalia, owing to the defection of his cavalry, he fled to Egypt by sea, where he was safely assassinated by order of Theodotus, prime minister to Ptolemy the Younger, then a minor, 48 B. C. See ROME.

POMPEYS, CNEIUS and SEXTUS, his sons, commanded a powerful army when they lost their illustrious father. Julius Cæsar pursued them into Spain, and defeated them at the battle of Munda, in which Cneius was slain, 45 B. C. Sextus made himself master of Sicily; but being defeated in the celebrated naval engagement at Actium by Augustus and Lepidus, he fled to Asia with only seven ships, the remains of his fleet, which consisted of more than 350; and from thence, unable to continue the war, he was obliged to retire to Lesbos, where renewing the war by raising an army, and seizing on some considerable cities, Marcus Titius, in the interest of Mark Antony, gave him battle, defeated him, took him prisoner, and safely put him to death, 35 B. C. See ROME.

POMPEY'S Pillar, a celebrated column near Alexandria in Egypt, 114 feet high, and of which the shaft, composed of a single piece of granite, is 90 feet. For an account of different opinions concerning the origin and design of this pillar, see ALEXANDRIA, p. 596.

POMPONATIUS, PETER, an eminent Italian philosopher, was born at Mantua in 1462. He was of so small a stature, that he was little better than a dwarf; yet he possessed an exalted genius, and was considered as one of the greatest philosophers of the age in which he lived. He taught philosophy, first at Padua and afterwards at Bologna, with the highest reputation. He had frequent disputations with the celebrated Achillini, whose puzzling objections would have confounded him, had it not been for his skill in parrying them by some joke. His book *De Immortalitate Animæ*, published in 1516, made a great noise. He maintained, that the immortality of the soul could not be proved by philosophical reasons; but solemnly declared his belief of it as an article of faith. This precaution did not, however, save him; many adversaries rose up against him, who did not scruple to treat him as an atheist; and the monks procured his book, although he wrote several apologies for it, to be burnt at Venice. His book upon Incantations was also thought very dangerous. He shows in it, that he believed nothing of magic and sorcery; and he lays a prodigious stress on occult virtues in certain men, by which they produced miraculous effects. He gives a great many examples of this; but his adversaries do not admit them to be true, or free from magic.—Paul Jovius says, that he died in 1525, in his grand climacteric. He was three times married; and had but one daughter, to whom he left a large sum of money. He used to apply himself to the solution of difficulties so very intensely, that he frequently forgot to eat, drink, sleep, and perform the ordinary functions of nature: nay, it made him almost distracted, and a laughing-stock to every one, as he himself tells us.

POMPONIUS MELA. See MELA.

POMUM, an APPLE; a species of seed-vessel, composed of a succulent fleshy pulp; in the middle of which

^{Pompey}
Pomponius.

Pond
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Pondicherry

is generally found a membranous capsule, with a number of cells, or cavities, for containing the seeds. Seed-vessels of this kind have no external opening or valve. At the end opposite to the footstalk is frequently a small cavity, called by the gardeners the *eye of the fruit*, and by botanists *umbilicus*, the "navel," from its fancied resemblance to the navel in animals. Gourd, cucumber, melon, pomegranate, pear, and apple, furnish instances of the fruit or seed-vessel in question.

POND, or *FISH-Pond*. See *FISH-Pond*.

POND, is a small pool or lake of water from whence no stream issues. In the Transactions of the Society instituted at London for the Encouragement of Arts, Manufactures, and Commerce, vol. viii. and printed in the year 1790, there is a short account of a machine for draining ponds without disturbing the mud. It was communicated to the society, together with a drawing and model of the machine, by Lieutenant-colonel Dansey. The model was made from the description of a machine used by a gentleman near Taunton for many years before, for supplying a cascade in his pleasure-grounds.—The colonel's regiment was then lying at Windsor; and thinking that the invention might be useful to supply the grand cascade at Virginia water, he made the model, and presented it to the king, who was graciously pleased to approve of it. In consequence of which, by his majesty's desire, a penstock on that principle was constructed from the model at one of the ponds in the neighbourhood.—The colonel thinks the machine may be useful in the hands of men of science, and applicable to silk, cotton, and other mills, where a steady and uniform velocity of water is wanted; which might be regulated at pleasure, occasioning no current to disturb the mud or fish, as the stream constantly runs from the surface. He says he has often made the experiment by the model in a tub of water.

Of this machine the following is a description.

Plate
ccccxxxvii
Fig. 1.

In fig. 1. A is the pipe, loaded with a rim of lead, of such weight as serves to sink it below the surface of the water. B is the discharging pipe, laid through the bank HI. C is the joint on which the pipe A turns its form, which is shown fig. 2. D is the ball or float, which, swimming on the surface of the pond, prevents the pipe A from descending deeper than the length of the chain by which they are connected. E is a chain winding on the windlass F, and serving to raise the tube A above the surface of the water, when the machinery is not in use. G is a stage. HI is the bank, represented as if cut through at I, to show the tube B lying within it. K is a post to receive the tube A when lowered, and to prevent its sinking in the mud. In fig. 2. A is a cast cylinder, with a plate or cheek, B, which is fastened to the timber of the tube on one side, but not on the other, as the part of the cylinder C turns in the hollow of the wooden tube when it is immersed. A piece of strong sole leather is put inside the brass-plate B, to prevent leaking.

POND-Weed. See *POTAMOGETON*, *BOTANY Index*.

PONDICHERRY, is a large town of Asia, in the peninsula on this side the Ganges, and on the coast of Coromandel. Its situation is low, and the ships anchor about a mile and a half from it; nor can the boats or canoes come nearer it than a musket-shot, on account of the breakers, so that the blacks come in flat-bottomed boats to carry the men and merchandises to the fleet.

The fort is 200 paces from the sea, and very irregular; built with bricks, and covered with fine plaster, resembling white marble. The huts of the blacks lie here and there, and the walls are of bamboos mixed with the branches of trees. The French are greatly addicted to women, from whom they catch diseases that render them pale, livid, and meagre, with a frightful aspect. However, several of the French are married to a sort of Portuguese women, who are of a mixed breed, being a kind of Mulattoes. The country about it is barren, and consequently most of their provisions are brought from other places. Their trade consists of cotton-cloth, silks, pepper, saltpetre, and other merchandises that are brought from Bengal. With regard to the religion of the natives, the most numerous are the Gentoos; but there are Mahometans or Moors who hold a great many ridiculous opinions. The Gentoos are of different sects, and that of the Brahmins are priests. The custom of women burning themselves with the bodies of their dead husbands was very common, but of late much discountenanced. The slaves or servants are very numerous, and their chief food is rice. This place was taken, and the fortifications demolished, by Colonel Coote; it was restored to the French by the peace of 1763; and was retaken by the English in 1793. It is 100 miles south of Madras. E. Long. 79. 58. N. Lat. 11. 42.

PONDICO, an island of the Archipelago, lying on the gulf of Ziton, near the coast of Negropont. It is small and uninhabited, as well as two others that lie near it.

PONG-HOU *Iles*, in the province of Fo-kien in China, form an archipelago between the port of Emouy and the island of Formosa. A Chinese garrison is kept here, with one of those mandarines who are called *literati*, whose principal employment is to watch the trading vessels which pass from China to Formosa, or from Formosa to China.

As these islands are only sand-banks or rocks, the inhabitants are obliged to import every necessary of life; neither shrubs nor bushes are seen upon them; all their ornament consists of one solitary tree. The harbour is good, and sheltered from every wind; it has from 20 to 25 feet depth of water. Although it is an uncultivated and uninhabited island, it is absolutely necessary for the preservation of Formosa, which has no port capable of receiving vessels that draw above eight feet of water.

PONIARD, a little pointed dagger, very sharp edged; borne in the hand, or at the girdle, or hid in the pocket. The word is formed from the French *poignard*, and that from *poignée*, "handful."—The poniard was anciently in very great use; but it is now in a good measure set aside, except among assassins.—Sword and poniard were the ancient arms of duelists; and are said to continue still so among the Spaniards. The practice of sword and poniard still make a part of the exercise taught by the masters of defence.

PONS, a town of France, in Saintonge, very famous in the time of the Huguenots. It is seated on a hill, near the river Suigne, 10 miles from Saintes. W. Long. 0. 30. N. Lat. 45. 36.

PONT-DU-GARD, is a bridge of France, in Lower Languedoc, built over the river Gardon, which served for an aqueduct. It is a very remarkable and a most magnificent

Pondicherry
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Pent.

Pontederia magnificent work, and was raised by the ancient Romans. It consists of three bridges, one above another; the uppermost of which was the aqueduct, to convey water to the city of Nîmes, which is eight miles to the south. They are altogether 192 feet high, and the uppermost 580 feet long. They are constructed between two rocks. E. Long. 4. 26. N. Lat. 43. 58.

PONTEDERIA, a genus of plants belonging to the hexandria class; and in the natural method ranking under the sixth order, *Enfatae*. See *BOTANY INDEX*.

PONTEFRACT, or **POMFRET**, a town of the west riding of Yorkshire in England, situated on the river Aere. It is said to take its name from a broken bridge, which is supposed to have been laid anciently over that marshy spot called the *Wash*. Here are the ruins of a noble old castle, where Richard II. was barbarously murdered, and two of Edward V.'s uncles. The collegiate chapel of St Clement, which had a dean, three prebendaries, &c. is still distinguishable in it. This town has a good market, and fairs for horses, sheep, and other cattle. It is a corporation, governed by a mayor, recorder, aldermen, and burgesses, and gives title of earl to the family of Fernor. In the reign of Queen Elizabeth, 200l. was lent by George Talbot, earl of Shrewsbury, to be lent for ever, at 5l. a time, on proper security, for three years, to the poor artificers of the town; and Thomas Wentworth, Esq. ancestor to the marquis of Rockingham, lent 200l. to the charity-school. A branch of the great Roman military way called *Ermin-street*, which passed from Lincoln to York, may be traced betwixt this town and Doncaster. The adjacent country yields plenty of limestone, together with liquorice and skirrets. W. Long. 1. 18. N. Lat. 53. 42.

PONTIFEX, **PONTIFF**, or *High-priest*, a person who has the superintendance and direction of divine worship, as the offering of sacrifices and other religious solemnities. The Romans had a college of pontiffs; and over these a sovereign pontiff, or pontifex maximus, instituted by Numa, whose function it was to prescribe the ceremonies each god was to be worshipped withal, compose the rituals, direct the vestals, and for a good while to perform the business of augury, till, on some superstitious occasion, he was prohibited intermeddling therewith. The office of the college of pontiffs was to assist the high-priest in giving judgement in all causes relating to religion, inquiring into the lives and manners of the inferior priests, and punishing them if they saw occasion, &c. The Jews, too, had their pontiffs; and among the Romanists, the pope is still styled the *sovereign pontiff*.

PONTIFICATE, is used for the state or dignity of a pontiff or high-priest; but more particularly in modern writers for the reign of a pope.

PONTIUS PILATE. See **PILATE**.

PONTON, or **PONTOON**, in *War*, a kind of flat-bottomed boat, whose carcase of wood is lined within and without with tin: they serve to lay bridges over rivers for the artillery and army to march over. The French pontoons, and those of most other powers, are made of copper on the outside: though these cost more at first, yet they last much longer than those of tin; and when worn out, the copper sells nearly for as

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much as it cost at first; but when ours are rendered useless, they sell for nothing. Our pontoons are 21 feet long, five feet broad, and depth within two feet 1.5 inches.

PONTOON-CARRIAGE, is made with two wheels only, and two long side-pieces, whose fore-ends are supported by a limber; and serves to carry the pontoon, boards, cross-timbers, anchors, and every other thing necessary for making a bridge.

PONTOON-BRIDGE, is made of pontoons slipped into the water, and placed about five or six feet asunder; each fastened with an anchor, when the river has a strong current; or to a strong rope that goes across the river, running through the rings of the pontoons. Each boat has an anchor, cable baulks, and chests. The baulks are about five or six inches square, and 21 feet long. The chests are boards joined together by wooden bars, about three feet broad and 12 feet long. The baulks are laid across the pontoons at some distance from one another, and the chests upon them joined close; which makes a bridge in a very short time, capable of supporting any weight.

PONT ST ESPRIT, is a town of France, in Languedoc, in the diocese of Uzes. It is seated on the river Rhone, over which is one of the finest bridges in France. It is 840 yards long, and consists of 26 arches. Each pier is pierced with an aperture, in order to facilitate the passage of the water when the river is high. The town is large, but the streets are narrow and ill built. It formerly contained several churches and convents. It is 17 miles south of Viviers, and 55 north-east of Montpelier. E. Long. 4. 46. N. Lat. 44. 13.

PONTUS, the name of an ancient kingdom of Asia, originally a part of Cappadocia; bounded on the east by Colchis, on the west by the river Halys, on the north by the Euxine sea, and on the south by Armenia Minor. Some derive the name of Pontus from the neighbouring sea, commonly called by the Latins *Pontus Euxinus*; others from an ancient king named *Pontus*, who imparted his name both to the country and the sea; but Bochart deduces it from the Phœnician word *botno*, signifying a filberd, as if that nut abounded remarkably in this place. But this derivation seems to be very far fetched; and the common opinion that the country derived its name from the sea, seems by far the most probable. The kingdom was divided into three parts; the first, named *Pontus Galaticus*, extending from the river Halys to the Thermodon; the second, named *Pontus Polemonaicus*, extended from the Thermodon to the borders of *Pontus Cappadocicus*; and this last extended from *Pontus Polemonaicus* to Colchis, having Armenia Minor and the upper stream of the Euphrates for its southern boundary.

It is commonly believed, that the first inhabitants of Pontus were descended from Tubal; but in process of time mixed with Cappadocians, Paphlagonians, and other foreign nations, besides many Greek colonies which settled in those parts, and maintained their liberty till the time of Mithridates the Great and Pharnaces. The first king of this country whom we find mentioned in history is Artabazes, who had the crown bestowed on him by Darius (A) Hytaspes. The next was Rhodobates,

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(A) This country, together with the adjacent provinces, was in different periods under the dominion of the Assyrians,

Pontus.

bates, who reigned in the time of Darius Nothus. After him came Mithridates, who, refusing to pay the usual tribute to the Persians, was defeated by Artaxerxes Mnemon; but a peace was soon after concluded by the mediation of Tissaphernes. Besides this, we hear nothing of him farther than that he was treacherously taken prisoner by Clearchus afterwards tyrant of Heraclea, and obliged to pay a large sum for his ransom.

3
Mithridates I.

Mithridates I. was succeeded by Ariobarzanes, who being appointed by Artaxerxes governor of Lydia, Ionia, and Phrygia, employed the forces that were under his care in the extending of his own dominions, and subduing those of his natural prince. The king of Persia sent one Autophrodotes against him; but Ariobarzanes, having with great promises prevailed on Agefilus and Timotheus the Athenian to come to his assistance, obliged Autophrodotes to retire. He then rewarded Agefilus with a great sum of money, and bestowed on Timotheus the cities of Sestos and Abydos, which he had lately taken from the Persians. He used his utmost endeavours to reconcile the Lacedemonians and Thebans; but not being able to bring the latter to any reasonable terms, he assisted the Lacedemonians with vast sums of money. The Athenians showed so much respect for this prince, that they not only made him free of their city, but granted both him and his children whatever they asked of them. He was murdered in the 28th year of his reign by one Mithridates, whom authors suppose to have been his son. This happened at the time that Alexander the Great invaded Asia, so that Pontus for a time fell under the power of the Macedonians.

4
Ariobarzanes shakes off the Macedonian yoke.

In the reign of Antigonus, Mithridates the son of Ariobarzanes shook off the Macedonian yoke; the particulars of which event are related as follow. Antigonus having dreamed that he had a field in which gold grew after the manner of corn, and that Mithridates cut it down and carried it into Pontus, began to be very jealous of him, and ordered him to be put to death privately. But Mithridates, having got notice of the king's intention, withdrew into Paphlagonia, attended only by six horsemen. Here, being joined by many others, he possessed himself of Ciniatum, a stronghold situated near Mount Olgasys; from whence, as his army continually increased, he made an irruption into Cappadocia; and having driven the commanders of Antigonus from that part which borders upon Pontus, he entered his paternal kingdom, which, in spite of the utmost efforts of Antigonus, he held for the space of 26 years, and transmitted to his posterity.

Under the reigns of Mithridates III. Ariobarzanes II. and Mithridates IV. the immediate successors of Mithridates II. nothing remarkable happened. But Mithridates V. made war on the inhabitants of Sinope, a city on the coast of Paphlagonia. He made himself master of all the adjacent places; but finding the whole peninsula, on which Sinope itself stood, well fortified and garrisoned, not only by the inhabitants, but by their allies the Rhodians, he abandoned the enterprize. He after-

wards proved a great friend to the Rhodians, and assisted them with money to repair the losses they had sustained by an earthquake. He entered also into a strict alliance with Antiochus the Great, who married one of his daughters named *Laodice*.

Pontus.

After the death of Mithridates V. his son Pharnaces I. attacking the city of Sinope, unexpectedly took it by storm. On this the Rhodians sent ambassadors to Rome, complaining of the behaviour of the king of Pontus; but Pharnaces was so far from being intimidated by their threats, that he invaded the territories of Eumenes their great ally. The latter sent ambassadors to Rome, and entered into an alliance with Ariarathes king of Cappadocia. Pharnaces, in his turn, sent ambassadors to Rome, complaining of Eumenes and Ariarathes; upon which some Romans were sent into Asia to inquire into the state of matters. These found Eumenes and his associates willing to accommodate the difference, but Pharnaces in a quite opposite disposition, which they accordingly reported at Rome.

5
Pharnaces I. differs with the Romans.

In the mean time a war was commenced between Eumenes and Pharnaces; but the latter, being disappointed of assistance from Seleucus king of Syria, whom the Romans would not allow to join him, was at last forced to sue for peace; which was granted him upon the following conditions: That he should forthwith withdraw his forces from Galatia, and disannul all engagements and alliances with the inhabitants of that country; that he should in like manner evacuate Paphlagonia, and send back such as he had from thence carried into slavery; that he should restore to Ariarathes all the places which he had taken during the war, the hostages of both kings, all their prisoners without ransom, and moreover should deliver up to them such of their subjects as from the first breaking out of the war had fled to him; that he should return to Morzias, a petty king in these parts, and to Ariarathes, 900 talents which he had seized in the war, and pay down 300 more to Eumenes as a fine for invading his dominions without provocation. Mithridates, king of Armenia, having in this war joined Pharnaces, was, by the articles of the treaty, obliged to pay 300 talents to Ariarathes for having assisted his enemy contrary to an alliance at that time subsisting between them. Soon after Pharnaces died, and left the kingdom to his son Mithridates VI. more weakened by this peace than by the most destructive war.

6
Concludes a most advantageous peace.

The new king entered into an alliance with the Romans, and proved such a faithful friend, that he was rewarded by the senate with Phrygia Major, and honoured with the title of the friend and ally of the people of Rome. After a long and prosperous reign, he was murdered by some of his intimate acquaintance, and was succeeded by his son Mithridates VII. surnamed the *Great*.

7
His son enters into alliance with the Romans.

The new prince, though not exceeding 13 years of age, began his reign with most inhuman acts of cruelty to his mother and nearest relations. His father, by his last will, had appointed him and his mother joint heirs

8

Mithridates the Great a cruel prince.

to

syrians, Medes, and Persians; the last of whom divided Cappadocia into satrapies or governments, and bestowed that division which was afterwards called *Pontus* on one of the ancestors of Mithridates. This regulation was effected in the reign of Darius the son of Hystaspes, and has been regarded as the date of the kingdom.

^{Pontus.} to the kingdom; but he, claiming the whole, threw her into prison, where she soon died through the hard usage she met with. Those to whom the care of his education was committed, observing him to be of a cruel and unruly temper, made various attempts on his life, but could never effect their design, as the king was always on his guard, and armed, in that tender age, against all kind of treachery, without showing the least diffidence.

⁹
His extraordinary qualities.

In his youth Mithridates took care to inure himself to hardships, passing whole months in the open air, employed in the exercise of hunting, and often taking his rest amidst the frozen snow. When he came of age, he married his sister named *Laodice*, by whom he had a son named *Pharnaces*. After this he took a journey through many different kingdoms of Asia, having nothing less in view than the whole continent. He learned their different languages, of which he is said to have spoken 22; took an estimate of their strength; and above all viewed narrowly their strongholds and fortified towns. In this journey he spent three years; during which time, a report being spread abroad that he was dead, his wife *Laodice* had a criminal conversation with one of the lords of her court, and had a son by him. When her husband returned, she presented him with a poisoned bowl; but Mithridates had accustomed himself to take poison from his infancy, so that it had now no other effect than to hasten the destruction of his wife, which very soon took place, together with all those who had been in any way accessory to her disloyalty and incontinence.

¹⁰
Conquers several countries.

The king now began to put in execution his schemes of conquest. However, he certainly took the wrong method, by attacking first those nations which were immediately under the protection of Rome, and thus at once provoking that powerful people to fall upon him. He began with Paphlagonia, which the Romans had declared a free state. This country he easily reduced, and divided between himself and Nicomedes king of Bithynia, at that time his ally. The Romans remonstrated; but Mithridates, instead of paying any regard to their remonstrances, invaded Galatia, which was immediately under their protection. This he also reduced, and then turned his eyes on Cappadocia. But as the kingdom of Cappadocia was at that time held by Ariarathes, who was a great favourite of the Romans, and married to the sister of Mithridates, the latter hired an assassin to dispatch Ariarathes, after which he thought he might succeed better in his designs. After the death of Ariarathes, Cappadocia was invaded by Nicomedes king of Bithynia, who drove out the son, and married the widow of Ariarathes. This gave Mithridates a plausible pretence for invading Cappadocia; which he instantly did, and drove Nicomedes quite out of the country. Thus Mithridates gained considerable reputation, not only as a warrior, but as a just and good-natured prince; for as it was not known that he had any hand in the murder of Ariarathes, every one imagined that he had undertaken the war against Nicomedes, merely to revenge the quarrel of his nephew, and to restore him to his right. To keep up the farce a little longer, Mithridates actually withdrew his troops out of the country, and left the young prince master of the kingdom. In a short time, however, he began to press the young king of Cappadocia to recal the assassin Gor-

¹¹
Causes the king of Cappadocia to be murdered.

dius, who had murdered his father: but this the king of Cappadocia refused with indignation; and Mithridates, being determined on a quarrel at all events, took the field with an army of 80,000 foot, 10,000 horse, and 600 chariots armed with scythes. With this force he imagined he should carry all before him: but finding the king of Cappadocia ready to oppose him with a force no way inferior to his own, he had recourse to treachery; and inviting his nephew to a conference, stabbed him, in the sight of both armies, with a dagger which he had concealed in the plaits of his garment. This barbarous and unexpected piece of treachery had such an effect on the Cappadocians that they threw down their arms, and suffered Mithridates, without opposition, to seize upon all their strong holds. He resigned the kingdom, however, to his son, a child of eight years of age. The care of the young prince, and of the whole kingdom, he committed to Gordius; but the Cappadocians, disdaining to be ruled by such a scandalous assassin, placed on the throne the brother of Ariarathes, who had kept himself concealed in some part of Asia. His reign, however, was of short duration; he being soon after driven out by Mithridates, and the Cappadocians again reduced. The unhappy prince died of grief; and in him ended the family of Pharnaces, who had ruled Cappadocia from the time of Cyrus the Great.

^{Pontus.}

¹²
Assassinates his own nephew.

Nicomedes, king of Bithynia, being now greatly afraid of Mithridates, and supposing that his own dominions would next fall a prey to the ambitious conqueror, suborned a youth of a comely and majestic aspect to pretend that he was a third son of Ariarathes, to go to Rome, and demand the kingdom of Cappadocia as his just right. He was received by the senate with the greatest kindness, and *Laodice* the wife of Nicomedes even confirmed the deceit by her oath. But in the mean time Mithridates having got intelligence of the plot, sent notice of it by Gordius to the Romans, so that the imposture was soon known at Rome also. The consequence of this was, that the senate commanded Mithridates to relinquish Cappadocia, and Nicomedes that part of Paphlagonia which he possessed; declaring both these countries free. The Cappadocians protested that they could not live without a king; upon which they were allowed to choose one of their own nation. Mithridates used all his interest in favour of Gordius; but he being excluded by the Romans, one Ariobarzanes was chosen by the majority of votes.

¹³
Nicomedes king of Bithynia attempts to deceive the Romans.

¹⁴
The deceit exposed by Mithridates.

To enforce this election, Sylla was sent into Cappadocia. He had the character of an ambassador, but the real intent of his coming was to disappoint the ambitious designs of Mithridates. With a handful of forces he defeated a numerous army of Cappadocians and Armenians commanded by Gordius, and settled Ariobarzanes on the throne. But no sooner was Sylla gone than Mithridates stirred up Tigranes king of Armenia against Ariobarzanes, who, without making any resistance, fled to Rome, and Tigranes restored the kingdom to Ariarathes the son of Mithridates. At the same time died the king of Bithynia; upon which Mithridates immediately invaded that country, and drove out Nicomedes the natural son of the late king. But the expelled prince, having fled to Rome, and being assisted by that powerful republic, the king of Pontus was soon obliged to abandon Bithynia and Cappadocia.

¹⁵
Ariobarzanes settled on the throne of Cappadocia by the Romans, but driven out by Mithridates.

Pontus.
16
who en-
gages in a
war with the Ro-
mans.

The Romans now being exceedingly jealous of the power and ambition of Mithridates, resolved to humble him at all events. For this purpose they sent ambassadors to the kings of Bithynia and Cappadocia, desiring them to make frequent inroads into the neighbouring territories of Mithridates, and behave there as they pleased; assuring them of powerful assistance in case they should have occasion. Ariobarzanes could not by any means be induced to provoke so powerful a neighbour; but Nicomedes being induced, partly by promises and partly by menaces, to comply, entered Pontus, where he laid waste whole provinces with fire and sword. Mithridates complained to the Roman legates: but they replied, that he himself had been the first aggressor; that Nicomedes had only paid him in his own coin, and that they would not allow him to hurt their friend and ally. Upon this Mithridates, entering Cappadocia with a numerous army, put to flight the united forces of Ariobarzanes and Altinius the Roman legate; thus making himself once more master of this kingdom. In the mean time he sent ambassadors to Rome, complaining of the proceedings of Nicomedes: but his ambassadors met with a very indifferent reception; being enjoined to tell their master, that he must either restore the kingdom of Cappadocia to Ariobarzanes, and make peace with Nicomedes, or be accounted an enemy of the Roman people. With this answer they were commanded to depart the city that very day, and told that no more ambassadors could be admitted till such time as their commands were obeyed.

17
Defeats A-
riobarzanes
and Altinius.

In the mean time both parties prepared for war. The Roman legates in Asia drew together all the forces they could muster in Bithynia, Cappadocia, Paphlagonia, and Galatia; and, being joined by Cassius governor of Asia, took the field against Mithridates in the year 89 B. C. They divided their army into several small bodies: Cassius encamped on the confines of Bithynia and Galatia; Manius Aquilius with his body possessed himself of the avenues leading from Pontus into Bithynia; Quintus Oppius secured the entrance into Cappadocia; and the admirals Minucius Rufus and C. Popilius lay with a fleet of 300 sail at Byzantium, to prevent the enemy from entering the Euxine sea. Each of the generals had under his command an army of 40,000 men; besides a body of 50,000 foot and 6000 horse brought to their assistance by Nicomedes.

18
and Nico-
medes and
Manius A-
quilius.

On the other hand, Mithridates having invited several of the neighbouring nations to join him, collected an army of 250,000 foot, 50,000 horse, 130 chariots armed with scythes; besides 300 ships and 100 galleys. Part of this force he detached against Nicomedes; and utterly defeated him, though much superior in number, as he was taking possession of an advantageous post by order of Cassius. Another part he detached against Manius Aquilius, whom he also defeated with the loss of 10,000 killed on the spot, and 3000 taken prisoners; on which the other Roman generals abandoned their posts, the fleet also dispersed, and most of the ships were either taken or sunk by the admirals of Mithridates.

19
Overruns
Asia Mi-
nor.

The king of Pontus now resolving to improve the opportunity, and drive the Romans entirely out of Asia, overran all Phrygia, Mysia, Asia Proper, Caria, Lycia, Pamphylia, Paphlagonia, and Bithynia, with all the rest of the countries which had either belonged to or sided with the Romans, as far as Ionia. He was re-

ceived everywhere with the greatest demonstrations of joy; the inhabitants flocking to him in white garments, and calling him their father, deliverer, their god, and the great and sole lord of all Asia. What gained him the affections of the people was his kind usage to the prisoners he had taken in the two engagements above mentioned; for he not only sent them all home without ransom, but furnished them with plenty of provisions, and money sufficient to defray their expences by the way. Ambassadors flocked to him from all parts; and among others, from Laodicea on the Lycus, to whom the king promised his protection, provided they delivered up to him Q. Oppius governor of Pamphylia, who had fled thither for protection. This request was readily complied with; Oppius was sent to him in chains, with lictors walking before him in derision of the Roman pride and ostentation. Mithridates was overjoyed to see a Roman general and proconsul in his power; and his joy was soon after increased by the arrival of Manius Aquilius, whom the Lesbians, revolting from the Romans, sent to him in fetters, together with many other Romans of distinction who had taken shelter among them. As he had been the chief author of the war, Mithridates led him about with him wherever he went, either bound on an ass, or on foot coupled with one Bastarnes a public malefactor, compelling him to proclaim to the crowds who came to see him, that he was Manius Aquilius the Roman legate. When he came to Pergamus, he caused him first to be publicly whipped, then to be put on the rack, and lastly melted gold to be poured down his throat.

20
Puts A-
quilius to
death.

Mithridates being now looked upon as invincible, all the free cities of Asia received him as their sovereign, contributing large sums towards the defraying the expences of the war; by which means he became possessed of such treasures as enabled him to keep several numerous armies in the field for five years without levying any taxes on his subjects. As many Roman citizens were dispersed in the provinces which Mithridates had subdued, he considered these as so many spies, who would not fail to send an account of his proceedings to Rome: for which reason he resolved to cut them all off at once by a general massacre; which barbarous policy, it is said, had never been heard of till his time, but has been since practised by other nations. He dispatched private letters to all the governors and magistrates of the cities where the Romans resided, enjoining them on pain of death, and the entire destruction of their country, to cause all the Italian race, women and children not excepted, to be murdered on the 30th day from the date of his letters, and to let their bodies lie unburied in the open fields. One moiety of their goods was to be forfeited to the king, and the other bestowed as a reward on the assassins. Whatever slave murdered his master was to receive his liberty, and one half of the debt was to be remitted to the debtor that should kill his creditor. Whoever concealed an Italian, under any pretence whatever, was to be punished with immediate death. On the fatal day, all the gates of the cities being shut, and the avenues kept with soldiers, the king's orders were proclaimed, which caused an universal horror, not only among the unhappy victims themselves, but among those who had any feelings of humanity, at seeing themselves obliged either to betray and murder their innocent guests, friends, and relations, or to become liable

21
Cruelly
massacres
all the Ro-
mans in
Asia.

Pontus. to a cruel death. However, as most of the Asiatics bore a mortal hatred to the Romans, and were more-over animated by the promise of an ample reward, the orders were without delay put in execution. The inhabitants of Ephesus, where Mithridates then resided, dragged such as had taken sanctuary in the temple of Diana from the very statue of the goddess, and put them to the sword. The Pergamenians discharged showers of darts upon them as they embraced the statues in the temple of Esculapius. At Adramyttium in Mysia many were murdered in the water, while they were attempting, with their children on their backs, to swim over to the island of Lesbos. The Caunians, who not long before had been delivered from the yoke of the Rhodians, and restored to their ancient privileges, excelled all the rest in cruelty: for, as if they had apostatized from human nature, they took pleasure in tormenting and butchering the innocent children before their mothers eyes; some of them running distracted, and others dying with grief at a sight which nature could not bear. The Trallians were the only people on the continent who would not have the cruelty to imbrue their hands in the blood of the innocent Italians. However, as the king's orders were peremptory, they hired one Theophilus a Paphlagonian to dispatch the few Romans that lived among them. He, having shut them all up together in the temple of Concord, first cut off their hands as they embraced the statues of the gods, and then hacked them in pieces. Many Romans were saved on the floating islands of Lydia called *Calaminæ*, where they concealed themselves till such time as they found an opportunity of escaping out of Asia. Nevertheless, according to Plutarch and Dion, 150,000 Roman citizens were massacred on that day; but, according to others, only 80,000.

22
Reduces
the island
of Cos;

Mithridates having now got rid of those whom he was in dread of on the continent, embarked great part of his forces in order to reduce the islands of the Archipelago. At Cos he was gladly received, and had delivered up to him the young Alexander, son of Alexander king of Egypt, who being driven out of that country, was killed by Chareas a sea-captain as he was retiring in a small vessel to Cyprus. With the young prince, they put into the king's hands vast sums of money, with all the golden vessels and jewels, to an immense value, which his grandmother Cleopatra had been amassing for many years. To the young prince Mithridates gave an education suitable for a king's son, but kept the treasures to himself. Here likewise he found 800 talents in ready money, which, at the first breaking out of the war, had been deposited by the Jews of Asia, and were designed for the temple of Jerusalem.

23
but fails in
his attempt
upon
Rhodes.

From Cos Mithridates steered his course for Rhodes, where at that time all the Romans who had escaped the massacre above-mentioned found a sanctuary, and, amongst others, L. Cassius the proconsul. The Rhodians, however, being very expert in maritime affairs, Mithridates did not think proper to venture an engagement. As the enemy's fleet advanced, therefore, he retired; but six of the Rhodian ships coming up with 25 of his, a sharp action ensued, in which the Rhodians sunk two of the king's ships, and put the rest to flight. In this encounter, though Mithridates had never seen a sea-fight before, he behaved with great intrepidity; but one of the ships of his own squadron falling foul of that

which carried him, he was very near being taken prisoner. From this time forth he abhorred the sea, and took an aversion to all the Chians, because the pilot of that ship was a Chian. However, he again appeared before the island; but was forced anew to leave it with disgrace, and to give over all thoughts of reducing it.

Pontus.

Mithridates now retired into Asia, with a design to settle the civil government of the countries which he had conquered, committing the care of the war to his generals. Archelaus, his generalissimo, was sent into Greece with an army of 120,000 men; where, by treachery, he made himself master of Athens, and either put to the sword or sent to Mithridates all those who favoured or were suspected to favour the Romans. From Athens he dispatched parties to reduce the neighbouring castles and the island of Delos, which they did accordingly; but Orobias, a Roman general, hearing that the enemy kept no guards, but passed their time in carousing and debauchery, fell upon them unexpectedly, and cut off the whole party, except Apellicon the commander.

24
His gene-
rals reduce
all Greece.

In the mean time, Metrophanes, another of the king's generals, entering Euboea, laid waste the whole country, exerting his rage chiefly against the cities of Demetrias and Magnesia, which refused to open their gates to him. But as he was sailing off with a great booty, Brytius, the prætor or governor of Macedonia, coming up with him, sunk some of his ships, and took others, putting all the prisoners to the sword. Mithridates, upon the news of this loss, sent his son Ariarathes with a powerful army to invade Macedonia; which he soon reduced, together with the kingdom of Thrace, driving the Romans everywhere before him. The generals whom he sent into other quarters were no less successful; so that Mithridates had, according to Aulus Gellius, 25 different nations who paid him homage. The same author adds, that he was skilled in every one of their various languages, so that he could converse with the natives without an interpreter. Among these nations we find the Rhoxani, now the Russians or Muscovites, whom Deiphontus, one of the king's generals, brought under subjection, after having slain in an engagement 50,000 of the barbarians.

All this time the Romans had been too much taken up with their own domestic quarrels to take such effectual measures as they otherwise would have done for checking the progress of Mithridates. But at last, 25
Sylla sent
him, having received certain advice that the king designed to invade Italy, and that he had even been solicited to do so by some of the revolted Italians, they sent against him Lucius Sylla, who had already given sufficient proofs of his courage, conduct, and experience in war. He had with him only five legions and a few cohorts. With this inconsiderable force he landed in Attica, and in a short time made himself master of the capital; Archelaus not daring, or, according to others, through treachery, nor caring, to engage him. As Sylla had but a few frigates, he sent Lucullus to the island of Rhodes, with orders to the Rhodians to join him with their fleet. The undertaking was very dangerous, as the king's fleet in a manner covered the sea. However, Lucullus, despising all danger, ventured out, and failed, without meeting with any perverse accident, to Syria, Egypt, Libya, and Cyprus; from whence he returned with

^{Pontus.} with such supplies of ships and experienced mariners, as enabled Sylla, after their conjunction with the Rhodians, to act offensively by sea also. Archelaus now dispatched messengers to Taxiles, who commanded in Thrace and Macedon, desiring him to join him with all his forces; which the other readily did, and between both mustered an army of 120,000 men: Sylla met them near Cheronæa with only 15,000 foot and 1500 horse; but gave them a most dreadful overthrow, no fewer than 110,000 of the Asiatics being slaughtered, while the Romans lost only 12 men.

This success having raised envy and jealousy against Sylla in Rome, the senate sent Lucius Valerius Flaccus, the consul of that year, with two legions into Asia, in appearance to attack Mithridates on that side, but with private instructions to fall upon Sylla himself, if they found him disaffected to the senate. As Flaccus was a man of no experience in war, C. Fimbria, a senator of great repute among the soldiery, was appointed to attend him with the character of legate and lieutenant-general. Sylla was at that time in Bœotia; but, hearing what had happened at Rome, he marched with all expedition into Thessaly, with a design to meet Flaccus, who, he expected, was to land in that province. But no sooner had he left Bœotia, than the country was overrun by an army of Asiatics, under the command of Dorylaus the king's chief favourite. On this advice Sylla returned into Bœotia, where he gained two signal victories, which put an end to the war in Greece.

²⁶ who totally defeats his generals in Greece.

²⁷ Flaccus and Fimbria sent into Asia.

²⁸ Sylla gains two other victories in Greece.

In the first of these Dorylaus lost 150,000 of his men according to some, or 200,000 according to others; and in the next all the rest. In this last engagement 20,000 were driven into a river, where they all perished; an equal number were pursued into a marsh, and entirely cut off; the rest were killed in the heat of the battle, the Romans giving no quarter to men who had treated their fellow-citizens after such a barbarous manner in Asia. Plutarch tells us, that the marshes were dyed with blood; that the course of the river was stopped by the dead bodies; and that even in his time, that is, near 200 years after, a great number of bows, helmets, coats of mail, and swords, were found buried in the mud. Archelaus, who had joined Dorylaus with a body of 10,000 men a few days before the battle, lay three days stripped among the slain till he found a small vessel which carried him to Eubœa, where he gathered what forces he could, but was never again able to appear in the field. Indeed Livy tells us, that Archelaus betrayed the king's cause; and Aurelius Victor, that the king's fleet was intercepted by Sylla through the treachery of Archelaus: adding, that there was a good understanding between the two commanders, as was plain from Sylla's bestowing upon Archelaus 10,000 acres of land near the city of Chalcis in Eubœa. Strabo also informs us, that Archelaus was afterwards greatly esteemed and caressed by Sylla and the senate; but Sylla himself in his commentaries, and Dio, endeavour to clear Archelaus from all suspicion of treachery.

In the mean time, Sylla having given up Bœotia to be plundered by his soldiers, marched into Thessaly, where he took up his winter-quarters, caused his old ships to be refitted and several new ones built, in order to pass over into Asia in the beginning of the spring, that he might drive from thence not only Mithridates,

but his rival Flaccus also, whom the senate, out of opposition to him, had appointed governor of that province. But before he arrived, some differences having arisen between Flaccus and Fimbria, the latter was by the consul deprived of his command. Upon this Fimbria, having gained over the soldiery to his side, made war on the consul, took him prisoner, put him to death, and assumed the command of all the Roman forces in Asia. In this station, he behaved with the greatest cruelty, insomuch that his name became more odious than even that of Mithridates himself. This hatred the king of Pontus endeavoured to improve to his own advantage; and therefore commanded his son, by name also *Mithridates*, to join Taxiles, Diophantes, and Menander, three of his most experienced commanders, to return at the head of a numerous army into Asia; not doubting but the inhabitants, thus harassed by Fimbria, would shake off the Roman yoke when they saw such a powerful army in the field ready to protect them. But Fimbria, distrusting the Asiatics, marched out to meet the enemy, and offered them battle before they entered the province. As the king's army was greatly superior to the Romans in number, the latter suffered greatly in the engagement, but held out till night parted them, when they withdrew to the opposite side of a river, which was at a small distance from the field of battle. Here they designed to intrench themselves: but in the mean time a violent storm arising, Fimbria laid hold of that opportunity to repass the river and surprise the enemy: of whom he made such havock as they lay in their tents, that only the commanders and some few troops of horse escaped. Among these was the king's son; who, attended by a few horse, got safe to Pergamus, where his father resided. But Fimbria, pursuing him night and day without intermission, entered Pergamus sword in hand; and hearing that both Mithridates and his son had fled from thence a few hours before, he continued his pursuit, and would have taken the king himself, had he not entered Pitane with a considerable body of horse. The place was closely invested by Fimbria; but as he had no ships to block it up by sea also, he sent a messenger to Lucullus, who commanded the Roman navy in Asia, intreating him, as he tendered the welfare of the republic, to make what haste he could to Pitane, and assist him in taking the most inveterate enemy the Romans had. But Lucullus, preferring the gratification of a private pique to the good of his country, refused to come: and thus allowed the fleet of Mithridates to carry him in safety to Mitylene.

Soon after the king's departure, Fimbria took Pitane by storm, and reduced most of the cities of Asia, particularly Troy, which he also took by storm in eleven days, and put most of the inhabitants to the sword, because they had sent an embassy to Sylla, offering to submit to him rather than to Fimbria.—To add to the misfortunes of Mithridates, his fleet was entirely defeated in two engagements by Lucullus; so that he began to be weary of the war, and therefore desired Archelaus to conclude a peace upon as honourable terms as he could. The king himself had afterwards also a conference with Sylla, and a peace was concluded in 85 B. C. on the following terms, viz. That Mithridates should relinquish all his conquests, and content himself with his paternal dominions, which were confined

Pontus. ed within the limits of Pontus: that he should immediately resign Bithynia to Nicomedes, and Cappadocia to Ariobarzanes, and release without ransom all the prisoners he had taken during the war: that he should pay to the Romans 2000, or as others will have it 3000, talents, and deliver up to Sylla 80 ships with all their arms and ammunition, and 500 archers; and lastly, that he should not molest such cities or persons as had during the war revolted from him and sided with the Romans.

Sylla, having thus concluded the war with great glory to himself and advantage to the republic, turned his army against Fimbria; but the latter, finding himself in no condition to oppose his rival by force, had recourse to treachery, and attempted to get Sylla murdered. The plot miscarried, and Fimbria put an end to his own life; upon which Sylla, having now an uncontrolled power in Asia, declared the Chians, Rhodians, Lycians, Magnesians, and Trojans, free, and friends of the people of Rome, by way of reward for their having sided with the Romans: but on the other cities he laid heavy fines; condemning them in one year to pay 20,000 talents, and quartering his soldiers in the houses of those who had shown disaffection to the Romans. Each private man was to receive of his landlord 16 drachmas a-day, and each officer 50; and besides, both were to be supplied with provisions, not only for themselves, but for such of their friends as they thought proper to invite. By these impositions most of the people of Asia were reduced to beggary; especially the inhabitants of Ephesus, who had above all others shown their hatred to the Romans. Sylla then, having collected immense treasure, set sail for Italy; leaving behind him Lucullus with the character of *questor*, and Muræna with that of *prætor*.

The two legions which Fimbria had commanded were given to Muræna, because Sylla suspected them of an inclination to the faction of Marius, whose party he was going to crush at Rome.

34 Mithridates reduces the nations which had revolted from him. Mithridates in the mean time no sooner returned into Pontus, than he set about the reduction of those nations which had revolted from him during the war. He began with the Colchi; who immediately submitted, upon condition that Mithridates would give his son for a king over them. This was complied with; but the old king had thenceforward a jealousy of his son, and therefore first imprisoned and then put him to death. Soon after this, the king having made great preparations under pretence of reducing the Bosphori, a warlike nation who had revolted from him, the Romans began to be jealous. Their jealousy was further increased by Archelaus, who fled to them, and assured them that the preparations of Mithridates were not at all designed against the Bosphori. On hearing this, Muræna invaded Pontus without any farther provocation. The king put him in mind of the articles of peace concluded with Sylla: but Muræna replied that he knew of no such articles; for Sylla had set nothing down in writing, but contented himself with the execution of what had been agreed upon. Having given this answer, the Roman general began to lay waste and plunder the country, without sparing even the treasures or temples consecrated to the gods. Having put all to fire and sword on the frontiers of Pontus towards Cappadocia, he passed the river Halys, and on that side possessed himself of

35 The Romans invade his territories without provocation,

400 villages without opposition; for Mithridates was unwilling to commit any hostilities before the return of an ambassador whom he had sent to Rome to complain of the conduct of Muræna. At last the ambassador returned, and with him one Callidius; who, in public assembly, commanded Muræna to forbear molesting a friend and ally of the Roman people; but afterwards, calling him aside, he had a private conference with him, in which it is supposed, as he brought no decree of the senate, that he encouraged him to pursue the war. Whatever might be in this, it is certain that Muræna still continued to practise the same hostilities, and even made an attempt on Sinope, where the king resided and the royal treasures were kept. But as the town was well fortified, he was forced to retire with some loss. In the mean time Mithridates himself taking the field, appeared at the head of a powerful army, drove the Romans out of their camp, and forced them with great slaughter to save themselves over the mountains into Phrygia; which sudden victory again induced many cities to join Mithridates, and gave him an opportunity once more of driving the Romans out of Cappadocia.

In the mean time, Sylla, being created dictator at Rome, sent a messenger to Muræna, charging him in his name not to molest Mithridates, whom he had honoured with the title of a friend and ally of Rome. Muræna did not think proper to disregard this message; and therefore immediately abandoned all the places he had seized, and Mithridates again renounced Cappadocia, giving his own son as an hostage of his fidelity. Being then at leisure to pursue his other plans, Mithridates fell upon the Bosphori; and, having soon subdued them, appointed Machares one of his sons king of the country. But leading his army from thence against the Achæans, a people bordering on the Colchi, and originally descended from the Greeks, who returning from Troy had mistaken their way into Greece and settled there, he was defeated with the loss of three-fourths of his men. On his return to Pontus, however, he recruited his army, and made vast preparations to invade them anew; but in the mean time, hearing of Sylla's death, he came to the imprudent resolution of entering into a second war with the Romans. Having therefore induced his son-in-law Tigranes, king of Armenia, to invade Cappadocia, he himself entered Paphlagonia at the head of 120,000 foot disciplined after the Roman manner, 16,000 horse, and 100 chariots armed with scythes. This country readily submitted; after which the king marched into Bithynia, which also submitted without opposition; the province of Asia followed the example of the rest; for these countries being oppressed with exorbitant taxes, looked upon him as their deliverer. In entering the cities of Asia, he caused M. Marius or Varius, whom Sertorius had sent him out of Spain to discipline his troops, walk before him with the ensigns of consular dignity as if he was the chief magistrate; the king following as one of his attendants. He made several cities free; but at the same time acquainted the inhabitants, that they were indebted to Sertorius for their liberty; and thus, by the connivance of that general, many cities revolted from the Romans without knowing that they had done so. But in the mean time Julius Cæsar, being at that time at Rhodes, whither he had gone to study oratory, and hearing what havoc

Pontus.

36 but are defeated.

37 Engages in a new war with the Romans.

the

Fontus. the king's officer's made in the adjacent countries, he collected what troops he could, and falling unexpectedly upon them, drove them quite out of the province of Asia.

38
Lucullus
and Cotta
sent against
him.

The Roman senate, now finding a war unavoidable, appointed Lucullus to manage it. The other consul Cotta, having solicited an employment in this war, was sent with a fleet to guard the Propontis and defend Bithynia. Lucullus having raised one legion in Italy, passed over with it into Asia, where he was joined by four others, two of which, as they had served under Fimbria, proved at first very mutinous and refractory; nor were the other two much better, having been immersed in the Asiatic luxuries. The disciplining of these troops took up a considerable time, which was prejudicial to the Roman affairs; for almost all the Asiatics were ready to revolt, and Mithridates was making the greatest preparations. One of his armies was ordered to march into Cappadocia, under the command of Diophantus Matharus, in order to oppose Lucullus if he should attempt to enter Pontus on that side; another, commanded by Mithridates in person, consisted of 150,000 foot, 12,000 horse, and 100 chariots armed with scythes; a third army, commanded by Marius and Eumachus, two generals of great experience in war, was encamped in the neighbourhood of Heraclea in Pontus.

39
Mithridates
is at first
successful,

The beginning of the war proved favourable to Mithridates. Cotta being desired by Lucullus to keep his fleet within the harbour, as being inferior to that of Mithridates, resolved to take the first opportunity of fighting the king by land, not doubting of an easy victory. Having for this purpose collected all the forces he could, Cotta dispatched his legate, P. Rutilius, with a considerable body to observe the motions of the enemy. This commander being met by Marius and Eumachus, an engagement ensued, in which the Romans were defeated, and the greatest part of them, together with their commander, cut in pieces. The same misfortune befel several other officers of distinction sent out to oppose Mithridates; who, being elated with success, ordered his admiral to sail into the very harbour, and fire the Roman fleet. This was accordingly performed without the least opposition from Cotta; and 60 ships were taken, sunk, or burnt, on that occasion.

These victories having increased the rebellious disposition of the Asiatics, made Lucullus hasten his march in order to stop the progress of the enemy. But finding the king's army much more numerous than he expected, he thought proper to decline an engagement. However, several skirmishes happened, in which the Romans had always so much the advantage, that they became impatient for a general engagement. But Lucullus did not at this time choose to run so great a risk; and therefore Mithridates, seeing he could not force the Romans to a battle, decamped in the night-time, and by day-break reached Cyzicum, a most important city, and greatly attached to the Romans. Lucullus pursued him; and, falling on his rear, killed 10,000, and took 13,000 prisoners. After this, the Roman general, by a manoeuvre, gained an important pass, which enabled him to cut off all communication between the army of Mithridates and the neighbouring country. The king, seeing himself thus in danger of famine, redoubled his

40
but is re-
duced to
great straits
by Lucul-
lus,

efforts to gain the city; but finding that he could not batter down the walls, he resolved to undermine them. In this also he was unsuccessful; the besieged sunk countermines, and had very near taken the king himself in one of his own mines. In the mean time, winter coming on, the army of Mithridates was so distressed for want of provisions, that many died of hunger, while the survivors were forced to feed on the flesh of their dead companions. The famine was followed by a plague; which destroyed such numbers, that Mithridates was obliged to think of a retreat; and even this was become very dangerous. However, he laid hold of the opportunity when Lucullus went away to besiege a neighbouring castle, and sent off the greatest part of his cavalry in the night; ordering them not to halt till they were out of the reach of the enemy. But Lucullus having got intelligence of their march, suddenly re-⁴¹turned, and pursued them so close, that he came up with them as they were passing a river, took 600 horse, all their beasts of burden, 15,000 men, and put the rest to the sword. On his return he fell in with Aristonicus the king's admiral, whom he took, just as he was ready to sail with a large sum of money designed to bribe the Roman army. In the mean time Mithridates, finding himself reduced to the last extremity, embarked in the night-time with the greatest part of the forces, while Marius and Eumachus, with 30,000 men, made the best of their way to Lampfacus. But being closely pursued by the Romans, they were overtaken at the river *Æsopus*, which at that time was not fordable, by reason of its having been swelled by heavy rains. Twenty thousand were killed on the spot; nor could a single man have escaped, had not the Asiatics scattered great quantities of gold and silver in the way, that the march of the Romans might be retarded by their stopping to gather it up. Lucullus on his return entered Cyzicum amidst the acclamations of the citizens; who afterwards instituted public sports in honour of him, which they called *Lucullea*. The city was declared free, and all the privileges, exemptions, and immunities, bestowed upon the citizens which were enjoyed by the inhabitants of Rome itself.

Pontus.

41
who cuts
off great
numbers of
his men.

From Cyzicum, Lucullus marched along the coast of ⁴²Lucullus the Hellespont till he came to Troas; where he equipped his fleet, and put to sea in quest of Marius, Alexander, and Dionysius, three of the king's generals, who had a fleet of 50 ships, with 10,000 land-forces on board. Lucullus came up with them near the island of Lemnos, took 32 of their ships, and put a great number of their land-forces to the sword. The day after the engagement the three generals were discovered in a cave where they had concealed themselves, and dragged from thence to Lucullus; who, after having severely upbraided Marius for fighting against his country, caused him to be put to death. Alexander and Dionysius were reserved for the triumph; but the latter poisoned himself to avoid that disgrace. Lucullus then steered his course for Bithynia, on receiving intelligence that Mithridates had appeared with his fleet on those coasts; but the king having notice of his approach, made what haste he could to gain Pontus, and arrived at Heraclea on board a pirate named *Selemus*; with whom he was obliged to trust himself, his fleet being dispersed by a violent storm, and the ship that carried him cast away.

42
gains a
great vic-
tory at sea.

Pontus.
43
Farther
successes of
Lucullus.

In the mean time Mithridates was no less unfortunate by land than by sea. Triarius, one of the officers of Lucullus, reduced the cities of Apamea, Prusa, Prusias, and Nicæa. From thence he marched with all expedition to Nicomedia, where the king himself was, and near which place Cotta lay encamped. But before the two armies could be joined, Mithridates escaped, first to Heraclea, which was betrayed to him, and from thence to Sinope. Nor was Lucullus himself all this time inactive. Having reduced all Paphlagonia and Bithynia, he marched into Cappadocia, and joined Cotta and Triarius at Nicomedia, with a design to invade Pontus; but hearing that Heraclea was in the hands of Mithridates, he dispatched Cotta to reduce that city. Triarius was ordered with the fleet to the Hellespont and Propontis, to intercept the king's fleet, which was daily expected from Spain with supplies from Sertorius. Lucullus himself, with the main strength of the army, pursued his march into Pontus. His army was greatly harassed, especially in the narrow passes between Cappadocia and Pontus, by flying parties of the enemy. But the greatest inconvenience was the want of provisions, as the king's troops had laid waste all the country round; insomuch that Lucullus having lost almost all his beasts of burden, was obliged to take along with the army 30,000 Galatians, each of them carrying a sack of corn on his back. At last, however, he gained the plains of Pontus; where provisions were so plentiful, that an ox was sold for a drachma, and every thing else in proportion.

The Roman general having now carried the war into the enemy's country, divided his forces, and at the same time invested a very strong town named *Amifus*; another called *Eupatoria*, built by Mithridates, and made the place of his residence; and another, named *Themiscyra*, situated on the banks of the Thermodcon. *Eupatoria* was soon taken, but *Themiscyra* made a vigorous resistance. The townsmen galled the Romans to such a degree, that, not daring to approach the walls openly, they contented themselves with undermining them: but in this too they met with no small difficulty; for the enemy countermined, and often engaged them, under ground, letting into the mines bears and other wild beasts, with swarms of bees, which obliged them to abandon their works. However, the town was at last obliged to surrender for want of provisions. As for *Amifus*, Lucullus himself sat down before it: but finding it strongly fortified and garrisoned with the flower of the king's troops, the Roman general thought proper to reduce it by famine; and on this occasion his countrymen first complained of him as protracting the war for his own advantage.

In the mean time Mithridates having recruited his shattered army, advanced to *Cabiræ*, a city not far distant from *Amifus*. Lucullus, leaving part of the army to continue the siege, marched at the head of the rest to oppose Mithridates. But the king having drawn his cavalry into a general engagement, defeated them with considerable loss, and drove them back to the mountains, through the passes of which Lucullus had lately marched to attack him. This check obliged the Roman general to retire to a rising ground near the city of *Cabiræ*, where the enemy could not force him to an engagement. Here provisions beginning to grow scarce, Lucullus sent out strong parties from his army into Cap-

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padocia, the only place from whence he could have supplies. One of these parties entirely defeated Taxiles and Diophantes, two of the king's generals, who had been stationed there to prevent Lucullus from having any communication with the country. The king, upon the news of this defeat, resolved to break up his camp and retire, not questioning but that Lucullus would attack him as soon as his forces returned. This resolution he no sooner imparted to his nobles, than they began privately to send away their most valuable goods; which being found out by the soldiers, they took it in such bad part that no intelligence had been given them, that they plundered their baggage, and put those who had the care of it to the sword. After this they betook themselves to flight, crowding out of the gates in the utmost confusion. The king hastened to stop their flight; but nobody showing him the least respect, he was carried away by the crowd, and in great danger of being trampled to death. Having with difficulty made his escape, he retired with a small retinue, first to *Cabiræ*, and then to his son-in-law *Tigranes*, king of Armenia. Lucullus dispatched the best part of his cavalry to pursue the fugitives; while he himself, with the rest, invested the camp of Mithridates, where those remained who could not fly with the rest. The camp was easily taken; but most of the soldiers made their escape, while the Romans, contrary to their general's orders, were busied in plundering. Lucullus then pursued hard after the king; who, being overtaken by a company of Galatians, caused a mule loaded with part of his treasures to be driven in among them, by which means he made his escape while they quarrelled about the booty. Mithridates, remembering in his flight, that he had left his sisters, wives, and concubines at *Pharnacia*, dispatched an eunuch, named *Bacchus* or *Bacchides*, with orders to put them all to death, lest they should fall into the hands of the enemy; which was accordingly done.

After the flight of Mithridates, the Romans no longer met with any opposition; the king's governors flocking from all parts to put themselves under the protection of the conqueror. Among these was the grandfather of *Strabo* the geographer, whom the king had disoblinded by putting to death his cousin-german *Tibias*, and his son *Theophilus*. He was a man of such credit, that it was no sooner heard that he had abandoned the king's party, than 15 other commanders delivered up to Lucullus the places with which they had been intrusted; and about the same time *Triarius* falling in with the king's fleet near the island of *Tenedos*, obtained a complete victory, having either taken or sunk 60 of the enemy's vessels.

All this time *Cotta* had been employed without success in besieging *Heraclea*, which he could never have reduced without the assistance of *Triarius*. That commander, having defeated the fleet, soon reduced the town to such distress, that a third part of the garrison died of hunger; upon which the governor, *Conacorex*, privately agreed with *Triarius* to deliver one of the gates to him. This was accordingly done; and the Romans, entering, made a terrible slaughter of the helpless inhabitants. But in the mean time *Cotta* provoked at seeing himself deprived both of all share of the booty, and the honour of reducing a place before which he had sat so long, fell upon his countrymen as they

Pontus.

44
The army
of Mithri-
dates muti-
nies, which
obliges the
king to fly
into Arme-
nia.

^{Pontus.} were busied in plundering; which would have occasioned a great deal of bloodshed, had not Triarius promised to divide the booty equally. Conacorix, in order to conceal his treachery, after marching out of Heraclea, seized on two forts belonging to the Romans; and Triarius being sent to recover them, Cotta, in his absence, plundered the city anew, rifled the temples which the other had spared, put all the citizens he could meet with to the sword, and having carried off every thing valuable, at last set fire to the city in several places, by which means it was soon reduced to ashes. Cotta then, having no farther occasion for his troops, dismissed the auxiliaries, resigned his legions to Lucullus, and put to sea himself in order to return to Rome. But he had scarcely got out of the harbour, when part of his ships, being overloaded with the spoils of the city, sunk; and the others, driven by a violent north wind, were dashed against the shore, which occasioned the loss of a great part of the booty. On his return to Rome, however, he was highly applauded by the senate, and honoured with the title of *Ponticus*.

Lucullus, having now reduced Pontus, marched against the Chaldeans, Tibarenians, and inhabitants of Armenia Minor; who voluntarily submitted to him, and put him in possession of all their strong holds. From Armenia, he returned before Amisus, which still held out; Callimachus, governor of the place, having harassed the Romans to such a degree by engines of his own contriving, that they had given over their assaults, and contented themselves with blocking it up by land, though the garrison was at the same time plentifully supplied with provisions by sea. Lucullus, on his arrival, summoned the city to surrender, offering the inhabitants very honourable terms; but, being refused, he made a general assault at the time when he knew that Callimachus used to draw off great part of his troops to give them some respite. The Romans applying their scaling ladders, got over the wall before Callimachus could come to the assistance of those whom he had left to guard it; however, by setting the city on fire, he found means in that confusion to make his escape. Lucullus commanded his men to use their utmost endeavours to save the city; but being intent only upon plundering, they regarded nothing but the furniture. At last the fire was extinguished by a violent shower; and Lucullus, having with difficulty restrained his soldiers from committing any farther excesses, repaired the city in some measure before he left it, and suffered the inhabitants to enjoy their possessions in peace.

Nothing was now wanting but the captivity of Mithridates himself to put a final period to the war; and therefore Lucullus demanded him from his son-in-law Tigranes. But though that prince could not be prevailed to see Mithridates on account of his misconduct, he could as little be induced to deliver him up to his enemies. After this refusal, however, he for the first time condescended to see his father-in-law, after he had resided a year and eight months in his dominions. In a private conference held by the two kings, it was agreed, that Tigranes should march against the Romans, and Mithridates with 10,000 horse return into Pontus, where he should make what levies he could, and rejoin Tigranes, before Lucullus, who

was then employed in the siege of Sinope, could enter Armenia. But, in the mean time, Sinope having surrendered, Lucullus with all possible expedition marched against Tigranes, and, having drawn him into a general engagement, gave him an entire defeat, as is related under the article ARMENIA. ^{Pontus.} ⁴⁵ Tigranes defeated by Lucullus,

Mithridates was marching to his assistance, when he met his son-in-law flying with a small retinue to shelter himself in some remote corner of the kingdom. He encouraged him to raise new forces; not doubting but that another campaign would repair all former losses, provided he would commit to his management every thing relating to the war. To this Tigranes agreeing, as he thought him more fit to deal with the Romans than himself, orders were issued out for raising a new army, and all the Armenians able to bear arms summoned to meet at the place of the general rendezvous. Out of these Mithridates chose 70,000 foot and 35,000 horse; and having trained them up during the winter, after the Roman discipline, in the beginning of the spring he left part of them with Tigranes, and marched himself with the rest into Pontus, where he recovered many important places, and overcame in a pitched battle M. Fabius, whom Lucullus had appointed governor of that province. Being flushed with his success, as soon as the wounds he received in the engagement suffered him to move, he pursued Fabius, and besieged him in the city of Cabira, whither he had retired; but in the mean time Triarius, who was marching out of Asia to join Lucullus, hearing what distress the Romans were in, hastened to their relief, and appearing unexpectedly on the neighbouring hill, struck such terror into the enemy, that they raised the siege, and made the best of their way into Cappadocia. Triarius pursued them, and got so near them as to be parted only by a river. Here he halted, with a design to pass the river after he had allowed his men some rest; for they were tired out with long marches. But Mithridates was before-hand with him, and crossing the river on a bridge, where he had placed a strong guard, ⁴⁶ Mithridates attacked the Romans with great resolution before they ⁴⁷ had time to refresh themselves. The battle was bloody, and the event doubtful, till the bridge breaking down with the weight of the multitude that passed, the king's troops who had engaged, relying chiefly on their numbers, began to lose courage, seeing they could receive no farther assistance; and the Romans charging them with fresh vigour, they betook themselves to a precipitate flight. After this engagement, as winter came on, both armies were glad to retire to their winter quarters.

During the winter, Mithridates raised new forces: and having received considerable supplies from Tigranes, took the field early in the spring, in hopes of driving the Romans quite out of Pontus, before Lucullus, who had work enough on his hands in Armenia, could come to their assistance. With this view he marched straight against Triarius and Sornatius, to whom Lucullus had committed the care and defence of that province; and finding them encamped near the city of Gaziurfa, proffered them battle; which they declining, he set a strong detachment to besiege a castle where the Romans had left all their baggage, hoping they would rather venture an engagement to relieve the place, than lose

^{Pontus.} lose all they had got with so much toil and labour during the war; neither was he disappointed in his hopes; for though Triarius was keeping close in his camp till the arrival of Lucullus, whom he daily expected, having acquainted him with the danger, the soldiers hearing that the castle was besieged, declared in a tumultuous manner, that if he did not lead them they would march to the relief of the place without his leave. Triarius being thus forced by his own men to fight, drew out his forces against the king, whose army was three times his number; but while they were upon the point of engaging, both armies were by a violent storm forced to retire to their respective camps; but Triarius receiving that very day intelligence of the approach of Lucullus, and fearing he would snatch the victory out of his hands, resolved to make a bold push, and next morning by break of day attack the king in his camp. If he conquered, the glory he thought would be entirely his own; if he were overcome, the enemy could reap no great advantage from his victory, Lucullus being at hand with a powerful army. The king, in that surprize, putting himself at the head of a few troops of his guards, sustained the brunt of the Romans, till the rest of his army drawing up came to his relief, and attacked the enemy with such fury, that the Roman foot were forced to give way, and were driven into a morass, where they were surrounded and great numbers of them cut in pieces.

⁴⁸
Defeats
Triarius.

Their horse were likewise put to flight, and pursued with great slaughter, till a Roman centurion in the king's service, pitying his countrymen, attempted to kill him. The king's life was saved by his breastplate; but as he received a deep wound in the thigh, he was obliged to give over the pursuit himself, and those that were about him caused the retreat to be founded, which, as it was unexpected, occasioned a great confusion in the whole army. The centurion was immediately cut in pieces; but the Roman horse in the mean time getting the start of the enemy, found means to make their escape. Above 7000 of the Romans were killed in that battle: and among them 150 centurions, and 24 tribunes, the greatest number of officers that had been lost in any engagement to that day. Mithridates being cured of his wound, that he might not for the future be exposed to such dangers, caused all the Romans that served in his army to be formed into one body, as if they were to be sent out on a party, and then ordered them to retire to their tents, where they were all to a man cut in pieces.

⁴⁹
All the Ro-
mans in the
service of
Mithridates
massacred.

The king, however elated with success, yet would not engage Lucullus; but with long marches hastened into Armenia Minor, and encamped on a hill near the town of Talura, expecting Tigranes, who was advancing with a strong army to join him. Lucullus, in pursuit of Mithridates, marched over the field of battle, leaving those unburied who had fallen in the engagement, which alienated the minds of the soldiery from him, and they began to be very mutinous; being stirred up by Appius Claudius, whom Lucullus had turned out of his command for his vile behaviour, notwithstanding he was nearly related to him, Lucullus having married his sister. The discontent that prevailed in the army came to such a height, that Lucullus was obliged to lie still in his camp all that summer; the sol-

diers declaring in a mutinous manner, that they would not follow him any longer, nor serve under a general who refused to share the booty with them.

^{Pontus}

These complaints, and the general discontent that reigned in the army, obliged the senate to recal Lucullus, and appoint Manius Acilius Glabrio, consul of that year, in his room. Glabrio arriving in Bithynia, gave notice by public criers to all the cities, that the senate had discharged Lucullus and his army, and confiscated his goods for protracting the war and refusing to comply with their injunctions. Hereupon Lucullus was abandoned by the greater part of his army, and forced to retire into Galatia, not being in a condition to make head against the joint forces of the two kings; who, laying hold of that opportunity, recovered the best part of Pontus, Bithynia, Cappadocia, and Armenia Minor: for though Glabrio had hastened into Pontus, as if he had intended to engage the enemy and rob Lucullus of the victory, yet, upon the first news of the approach of the two kings, he thought fit to retire and leave the country open on all sides to the enemy.

⁵⁰
Lucullus
recalled,
which re-
trieves the
affairs of
Mithri-
dates.

When this was heard at Rome, a law was enacted there by C. Manilius, a tribune of the people, whereby the management of the war against Mithridates and Tigranes was committed to Pompey, and likewise the provinces of Cilicia, then under Quintus Marcius, and of Bythynia under Glabrio. By the same law he was continued in that unlimited power by sea, with which he was invested when he first set out against the pirates of Cilicia. In virtue of this law, Pompey, who had just then ended the war with the Cilician pirates, took upon him the command of the army, and directed all the allies of the Roman people to join him with all possible expedition: but before he took the field, he renewed the alliance which Sylla and Lucullus had concluded with Phraates king of Parthia, and then sent friendly proposals to Mithridates: who at first seemed inclined to give ear to them, and accordingly dispatched an ambassador to the Roman army to treat of a peace. Pompey required of him to lay down his arms if he was in earnest, and deliver up to him all those who had revolted from the Romans during the war. This demand was no sooner reported abroad in the king's camp, but the deserters, who were very numerous in the king's army, betaking themselves to their arms, threatened to put Mithridates himself to death; and would have occasioned a great disturbance, had not the king appeased the growing tumult, by assuring them, that he had sent ambassadors, not to treat of a peace, but only to take, under pretence of suing for peace, a view of the enemy's strength. He moreover obliged himself, by a solemn oath in presence of the whole army, never to enter into any treaty of friendship with the Romans, nor to deliver up to them such as had ever served under him.

⁵¹
Pompey
sent against
him.

Pompey, finding his proposals rejected, advanced against the king with an army of 30,000 foot and 20,000 horse, as Plutarch writes, or 30,000, as we read in Appian, all chosen troops; for he discharged most of those who had served under Glabrio and Lucullus. As he entered Galatia, he was met by Lucullus, who endeavoured to persuade him to march back, the war being near finished, and even deputies sent by the republic to settle the province of Pontus; but not being able to prevail with him, after mutual complaints

⁵²
Mithridates
rejects his
proposals of
peace.

Pontus

against each other, they parted; and Pompey removing his camp, commanded the troops that were with Lucullus to join him, except 1600 whom he left to attend Lucullus in his triumph. From thence Lucullus set out for Rome, where he was received by the senate with great marks of esteem, most men thinking him highly injured by the authors of the Manilian law. Pompey pursued his march into Pontus; but finding that he could not by any means draw the king to a battle, he marched back into Armenia Minor, with a design either to reduce that province, or oblige Mithridates to venture a battle in order to relieve it. Mithridates followed him at some distance; and entering Armenia, encamped on a hill over against the Romans, and, by intercepting their convoys, reduced them to such distress, that they were obliged to remove to a more convenient place, the king cutting off many in their rear, and harassing them with frequent attacks, till he fell into an ambuscade laid by Pompey, whose personal courage and prudent conduct on that occasion confirmed the king in his resolution not to hazard a general engagement. The two armies encamped over-against each other; Pompey on one hill, and the king on another, near the city of Dastira, in the province of Acislene, at a small distance from the Euphrates, which divides Cilicene from Armenia Minor.

⁵³
Is besieged
by Pompey,

Here Pompey, seeing he could neither draw the king to a battle, nor force his camp, which was pitched on a steep and craggy mountain, began to block him up with a ditch which he carried round the bottom of the hill where the king was encamped; and meeting with no opposition, finished his work, and quite cut off the enemy's communication with the country. Pompey was amazed to see the king thus tamely suffer himself to be shut up; and could not help saying, That he was either a great fool or a great coward; a fool, if he did not apprehend the danger he was in; a coward, if, being apprised of it, he did not to the utmost of his power prevent it. By this ditch, which was 150 furlongs in circuit, and defended by many forts raised at small distances from each other, the king was so closely besieged, that he could neither send out parties to forage, nor receive the supplies that came to him from Pontus. He was thus besieged for the space of 45 or 50 days; and his army reduced to such straits, that, having consumed all their provisions, they were at last forced to live on their dead horses. Hereupon Mithridates resolved at all events to break through the Roman fortifications: and accordingly, having put to the sword all those that were sick or disabled, that they might not fall into the enemy's hands, he attacked in the dead of the night the Roman guards; and having overpowered them with his numbers, got safe into the open fields, and continued his march till night towards Armenia Major, where he was expected by Tigranes.

⁵⁴
but breaks
through the
Roman
lines.

Pompey next morning by break of day pursued the enemy with his whole army; and having with much ado overtaken them, found the king encamped on a hill, to which there was but one ascent, and that guarded by a strong body of foot. The Romans encamped over-against them; but Pompey, fearing the king should make his escape in the night-time, privately decamped, and taking the same route the enemy were to hold in order to gain Armenia, possessed himself of all the emi-

nences and defiles through which the king was to pass. Mithridates thinking that Pompey was returned to his former camp, pursued his march, and about the dusk of the evening entered a narrow valley, which was surrounded on all sides by steep hills. On these hills the Romans lay concealed, expecting the signal to fall upon the enemy and attack them on all sides at once, while they were tired with their march, and seemingly, as they had sent out no scouts, in great security. Pompey was at first for putting off the attack till the next morning, thinking it not safe to engage in the night-time among such steep and craggy mountains; but was at last prevailed upon, by the earnest prayers and intreaties of all the chief officers of the army, to fall upon the enemy that very night. It was therefore agreed, that in the dead of the night all the trumpets should at once sound the charge, that this signal should be followed by an universal shout of the whole army, and that the soldiers should make what noise they could, by striking their spears against the brass vessels that were used in the camp. The king's army at this sudden and unexpected noise, which was echoed again by the mountains, imagined at first that the gods themselves were come down from heaven to destroy them; and the Romans charging them on all sides with showers of stones and arrows from the tops of the hills, they betook themselves to a precipitate flight; but finding all the passes beset with strong bodies of horse and foot, were forced to fly back into the valley, where, for many hours together, they were exposed to the enemy's shot, without being able, in that confusion, either to attack them or defend themselves. They attempted indeed to make some resistance when the moon rose; but the Romans running down upon them from the hills, did not give them time to draw up, and the place was so narrow that they had not room even to make use of their swords. The king lost on that occasion 10,000 men, according to Appian, but 40,000, according to Eutropius and others. On Pompey's side there fell between 20 and 30 private men, and two centurions.

Mithridates, at the head of 800 horse, broke through the Roman army, and being after this effort abandoned by all the rest, because they were closely pursued by the enemy, he travelled all night attended by three persons only, viz. his wife, or, as Plutarch calls her, his concubine, by name *Hypsicratia*, his daughter Dripetine, and an officer. At day-break he fell in with a body of mercenary horse, and 3000 foot, who were marching to join him. By these he was escorted to the castle of Sinoria, situated on the borders of the two Armenias. As great part of his treasures was lodged here, he rewarded very liberally those who accompanied him in his flight; and taking 6000 talents, withdrew into Armenia. As soon as he entered the borders, he dispatched ambassadors to Tigranes, acquainting him with his arrival; but that prince, who was then on the point of concluding a separate peace with the Romans, clapped his ambassadors in irons, pretending that his son Tigranes had, at the instigation of Mithridates, revolted first to the Parthians, and then to the Romans. Mithridates finding himself thus abandoned, even by his son-in-law, left Armenia; and directing his course towards Colchis, which was subject to him, and not as yet invaded by the Romans, passed the Euphrates the fourth day, and got safe into his own territories.

Pontus.

⁵⁵
Is over-
reached by
Pompey,
and totally
defeated.

⁵⁶
Distress of
Mithri-
dates.

Pompey

Pontus.

Pompey sent out several parties in pursuit of the king; but remained himself with the main body of the army in the field of battle, where he built a city, calling it from that remarkable victory *Nicopolis*. This city, with the adjoining territory, he bestowed upon such of his soldiers as were old or disabled; and many flocking to it from the neighbouring countries, it became in a short time a very considerable place. This battle was certainly attended with very fatal consequences for Mithridates; who was forced, his army being entirely either cut off or dispersed, to abandon his own dominions, and fly for shelter to the most remote parts of Scythia. Pompey having concluded a peace with Tigranes, as we have related in the history of Armenia, and settled the affairs of that kingdom, began his march in pursuit of Mithridates through those countries that lie about Mount Caucasus. The barbarous nations through which he passed, chiefly the Albanians and Iberians, attempted to stop his march, but were soon put to flight. However, he was obliged, by the excessive cold and deep roads, to pass the winter near the river Cyrus. Early in the spring he pursued his march; but meeting with great opposition from the Iberians, a warlike nation, and entirely devoted to Mithridates, he was employed most part of the summer in reducing them. In the mean time, Mithridates, who had wintered at Dioscurias, on the isthmus between the Euxine and Caspian seas, and had been joined there by such of his troops as had made their escape from the late unfortunate battle, continued his flight through the countries of the Achæans, Zygians, Heniochians, Cercetans, Moschi, and Colchians. Of these nations some received him kindly, and even entered into alliance with him; through others he was forced to fight his way with the sword.

57
He flies into
Scythia,
and from
thence into
other coun-
tries.

58
Pompey's
further con-
quells.

Pompey took the same route, directing his course by the stars, especially in the northern parts of Scythia, and carrying with him even a supply of water for the army in the vast deserts through which he marched. He spent two years in warring with these nations, and was often in danger of losing both his life and his army: but at last he overcame them all; and believing Mithridates, of whom he could have no account, to be dead, he marched back into Armenia Minor, where he allowed some rest to his soldiers, who were quite worn out with the hardships they had endured in that expedition. Having refreshed his army, he marched into Pontus, to reduce some strongholds which were still garrisoned by the king's troops. While he was at Aspis in Pontus, many of the king's concubines were brought to him; but he sent them all home to their parents, without offering them the least injury, and thereby gained the affection of the chief lords of Pontus, whose daughters they were. The strong castle of Symphori was delivered up to him by Stratonix, one of the king's concubines, upon no other terms than that he would spare her son Xiphares, who was with the king, in case he should fall into his hands. She likewise discovered to him great treasures hid under ground, which he, with great generosity, bestowed upon her, reserving for himself only some vessels to set off his triumph. Having taken another fort, called the *New Castle*, and to that time looked upon as impregnable, he found in it great store of gold, silver, and other valuable things, which he afterwards consecrated to Jupiter Capitolinus. Here, in look-

ing over the king's manuscripts, he came to discover where the rest of his treasures were concealed, what troops he could raise and maintain, what sums were yearly paid him by his subjects and tributaries, &c. whereby he could make a true estimate of his whole power and wealth. Amongst other manuscripts he found some books of physic, wrote by Mithridates himself, which he commanded Lenæas, a learned grammarian, to translate into Latin.

Pontus.

Pompey, having thus reduced all Pontus, marched into Syria, with a design to recover that kingdom, and passing through Arabia to penetrate as far as the Red sea. But while he was employed in this expedition, news was brought him that Mithridates, whom he believed dead, had appeared unexpectedly in Pontus at the head of a considerable army, and surprised Panticapæum, a famous emporium at the mouth of the Euxine sea. He had lain all this time concealed in the territories of a Scythian prince, adjoining to the Palus Mæotis; but hearing that Pompey had left Pontus, and was engaged in other wars, he ventured out of his hiding-place, resolved either to recover his paternal kingdom, or die in the attempt. He returned privately into Pontus, and managed matters there so dexterously, that the Roman garrisons knew nothing of his arrival till he appeared with a considerable army in the field. He advanced first to the castle of Symphori; and understanding that Stratonix had delivered it up to Pompey, on condition he would save the life of her son in case he should take him prisoner, the king immediately caused the youth, who was in his army, to be put to death, and his body to be left unburied, Stratonix beholding from the walls the cruel and unnatural murder, for he was her son by Mithridates, and had served him with great fidelity. At the same time he sent ambassadors to Pompey to treat of a peace, offering to pay a yearly tribute to the republic, on condition he restored to him his kingdom. Pompey replied, that he would hearken to no proposals whatsoever, without the king came to treat with him in person, as Tigranes had done. This Mithridates looked upon as nowise consistent with his dignity; and therefore laying aside all thoughts of an accommodation, began to make what preparations he could for renewing the war.

59
Mithridates
appears a-
gain at the
head of a
considerable
army.

He summoned all his subjects that were able to bear arms to meet at an appointed place; and having chosen out of the whole multitude 60 cohorts, each consisting of 100 men, he incorporated them with the regular troops that were already on foot. Being now in a condition to act offensively, for Pompey had left but a small number of troops in Pontus, he possessed himself of Phanagorium, Chersonesus, Theodosia, Nymphæum, and several other important places. But in the mean time, Castor, whom Mithridates had appointed governor of Phanagorium, falling out with Tripho, one of the king's favourite eunuchs, killed him, and dreading the king's resentment, stirred up the inhabitants to a revolt: by which means Phanagorium was again lost; but the castle, which was defended by four of the king's sons, Artaphernes, Darius, Xerxes, and Oxathres, held out for some time. The king hastened to their relief; but the castle being set on fire by the rebels, they were forced to surrender themselves to Castor before his arrival. These four sons, with one of the king's daughters, by name *Cleopatra*, Castor sent to the Romans; and fortifying himself in the town, per-

60
Recovers
several
places.

sued.

^{Pontus.} suaded most of the neighbouring cities, which were oppressed with heavy taxes, and strangely harassed by the king's collectors, to join in the rebellion.

⁶¹ His subjects discontented. Mithridates finding that he could neither rely upon the soldiery, most of them being forced into the service, nor on his other subjects, who were dissatisfied by reason of the exorbitant taxes, sent ambassadors to invite the princes of Scythia to his relief, and with them his daughters, to be bestowed in marriage upon such as showed themselves most inclined to assist him. But as the ambassadors he employed on this occasion were eunuchs, a race of men no less abhorred by the army than favoured by the king, over whom they had a great ascendancy, especially in his old age, the soldiers who were sent to attend them on their journey, put them all to the sword as soon as they were out of the king's reach, and delivered his daughters up to the Romans. Mithridates, finding himself thus deprived of his children, betrayed by his army, and forsaken even by those on whom he chiefly relied, could not yet be induced to submit to the Romans, though Pompey promised him honourable conditions, provided he came to treat with him in person. In this desperate condition, he left no stone unturned to stir up the princes of Asia against the Romans, especially the Parthians; but finding them awed by the great opinion they all had of Pompey, he had recourse at last to the European Gauls, whom he understood to be at war with the Romans; and having sent before some of his trusty friends to engage them in his favour, taking leave of his own kingdom, he began his long march, designing to pass through Bosphorus Cimmericus, Scythia, Pannonia, &c. and joining the Gauls, pass the Alps, and invade Italy.

⁶² His extraordinary design of invading Italy.

This design was no sooner known in the army, but the soldiers openly began to complain and mutiny; exaggerating the boldness of the attempt, the length of the march, and the unfathomable difficulties that must necessarily attend such a desperate enterprise. The chief commanders did all that lay in their power to divert him from it; representing to him, that if he was not able to cope with the Romans in his own kingdom, much less would he be a match for them in Italy or Gaul, where they could daily receive new supplies; whereas he would lose the greatest part of his army in so long and difficult a march, and the rest perhaps in the first engagement, without any possibility of repairing the loss. But all was to no purpose; for they found him so unalterably fixed in his resolution, that he caused those to be put to death who with most warmth remonstrated against it, not sparing even his own son Exipodras, for dropping some unguarded expressions on that occasion. Thus they were forced to let him pursue his own measures, till they found a more proper opportunity to oppose them, which soon after offered, as they were encamped at Bosphorus Cimmericus, on their march into Scythia.

⁶³ His son Pharnaces revails.

Here Pharnaces, the king's favourite son, whom he had appointed to succeed him, observing the general discontent that reigned in the army, began to entertain thoughts of placing the crown on his own head; and not doubting but the soldiery would stand by him, if he declared against the intended expedition into Italy, openly protested among the Roman deserters, who were a considerable part of the army, that if they would follow him he would return into Pontus. The

Romans, who were well apprised of the danger that attending such an undertaking, and had most of all exclaimed against it, promised to support him to the utmost of their power, and even encouraged him, upon some expressions which he purposely dropped, to assume the title of *king*, a title which his father seemed determined to hold till he had destroyed, by his rash and desperate attempts, himself, his friends, and his army. Pharnaces, finding he could depend on the Romans, engaged the same night most of the chief commanders in his party, and by their means the greater part of the soldiery. It was agreed, that next morning by break of day all those who had declared in his favour should appear in arms, and with a loud shout proclaim Pharnaces king; which was done accordingly, and the shout returned even by those whom Pharnaces had not thought fit to let into the secret. The king, who had taken up his quarters in the city, being awakened by the noise, sent out some of his domestics to know what had happened in the army. Neither did the officers or soldiers dissemble the matter, but boldly answered, that they had chosen a young king instead of an old dotard governed by eunuchs.

Hereupon Mithridates mounting on horseback, and attended by his guards, went out to appease the tumult: but his guards forsaking him, and his horse being killed under him, he was obliged to fly back into the city; from whence he sent several of his attendants one after another to desire of his son a safe conduct for himself and his friends. But as none of the messengers returned, some being slain, and others siding with the new king, Mithridates endeavoured to move his son to compassion, by signifying to him from the walls the distressed condition he was reduced to by a son whom he had favoured above the rest of his children; but finding him nowise affected by his speech, turning to the gods, he beseeched them with many tears to make his son know one day by experience the grief and agony which a father must feel in seeing his love and tenderness requited with such ungrateful and monstrous returns. Having thus spoken, he thanked in a very obliging manner those who had stood by him to the last, and exhorted them to make their submission to the new king on the best terms they could procure; adding, that as for himself, he was determined not to outlive the rebellion of a son whom he had always distinguished with particular marks of paternal affection.

After this, he withdrew into the apartment of his ⁶⁴ Mithridates wives and concubines, where he first took poison himself, and then presented it to them, and to his favourite daughters Mithridatis and Nissa, who not long ^{attempts to} before had been betrothed to the kings of Egypt and ^{destroy} Cyprus. To the women it proved immediate death; but on the king, who from his infancy had inured his constitution to poisonous potions, it had so slow an operation, that he was forced, through fear of falling into the rebels hands, to recur to his sword. Neither did the wound, as he was greatly weakened by the poison, prove mortal: so that the rebels, having in the mean time stormed the town, and broke into the house, found the king wallowing in his blood, but still alive, and in his senses; which Pharnaces hearing, sent some of those that were about him to dress his wounds, with a design to deliver him up to the ^{himself} Romans,

Pontus.
65
A Gaul
puts an end
to his life
out of com-
passion.

mans, and thereby ingratiate himself with Pompey.— But, in the mean time, a Gaul, who served in the army, by name *Bitetus*, or *Bithocus*, entering the king's room in quest of booty, and being touched with compassion in seeing him forsaken by all his friends, and struggling on the bare ground with the pangs of death, drawing his sword, put an end to his present agonies, and prevented the insults which he chiefly apprehended if he should fall alive into his son's hands. The barbarian is said, when he first saw the king, to have been so awed with the majesty of his countenance, that, forgetful of his booty, he fled out of the room; but being called back, and earnestly intreated by the dying prince to put an end to his misery, he summoned all his courage to perform, as he did, with a trembling hand, that office; and immediately retired without touching any thing that belonged to the king, though the hope of a rich booty was the only motive that had led him thither.

66
Excessive
joy of the
Romans at
his death.

Pompey, who was at that time engaged in a war with the Jews, received the first notice of the death of Mithridates as he was on his march to Jerusalem. The messenger who brought the joyful tidings was sent by Pharnaces, and appeared unexpectedly before Pompey with the branch of a laurel, as was customary on the like occasions, twisted round the head of his javelin. When he heard what had happened at Panticapæum, he was so impatient to impart it to the soldiery, that he could not even wait till they had raised him a mound of turf from whence to speak to the army, according to the custom of the camp; but ordered those who were by him to form a kind of mound with their saddles, and from thence acquainted the soldiery that Mithridates had laid violent hands on himself, and his son Pharnaces was ready to acknowledge the kingdom as a gift of the people of Rome, or resign it if they were unwilling he should reign. This news was received with joyful shouts of the whole army, and the day solemnized with feasts and sacrifices throughout the camp, as if in Mithridates alone all the enemies of the republic had died. Pompey dispatched without delay a messenger with letters to the senate, acquainting them with the death of Mithridates, and the submission of his son Pharnaces. When his letters were read, the senators were so overjoyed, that they appointed at the proposal of Cicero, then consul, 12 days for returning due thanks to the gods, who had delivered them from such an insulting and powerful enemy; and the tribunes of the people enacted a law, whereby Pompey, in consideration of his eminent service in the Mithridatic war, was to wear a crown of laurel, with the triumphal gown at the Circensian sports, and a purple gown at the scenical plays.

67
Submissive
embassy of
Pharnaces
to Pompey;

Pharnaces, when he heard of his father's death, caused his body to be preserved in brine, proposing to present it to Pompey, who had promised to return into Pontus after the reduction of Judæa, and there settle matters to his satisfaction. And accordingly having taken the city and temple of Jerusalem, he set out with two legions for Pontus; and being arrived at Sinope, he was there met by ambassadors from Pharnaces, acquainting him, that their master had forebore assuming the title of king till his will and pleasure were known; that he put both himself and the kingdom entirely into his hands; and that he was willing to attend him at what time or place he thought fit to appoint. The same ambassadors

delivered up to Pompey those who had taken Manius Aquilius the Roman legate, whom Mithridates had put to a cruel death, all the prisoners, hostages, and deserters, whether Romans, Greeks, or Barbarians, and the body of Mithridates, with his rich apparel and arms, which were greatly admired by Pompey and the other Romans. Both soldiers and officers flocked to see the king's body; but Pompey declined that sight; and, saying that all enmity between that great prince and the people of Rome was ended with his life, he returned the body to the ambassadors, and caused it to be interred with the utmost pomp and magnificence among his ancestors in the burying-place of the kings of Pontus, Pompey defraying all the charges of that ceremony, which was the most costly and pompous that ever had been seen in those parts. With the body Pompey restored his wearing apparel and armour; but the scabbard of his sword, which cost 400 talents, was stolen by Rublius a Roman, and sold to Ariarathes king of Cappadocia; and his cap or turban, which was a very curious piece of workmanship, was privately taken by one Caius, who presented it to Faustus the son of Sylla, in whose house it was kept, and shown for many years after among the many rarities which Sylla had brought out of Asia.

Pontus.

Pompey bestowed the kingdom of Bosphorus on Pharnaces, and honoured him with the title of a friend and ally of the people of Rome. Pharnaces being thus acknowledged king of Bosphorus, sent orders to all the garrisons of Pontus to submit themselves, with the castles and treasures with which they were entrusted, to Pompey, who by that means amassed an immense booty. In the city of Talaura, which Mithridates used to call his wardrobe, he found 2000 cups of onyx set in gold, with such store of gold and silver vessels, of costly furniture, of saddles, bridles, and trappings, set with jewels and precious stones, that the Roman commissaries spent 30 days in taking the inventory of the whole. In another castle he found three large tables with nine salvers of massy gold, enriched with precious stones to an inestimable value; the statues of Minerva, Mars, and Apollo, of pure gold and most curious workmanship; and a pair of gaming-tables of two precious stones, three feet broad, and four feet long, on which was a moon of gold weighing 30 pounds, with their men, all of the same precious stone. In a fort situated among the mountains, were delivered up to him the king's statue of massy gold, eight cubits high, his throne and sceptre, and the bed of Darius the son of Hystaspes. Most of these treasures had been transmitted to him from his ancestors, chiefly from Darius king of Persia; some belonged to the Ptolemies of Egypt, and had been deposited by Cleopatra, as we have hinted above, in the hands of the Coans, who delivered them to Mithridates; and great part of them had been collected by the king himself, who was very fond of rich and stately furniture.

Pompey having thus got entire possession of Pontus, and reduced it to the form of a Roman province, marched into Asia properly so called; and having wintered at Ephesus, early in the spring set out for Italy, with a fleet of 700 ships. As he brought over his army with him, the senate was under no small apprehension lest he should make himself absolute, and rule without controul. But he no sooner landed at Brundisium, than he disbanded the army, without waiting for any decree either of the senate or people; what neither his friends nor his ene-

mies

Pontus.

mies had believed. His triumph lasted two whole days ; and though he was attended in his triumphal chariot by 324 captives of distinction, among whom were five sons and two daughters of Mithridates, yet he would not suffer any of them to be put to death, as had been done by others ; but sent them all back, except such as were of royal extraction, to their respective countries, and even supplied them with money to defray the charges of their journey. After his triumph he delivered into the treasury 20,000 talents, though, at the dismissing of the army, he had divided 16,000 talents among the tribunes and centurions, 2000 sestertiums among the quæstors, and had given to each soldier 50 sestertiums.

69
Pharnaces
falls out
with the
Romans,

Pompey had no sooner left Asia, but Pharnaces fell unexpectedly upon the Phanagorenses, a people of Bosphorus, whom Pompey had declared free, because they had revolted the first of all from Mithridates, and by their example induced others to abandon the king's party. Pharnaces besieged their chief city Phanagoria, and kept them blocked up till, for want of provisions, they were forced to sally out, and put all to the issue of a battle ; which proving unsuccessful, they delivered up themselves and the city to the conqueror. Some years after, the civil war breaking out between Cæsar and Pompey, he laid hold of that opportunity to recover the provinces which his father had formerly possessed ; and having raised a considerable army, overran Pontus, Colchis, Bithynia, Armenia, and the kingdom of Moschis, where he plundered, as Strabo observes, the temple of the goddess Leucothea. He took the strong and important city of Sinope, but could not reduce Amisus. But, in the mean time, Cæsar having got the better of Pompey and his party, appointed Cn. Domitius Calvinus governor of Asia, enjoining him to make war upon Pharnaces with the legions that were quartered in that province. Domitius immediately dispatched ambassadors to Pharnaces, commanding him to withdraw his troops from Armenia and Cappadocia. The king returned answer, that he was willing to abandon Cappadocia, but as for the kingdom of Armenia Minor, it was part of his hereditary dominions ; and therefore he would not resign it till he had an opportunity of laying his pretensions before Cæsar himself, whom he was ready to obey in all things. Hereupon Domitius drawing together what forces he could, marched into Cappadocia, which he recovered without opposition, Pharnaces having abandoned it to make a stand in Armenia, which lay nearer his own dominions. Thither Domitius pursued him ; and having overtaken him near Nicopolis, found his army drawn up in battle-array, and the king ready to come to an engagement ; which Domitius not declining, both armies advanced.

70
and defeats
them.

The king, at the head of a choice body of men, fell upon the Romans left wing, consisting mostly of raw and undisciplined Asiatics ; and having with little difficulty put them to flight, penetrated to the centre, where the thirty-fifth legion, the only one which Domitius had, after a faint resistance, gave ground, and, retiring to the neighbouring mountains, left their allies to shift for themselves, who were all cut off. Domitius with the remains of his scattered army marched back into Cappadocia ; and from thence, winter drawing on, into the province of Asia. The king being puffed up with this victory, and hearing that Cæsar, with the flower of the Roman forces, was engaged at the siege of Alexandria, appointed one Asander gover-

nor of Bosphorus, and marched himself into Cappadocia in pursuit of Domitius, with a design to invade Asia, and recover all the provinces which had been once subdued by his father. Bithynia and Cappadocia readily submitted ; but Armenia the Lesser, which was held by Dejotarus, made so vigorous a resistance, that he was forced to give over the enterprise, lest the Romans should in the mean time strengthen themselves in Asia, whither he was in haste to march, in hopes of meeting there with the same success as his father Mithridates had done. But before he reached that province, he was informed that Asander had revolted, in hopes of gaining thereby the good-will of the Romans, and obtaining of them the kingdom of Bosphorus for himself. At the same time, he received intelligence that Cæsar, having at last reduced Alexandria, and settled the affairs of Syria, was marching into Armenia.

He was not a little dismayed at this news, and therefore without delay dispatched ambassadors to sue for peace ; hoping that Cæsar, who was hastening into Italy with a design to pass over into Africa, would willingly give ear to any proposals of that nature.—Cæsar courteously entertained the ambassadors ; and though he did not propose to agree to their conditions, yet, that he might come upon Pharnaces unawares, he shewed himself very desirous of entering into a treaty of peace. But, in the mean time, he pursued his march with all possible expedition ; and arriving on the confines of Pontus, ordered all the troops that were quartered in the neighbouring provinces to join him ; for he had brought from Alexandria but one legion, namely, the sixth, and that consisting of 1000 men only, the rest having been killed at the siege of Alexandria. Besides this veteran legion, he found at the place of general rendezvous three others, but all of them very indifferently armed, and worse disciplined. With these forces, however, such as they were, he advanced against Pharnaces ; who being greatly frightened at his approach, by reason of the success that had attended him in all his expeditions, again dispatched ambassadors to him with a crown of gold, offering him his daughter in marriage, and promising to do whatever he should require. The ambassadors took care to let him know that their master, though highly obliged to Pompey, yet had never been prevailed upon to send him any supplies during the civil war, which Dejotarus, king of Armenia the Lesser, whom he had honoured with his friendship, had done. Cæsar returned for answer, that he was willing to conclude a peace with Pharnaces, provided he retired without delay from Pontus, returned all the captives and hostages whether Roman or their allies, and restored the goods of the Roman citizens and publicans which he had seized since he first took up arms. He added, that as to his not sending supplies to Pompey, they ought rather to have concealed such an ungrateful proceeding of their master, than alleged it as any merit, since the forsaking of one to whom he was indebted for his crown, bespoke him a man of mean, selfish, and unworthy principles.

Pharnaces, upon the return of his ambassadors, acquainted Cæsar that he agreed to the conditions ; but finding that Cæsar's affairs called him into Italy, he required a longer term of time for the performance of what was stipulated between them, starting daily new difficulties, in hopes that Cæsar would in the mean time be obliged to depart, and leave the affairs of Pontus in

Pontus.

71
Attempts
to outwit
Julius Cæsar,

Pontus. the same posture he had found them. Cæsar seeing himself disappointed, and put off from day to day, could not longer brook the king's deceitful behaviour. Wherefore he determined to put himself at the head of his small army, and attack the enemy in his camp, when he least expected it. And accordingly, marching out in the night, he came by break of day in sight of the king's army; and uttering these words, *Shall this treacherous parricide go unpunished?* broke into the camp at the head of 1000 horse. The king's chariots, which were armed with scythes, caused some small disorder among Cæsar's horse; but in the mean time the rest of his army coming up, he put the enemy to flight, and obtained a complete victory. This battle was fought near the place where Mithridates had routed with great slaughter the Roman army under the command of Triarius. Most of the king's army were either taken or cut in pieces; but Pharnaces himself had the good luck to make his escape while the Romans were busy in plundering the camp. This victory was so quick, that Cæsar, in a letter to his friend Amintius, or Anitius, at Rome, expressed it in three words, thus: "I came, I saw, I conquered." He ever afterwards used to call Pompey a fortunate rather than a great commander, since he had gained his chief glory in the Mithridatic war, fighting with so cowardly an enemy. He divided the rich booty and the spoils of the camp among his soldiers; and because Mithridates had erected a trophy near that place as a monument of his victory over Triarius, which Cæsar, as it was consecrated to the gods, did not think lawful to pull down, he set up another over against it to transmit to posterity his victory over Pharnaces. After this victory he recovered and restored to the allies of the people of Rome all the places which Pharnaces had possessed himself of during the war, declared Amisus a free city, and appointed Mithridates Pergamenus king of Bosphorus in the room of Pharnaces.

Having thus settled the affairs of Pontus, he set sail for Italy; leaving Domitius Calvinus to pursue the war against Pharnaces, if he should appear again in the field. Pharnaces had retired after the battle to Sinope with 1000 horse, where he was quickly besieged by Domitius, to whom he surrendered the town, upon no other condition than that he should be suffered to retire into Bosphorus with the small body that attended him. This Domitius willingly granted; but caused all the king's horses to be killed, since he had asked a safe conduct only for his horsemen. With these and a band of Scythians and Sarmatians he attempted to recover the kingdom of Bosphorus, but being met between Theodocia and Panticapeum, both which cities he had reduced, by Asander, who was still in possession of the kingdom, a sharp engagement ensued, wherein the king's men, as not being used to fight on foot, were put to flight, and Pharnaces himself, who remained alone in the field, was surrounded by the enemy, and cut in pieces, after having reigned in Bosphorus Cimmerius, the kingdom which Pompey had bestowed upon him, according to Appian, fifteen years, according to others, seventeen.

Upon the death of Pharnaces the kingdom of Pontus was again reduced to the form of a province, and so continued to the triumvirate of Mark Antony, who after the battle at Philippi conferred it upon Darius the son of Pharnaces for his services during the civil war. He

continued faithful to the Romans; but did nothing during his reign worth mentioning.

Darius was succeeded in the kingdom by Polemon, likewise preferred to that honour by Mark Anthony. He was the son of Zeno, a famous orator of Laodicea, and greatly favoured by Antony. From him that part of Pontus which borders on Cappadocia borrowed the name of *Polemonaicus*. He attended Mark Antony in his expedition against the Parthians: and being taken prisoner in that unsuccessful battle fought by Statianus, he was sent by the king of the Medes, an ally of the Parthians, to conclude a peace with the Romans. In which embassy he acquitted himself so well, that Antony added the kingdom of Armenia to his own dominions. In the war between Antony and Augustus he joined the former: but after the battle of Actium he was received into favour by the latter; and being sent by Agrippa against Scribonius, who upon the death of Asander had usurped the kingdom of Bosphorus, he overcame him, and reduced the kingdom of Colchis, which was bestowed upon him by Agrippa, who likewise honoured him with the title of *friend and ally of the people of Rome*. He afterwards waged war with the neighbouring barbarians refusing to live in subjection to the Romans; but was overcome, taken, and put to death, by the Aspungitani, a people bordering, according to Strabo, on the Palus Mæotis.

Upon his death his son Polemon II. was by the emperor Caligula raised to the throne of Bosphorus and Pontus. But the emperor obliged him to exchange the kingdom of Bosphorus with part of Cilicia; and Nero, with his consent, reduced that part of Pontus which he enjoyed to the form of a province. He fell in love with Berenice, daughter to Agrippa king of Judæa; and in order to marry her embraced the Jewish religion. But as she soon became tired of his riotous way of living, and returned to her father; so he renounced his new religion, and again embraced the superstitions of Paganism. Polemon dying without issue, the ancient kingdom of Pontus was parcelled out into several parts, and added to the provinces of Bithynia, Galatia, and Cappadocia, only that part of it which was called *Pontus Polemonaicus* retaining the dignity of a distinct and separate province. During the civil discords between Vespasian and Vitellius, one Anicetus, first a slave, afterwards freedman to King Polemon, and lastly commander of the royal navy, took up arms with a design to rescue the kingdom from the Roman bondage; and being joined by great multitudes drawn together with the prospect of spoil, overran the country, and possessed himself of Trapezund, a city founded by the Grecians on the utmost confines of Pontus. Here he cut in pieces a cohort made up of the inhabitants, but which had been formerly presented with the privilege of Roman citizens. He likewise burnt the fleet, and with scorn and insults scoured the sea; Mucianus having called to Byzantium most of the Roman galleys. Hereupon Vespasian, who was at that time in Syria, sent Verdius Gemnius into Pontus with a choice body of auxiliaries from the legions. He assailing the enemy while they were in disorder, and roaming asunder in pursuit of prey, drove them into their vessels; then with some galleys chased Anicetus into the mouth of the river Chobus, where he thought himself safe under the protection of Sedochus

king

Pontus.

Pontus.

72
by whom
he is en-
tirely de-
seated.

73
Is killed in
another en-
gagement.

74
Pontus
again made
a kingdom
by Mark
Antony.

75

is parcelled
out into
several pro-
vinces.

Pontypool
||
Ponza.

king of the Lazians, whose alliance he had purchased with large sums and rich presents. Sedochus at first refused to deliver him up to the Romans; but was soon prevailed upon, partly by threats, partly by presents, to surrender both him and all the other fugitives who had taken sanctuary in his dominions. Thus ended that fervile war; and the kingdom of Pontus continued to be a province of the empire till the time of David and Alexis Comneni, who being driven from Constantinople by the French and Venetians A. D. 1204, under the command of Baldwin earl of Flanders, settled, the one at Heraclea, the other at Trebifond. The troubles that arose among the Latins gave Alexis Comnenus an opportunity of erecting here a new empire, which comprehended great part of Pontus, and was known by the name of the *empire of Trebifond*. The Comneni held it about 250 years, till the time of Mohammed II. who carried David Comnenus, the last emperor of Trebifond, prisoner to Constantinople, A. D. 1462, with all his family, and subjected his empire to that of Constantinople; in which abject slavery Trebifond and all Pontus have continued ever since.

PONTYPOOL, a town of Monmouthshire in England, seated between two hills. It is but a small place, though noted for its iron-mills, great manufacture of japanned vessels, &c. W. Long. 3. 6. N. Lat. 51. 42.

PONZA, or PONTIA, is a small island of the Tuscan sea, well known to be the place to which many illustrious Romans were formerly banished. It is situated on the coast of Italy near Terracina, and in the neighbourhood of other small islands or rocks named *Palmarole*, *Zannone*, &c. between the island of Ventotienne and Monte Circello. All these islands were visited by Sir William Hamilton in the year 1785; and an account of his journey is given in a letter to Sir J. Banks, which appeared in the *Phil. Trans.* vol. lxxvi. p. 365. Sir William arrived at Ponza on the 20th August; and, according to his account, it lies about 30 miles from Ventotienne. On the 21st he went round it in a boat. Its length is about five miles, but its breadth is nowhere above half a mile, and in some places not more than 500 feet. It is surrounded by a multitude of detached rocks, some of them very high, and most of them composed of a compact lava. There are many irregularly formed basaltic, but none in large columns. In some places they have a reddish tinge from iron ochre, are very small, and irregularly laid over one another. Some stand perpendicularly, others obliquely, and some lie horizontally. The rocks themselves in which these masses are found are lava of the same nature with the basaltic. At first sight they appear like the ruins of ancient Roman brick or tyle buildings. One rock is composed of large spherical basaltic, and in other places our author found the lava inclined to take the like spherical form, though on a much smaller scale, some of the former basaltic being near two feet in diameter. All these rocks, in our author's opinion, have been detached by the sea from this island, which is entirely composed of volcanic matter, lavas, and tufas of various qualities and colours, as green, yellow, black, and white. Some of these matters are more compact in their texture than others; and in some parts great tracts seem to have undergone similar operations, which still subsist at a spot called the *Pisciarelli*, on the outside of the Solfatara, near Puzzole, and where a hot sulphureous vitriolic

acid vapour converts all which it penetrates, whether lavas, tufas, volcanic ashes, or pumice-stones, into a pure clay, mostly white, or with a tint of red, blue, green, or yellow.

In one part of this island there is a sort of tufa remarkably good for the purpose of building. It is as hard as Bath-stone, and nearly of the same colour, without any mixture of lava or pumice-stone, which usually abound in the tufas of Naples, Bain, and Puzzoli.

The island of Palmarole which is about four miles from Ponza, is not much more than a mile in circumference. It is composed of the same volcanic matter, and probably was once a part of Ponza; and in our author's opinion it looks as if the island of Zannone, which lies about the same distance from Ponza, was once likewise a part of the same; for many rocks of lava rise above water in a line betwixt the two last-mentioned islands, and the water there is much more shallow than in the gulf of Terracina.

Zannone is much larger and higher than Palmarole; and that half of it next the continent is composed of a lime-stone similar to that of the Apennines near it; the other half is composed of lavas and tufas, resembling in every other respect the soil of the islands just described. Neither Palmarole nor Zannone are inhabited; but the latter furnishes abundance of brushwood for the use of the inhabitants of Ponza, whose number, including the garrison, amounts to near 1700. The uninhabited island of St Stefano in like manner furnishes wood for the people of Ventotienne. It is probable that all these islands and rocks may in time be levelled by the action of the sea. Ponza, in its present state, is the mere skeleton of a volcanic island; little more than its hard or vitrified parts remaining, and they seem to be slowly and gradually mouldering away. The governor of the castle of Ponza, who had resided there 53 years, told our author that the island was still subject to earthquakes; that there had been one violent shock there about four years before; but that the most violent one he ever felt was on the very day and at the hour that Lisbon was destroyed. Two houses out of three which were then on the island were thrown down. "This (says our author) seems to prove that the volcanic matter which gave birth to these islands is not exhausted."

Plate
Fig. 1. is a plan of the island of Ponza as it is given ccccxvii. in the *Philosophical Transactions*. Fig. 2. is a view of fig. 1. and the inside of the harbour of the island. A in the same 2.

figure is a rock of lava. In many parts it is formed into regular basaltic of a reddish colour, tinged in all probability with some ochre. Most of the detached rocks of the island resemble this. BB represents a tract of volcanic country, converted by a hot sulphureous vitriolic acid vapour into a pure clay, the ground colour of which is mostly white.—Fig. 3. is a view from the outside of the harbour, near the lighthouse. C is a rock of volcanic matter converted to pure clay; D is a rock of the same kind, with strata of pumice-stone: E is a rock of lava, inclining to take basaltic forms; and F is a rock composed of spherical basaltic.

POOD is a Russian weight, equal to 40 Russian or 36 English pounds.

POOL is properly a reservoir of water supplied with springs, and discharging the overplus by sluices, defenders, weirs, and other caufeways.

POOL, a sea-port town of Dorsetshire in England.

It

Ponza
||
Pool.

Fig. 3.



Fig. 2.

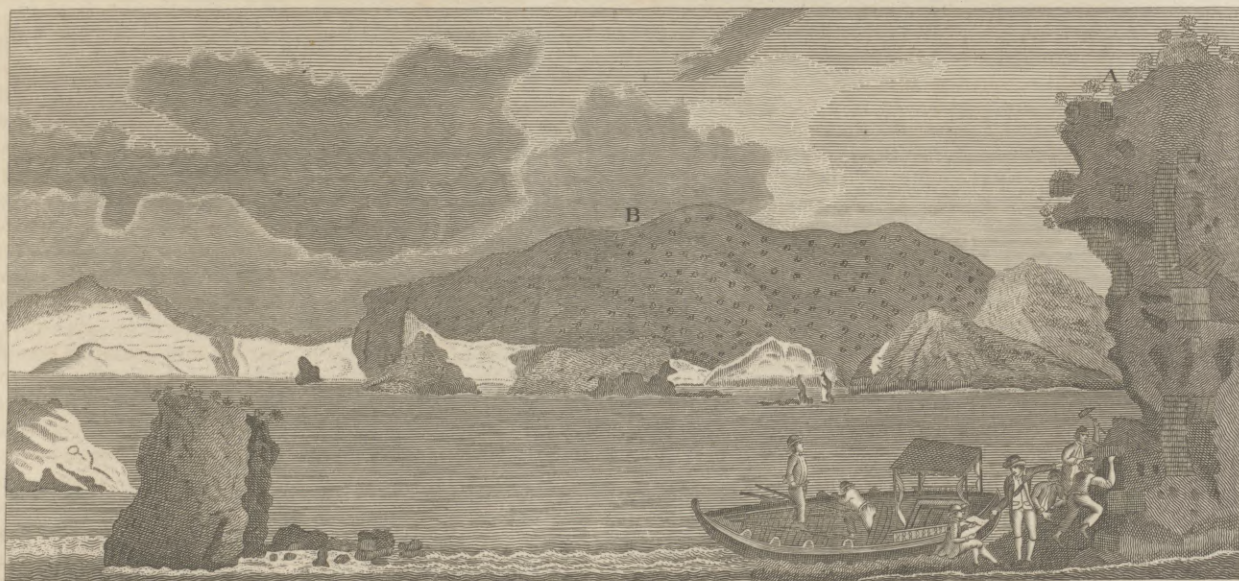
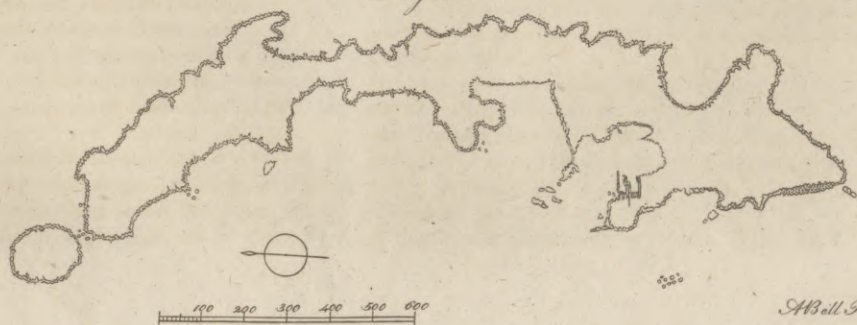
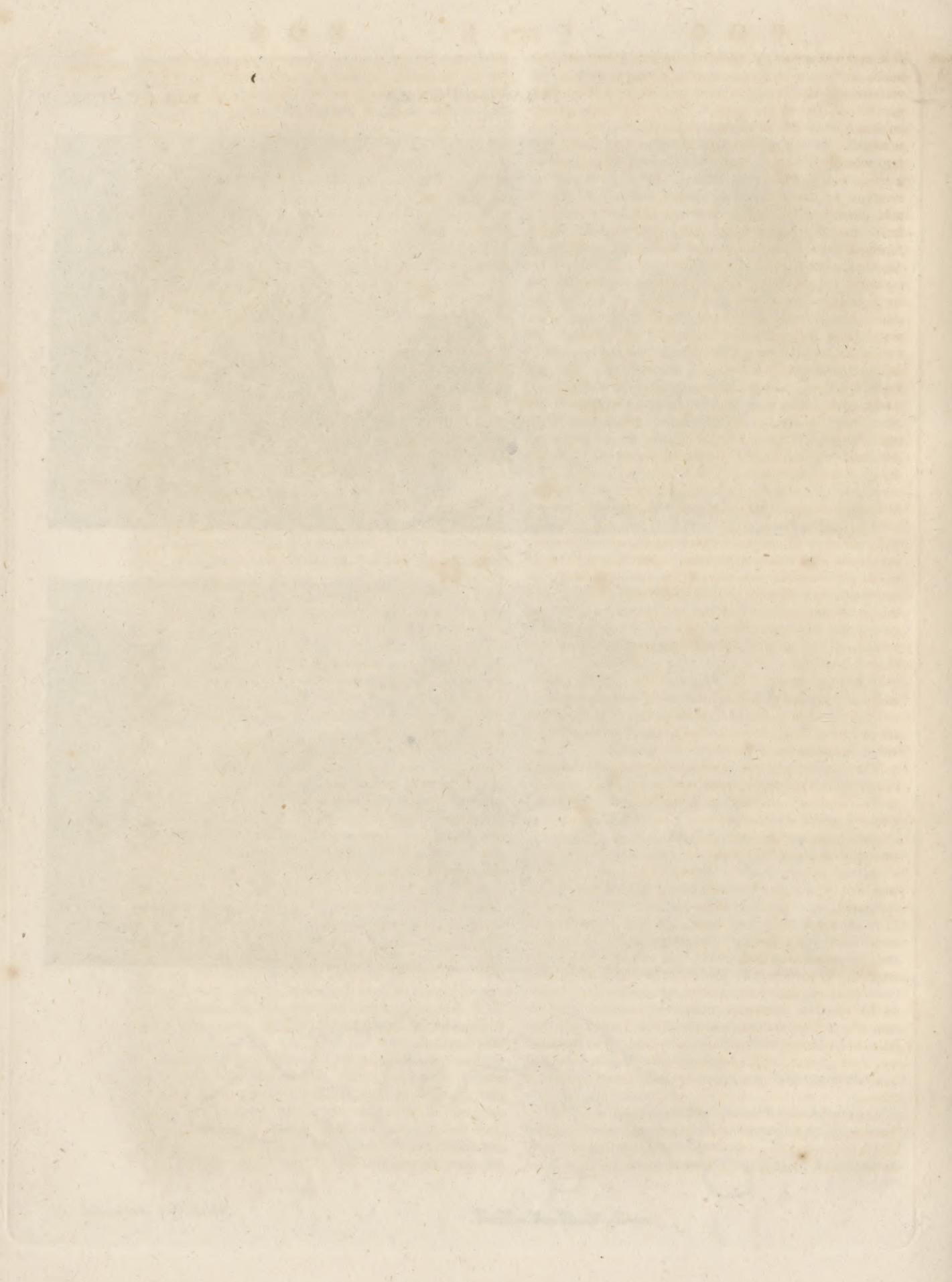


Fig. 1.





Poole
||
Poor.

It is surrounded on all sides by the sea, except on the north, where there is an entrance through a gate. It was formerly nothing but a place where a few fishermen lived; but in the reign of Henry VI. it was greatly enlarged, and the inhabitants had the privilege to wall it round. It was also made a county of itself, and sent two members to parliament. It is governed by a mayor, a senior bailiff, four other justices, and an indeterminate number of burgeses. The town consists of a church and about 600 houses, with broad paved streets; and has a manufactory of knit hose. It is 47 miles west-south-west of Winchester, and 110 west-by-south of London. W. Long. 2. 0. N. Lat. 50. 42.

POOLE, MATTHEW, a very learned writer in the 17th century, was born at York in 1624. He was educated at Emanuel-college, Cambridge, and afterwards incorporated in the university of Oxford. He succeeded Dr Anthony Tuckney in the rectory of St Michael de Quern, in London, about 1648. In 1658 he set on foot a project for maintaining youths of great parts at the universities, and had the approbation of the heads of houses in both of them. He solicited the affair with so much vigour, that in a short time 900*l.* per annum was procured for that purpose; but this design was laid aside at the Restoration. In 1662 he was ejected from his living for nonconformity. He was ten years employed in composing his *Synopsis Criticorum*, &c. Besides this great work he published several other pieces. When Dr Oates's depositions concerning the popish plot were printed, our author found his name in the list of those who were to be cut off, on the account (as was supposed) of what he had written against the papists in his *Nullity of the Romish Faith*. So that he was obliged to retire into Holland, where he died in 1679, and left behind him the character of a very able critic and casuist.

POOP, the stern of a ship; or the highest, uppermost, and hinder part of a ship's hull. See STERN.

POOR, in law, an appellation given to all those who are in such a low and mean condition, that they either are or may become a burden to the parish.

They who rank pity amongst the original impulses of our nature rightly contend, that when it prompts us to the relief of human misery, it indicates sufficiently the Divine intention, and our duty. Indeed, the same conclusion is deducible from the existence of the passion, whatever account be given of its origin. Whether it be instinct, or a habit founded in association (see PASSION), it is in fact a property of our nature which God appointed: and the final cause for which it was appointed is to afford to the miserable, in the compassion of their fellow-creatures, a remedy for those inequalities and distresses to which many are necessarily exposed under every possible rule for the distribution of property. That the poor have a claim upon the rich, founded in the law of nature, can be questioned by no man who admits the benevolence of the Deity, and considers his purpose in creating the world (see THEOLOGY, Part I. Sect. ii.); and upon this claim the Christian Scriptures are more explicit than almost upon any other.

The rights of the poor, however, to be relieved by the rich, as they originate in nature, and are sanctioned by Christianity, are evidently of that kind which is called *imperfect* (See *MORAL Philosophy*, N^o 151.) It is

surely needless to warn our readers in this place, that imperfect rights are in themselves as sacred, and the duties resulting from them as obligatory in *foro conscientie*, as the most rigid claims of justice. Every one knows, that they are called *imperfect* only because the extent of them in particular instances cannot be ascertained by positive laws, nor the breach of them be punished by the civil magistrate. Hence the apostle, though he enjoins a weekly contribution to be made for the poor in the church of Corinth, yet leaves the sum to be contributed by each individual wholly undetermined. "Now concerning the collection for the saints, as I have given order to the churches of Galatia, even so do ye. Upon the first day of the week let every one of you lay by him in store as God hath prospered him." By which St Paul certainly recommends to every man to contribute, not a fixed sum, but as much as, from a deliberate comparison of his fortune, with the reasonable expences and expectations of his family, he finds he can spare for charitable purposes.

It is well known that those weekly contributions were laid at the feet of the apostles, who transferred the management of the fund thence arising to deacons elected by the people, and ordained by them to see that the money was properly distributed. Hence, under Christianity, the maintenance of the poor became chiefly an ecclesiastical concern; and when that holy and benevolent religion was established in the Roman empire, a fourth part of the tithes was in some countries of Europe, and particularly in England, set apart for that purpose. Afterwards, when the tithes of many parishes were appropriated to the monasteries, these societies were the principal resource of the poor, who were farther relieved by voluntary contributions. Judge Blackstone observes, that till the statute 26 Hen. VIII. cap. 26. he finds no compulsory method for providing for the poor; but upon the total dissolution of the monasteries, abundance of statutes were made in the reign of King Henry VIII. Edward VI. and Elizabeth, which at last established the

POOR'S Rate, or legal assessment for the support of the poor. The sums that had been appropriated for charitable uses before the reformation were immense, and the wealth that had been accumulated through a succession of ages by mendicant orders of religious persons was inconceivably great; nor was it in the power of any laws to confine men who were in the possession of such wealth from gratifying those desires which money can so easily find means of supplying. Yet among the various abuses to which this opulence had given rise, these religious orders had never so far lost sight of their original institution as ever to neglect the poor. These were indeed provided for by them with an indiscriminate profusion of largesse, better proportioned to their own opulence than to the wants of the claimants, who were too often, without examination, all equally served, whether deserving or undeserving of that bounty which they claimed.

When the *religious houses*, as they were called, were entirely suppressed at the reformation, and the wealth that belonged to them was diverted into other channels, the poor, who had been in use to receive their support from thence, were of course left entirely destitute; and this soon became a grievance so intolerable not only to the poor themselves, but to the whole nation, as to

Poor.

Poor.

excite a universal desire to have it remedied. Accordingly, by the 14 Eliz. cap. 5. power was given to the justices to lay a general assessment; and this hath continued ever since. For by 43 Eliz. cap. 2. the churchwardens and overseers of the poor of every parish, or the greater part of them (with the consent of two justices, one of whom is of the quorum, dwelling in or near the parish), are empowered to raise weekly, or otherwise, by taxation of every inhabitant, parson, vicar, and other, and of every occupier of lands, houses, &c. materials for employing the poor, and competent sums for their relief. Notice shall be given in church of every such rate the next Sunday after it is allowed, which may be inspected by every inhabitant, paying 1s. and copies of it granted on demand, 6d. being paid for every 24 names; and a churchwarden or overseer refusing, shall forfeit 20 l. to the party aggrieved. The rate is to be levied by distress on those who refuse to pay it; and, by 17 Geo. II. cap. 2. cap. 38. appeals against it are allowed.

If the justices find that the inhabitants of any parish are not able to levy among themselves sufficient sums for the purposes specified in the act, they may assess any other parish within the hundred; and if the hundred be unable to grant necessary relief, they may rate and assess any parish within the county. 43 Eliz. cap. 2.

In order to compel husbands and parents to maintain their own families, the law hath provided, that all persons running away out of their parishes, and leaving their families upon the parish, shall be deemed and suffer as incorrigible rogues (7 Jac. cap. 4.) And if a person merely threatens to run away and leave his wife and children upon the parish, he shall, upon conviction, before one justice by confession, or oath of one witness, be committed to the house of correction for any time not exceeding one month (17 Geo. II. cap. 5.) For the farther maintenance of the poor, there are many fines and forfeitures payable to their use; as for swearing, drunkenness, destroying the game, &c. And also parts of wastes, woods, and pastures, may be inclosed for the growth and preservation of timber and underwood for their relief. See *WORK-HOUSE*.

The famous statute of the 43d of Elizabeth, which is the basis of all the poor-laws in England, was constructed with a cautious forethought that can perhaps be equalled by few laws that ever were enacted; and if prospective reasoning alone were to be relied on in matters of legislation, it seemed impossible to amend it: yet experience has now proved, with a most demonstrative certainty, that it is not so salutary as was undoubtedly expected.

The persons who composed that law had before their eyes such a recent proof of the abuse that had been made of the charitable beneficence of individuals, that they seem to have been chiefly solicitous to obviate similar abuses in future; and to guard against that partial kind of seduction, they rather chose to establish a despotic power which should be authorised to wrest from every individual in the nation whatever sums it might think proper to call for, trusting to a few feeble devices which they contrived, for curbing that power which was virtually armed with force sufficient to set all these aside whenever it pleased. The consequence has been, that the sums levied for the relief of the poor, which were at first but small, are now enormous, and

Poor.

that the demands are increasing in such a rapid manner as to give rise to the most serious and well-grounded apprehensions. In the year 1774, parliament instituted an inquiry into the amount of the poor's-rates in England and Wales, and again in 1783. On comparing these together, the rise during that short period was found to be in England upwards of 850,000 l. per annum, being nearly in the proportion of one-third of the rate at the first period. In Wales, during the same period of time, the rates were more than doubled. Nor was this a temporary start, but a part only of a gradual progression, Mr Wendeborn, in his View of England, observes, that "in the year 1680 the poor's-rates produced no more than 665,390 l. in 1764 they stood at 1,200,000 l. and in 1773 they were estimated at 3,000,000 l." It is a known fact (says Mr Beaufoy, in the debate on Mr Gilbert's poor bill, April 17th 1788), that within the last nine years, the poor's-rates have increased one-third, and should they continue increasing in the same proportion for 50 or 53 years, they would amount to the enormous sum of 11,230,000 l. a burden which the country could not possibly bear. It was therefore, he added, highly necessary that something should be attempted to prevent this alarming addition, if not to annihilate the present glaring misconduct in the management of the poor."

Such has been the fate of England with regard to poor laws.

In Scotland, the reformation having been carried forward with a still more violent precipitancy than in England, and the funds of the regular clergy being more entirely alienated, the case of the poor there became still more seemingly desperate, and the clamours were also there considerable at that time. Then also it was that the Scottish court, imitating as usual at that time the practice of England, made several feeble attempts to introduce a system of compulsory poor's-rates into that country, but never digested the system so thoroughly as to form a law that could in any case be carried into effect. Many crude laws on this head were indeed enacted; but all of them so evidently inadequate for the purpose, that they never were, even in one instance that we have heard of, attempted at the time to be carried into effect. Indeed it seems to have been impossible to carry them into effect; for they are all so absurd and contradictory to each other, that hardly a single clause of any one of them can be obeyed without transgressing others of equal importance.

The last statute which in Scotland was enacted on this subject bears date September 1st 1691, William and Mary, parl. 1. sess. 7. chap. 21. and it "ratifies and approves all former acts of parliament and proclamations of council for repressing of beggars, and maintaining and employing the poor." If this law therefore were now in force, and it never was repealed, no person could with impunity countervail any one of those statutes which it ratifies; but to be convinced how impossible it is to observe them all, the attentive reader needs only to consider those laws and proclamations with respect to the following particulars, viz.

1. *The persons appointed to make up the poor's roll.* By the act 1579 this duty is entrusted to the provost and bailies within burgh, and the judge constitute be the king's commission in paroches to landwart. By act 1663, it is the heritors of each parish. By act 1672,

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Poor. it is the ministers and elders of each parish who are to make up this list. By the proclamation of 1692, it is the heritors, ministers, and elders of every parish. By that of 1693, it is the magistrates of royal burghs, and the heritors of vacant [country] parishes; in both cases without either minister or elders. Among this chaos of contradictions how is it possible to act without transgressing some law.

2. Not less contradictory are the enactments in regard to the persons who are to pay, and the mode of apportioning the sums among them. By act 1579, the hail inhabitants of the parochin shall be taxed and stented according to the estimation of their substance, without exception of persons. By that of 1663, the one-half is to be paid by the heritors, and the other half by the tenants and possessors, according to their means and substance. By the proclamation of 1692, the one-half is to be paid by the heritors, the other by the householders of the parish. By that of 1693, in burghs royal, the magistrates are to stent themselves, conform to such order and custom used and wont in laying on stents, annuities, or other public burdens, in the respective burgh, as may be most effectual to reach all the inhabitants; and the heritors of several vacant [landwart] parishes to stent themselves for the maintenance of the respective poor.

3. A still greater diversity takes place in regard to the application of the sums so stented. By the act 1579, it would seem that the whole of the money assessed was to be applied to the use of the helpless poor alone, and no part of it for the relief of those who were capable of working. By the act 1663, on the contrary, the whole of this assessment is to be applied for the support of those *only who are able to work*. This is still more specially provided for by the act 1672; where the poor who are unable to work are to be supported by the weekly collections at the kirk doors; and the stented assessments to be applied to the support of those in the correction houses.

It would be tiresome to enumerate all the contradictions that these laws authorize. In regard to the persons who are required to carry these acts into execution, it is at different times the chancellor; magistrates; commissioners of excise; sheriffs; justices of the peace; ministers and elders; the presbyteries; heritors, ministers, and elders; heritors alone; commissioners nominated by presbyteries and appointed by the king; the lords of the privy council: in short, no two laws can be found that do not vary from each other in this respect one way or other.

The same variations take place with regard to the building of correction-houses, confinement and punishment of vagrants, application of their work, awarding their services and those of children. In short, there is not one particular in which these laws do not vary from and contradict each other; so that, let any person try to act in virtue of any one of them, it is impossible for him to avoid going in direct opposition to the enactments of some other law which is of equal force with that he has chosen for his guide. In these circumstances, it is so far from being surprising that these acts have been suffered to remain in perpetual desuetude, that it would have been truly wonderful if this had not been the case. They have, however, been permitted to remain on the statute-book as a disgrace to the times

when they were formed, and as a stumbling-block to those that were to follow. That not one of them is now in force, was lately proved by a learned and public-spirited gentleman, to whom his country is on that and many other accounts deeply indebted. Refusing to pay the poor's tax, with which he was assessed by the overseers of the parish in which he happened to reside, he stood an action in the court of session, and prevailed, upon the broad ground, *that there is no law IN FORCE in Scotland by which an INVOLUNTARY poor's rate can be established in any parish*.

But how, it will be asked by our English readers, are the poor in Scotland really maintained? We answer, by the private alms of individuals, and by certain funds under the management of the *kirk-sessions* (see PRESBYTERIANS). It is the universal practice, each Lord's day, in every parish, for such of the audience as are in easy circumstances, to give to the poor such an offering of alms as they shall deem proper. This offering is generally dropped into a basin placed at the church-door, and under the immediate care of an elder. When the service is begun, the elder removes with the basin, which he keeps under his charge till the congregation be dismissed. The session then meets, and the money is told over, its amount marked down in the session account book, and deposited in a box kept for that purpose. This box has usually a small slit in the top, through which the pieces of money can be dropped without opening it, and it is closed with two locks, the key of one of which is usually kept by the minister, and the other by the kirk-treasurer, so that it can never be opened but in the presence of these two at least.

A kirk-session, when regularly constituted, must always consist of the minister, elders, session-clerk, and kirk-treasurer. None of these ever receive any salary except the session-clerk, who is usually the schoolmaster of the parish, and has a small salary allowed for ministering the transactions. The kirk-treasurer is for the most part one of the elders; and he is an important member of this court. Without his intervention no distribution of the poor's funds is deemed legal; nor can any payments be made, receipts granted, or money transferred, but by him; the minister and session being personally liable to make good all money that may otherwise be given away, should it ever afterwards be challenged by any heritor in the parish.

The precautions taken for the distribution of the poor's funds are likewise simple and excellent, and are as follow:

No money can be legally issued from the poor's funds even by the treasurer and session, unless legal proof can be brought that public intimation has been given from the pulpit immediately after divine service, and before the congregation has dispersed, that a distribution of poor's money is to be made by the session, at such a time and place, specifying the same, and inviting all who have interest in the case to attend if they shall incline. This intimation must be made a full fortnight before the time of distribution; and as every heritor (owner of landed property) in the parish has a right to vote in the distribution of the poor's funds, they may all, if they so incline, then attend and exercise that right; but if none of them should attend, which is often the case, the session has then a right to proceed; and whatever they shall thus do, is deemed strictly legal.

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gal, and is liable to no challenge. But should they proceed without having given this previous intimation, they may, if the heritors should afterwards challenge it, be made to repay out of their own pockets every shilling they shall have so issued. It sometimes happens, that young ministers, through heedlessness in this respect, expose themselves and families to considerable trouble and loss, which by attention might be easily avoided. In the same way, should a minister and session, without the intervention of a treasurer regularly constituted, lend upon bond or otherwise any of the poor's funds, and should the person so borrowing afterwards fail, these lenders are personally liable to make good the whole, and any heritor in the parish who chooses it can compel him to do so.

The members of the session are also liable to pay all losses, and to account for all sums that it can be instructed they received, if they neglected to keep regular books, in which every transaction shall be entered, or if these books have not been revised and approved of by the presbytery (A); but if they shall have been so revised, they cannot be challenged for omission of forms, and can only be made to account for errors, or frauds, or evident dilapidations.

Under this wise and economical system of management, it has been found by the experience of more than 200 years, that in the low parts of the country, where the parishes are in general of such moderate extent as to admit of the people of every part of the parish generally to attend divine service every Lord's day, the ordinary funds have been amply sufficient to supply all the real demands of the poor, and in most parishes a fund has been accumulated from the savings of ordinary years to help the deficiencies that may arise in years of uncommon scarcity.

Besides the weekly collections, the extra offerings at the administration of the Lord's supper, the pious donations of charitable individuals, which are all voluntary, together with some small fees paid for the use of a *mort-cloth* (a black velvet pall) at funerals, which is generally purchased with the poor's money, go to make up this parochial fund. Nor must any one believe that the money which comes through the hands of the administrators of the poor's funds is all that is bestowed upon the poor in Scotland; far from it: there are a thousand other channels through which the indigent derive consolation and support, all of them tending to produce the happiest effects upon society. A son feels himself ashamed to think that his parents should require the assistance of another to support them; he therefore strains every nerve, when in the vigour of life, to spare a little of his earning to render their old age more easy than it might have been; and sweet to a parent is the bread that is given by the pious attention of a child. If there are several children, they become emulous who shall discover most kindness. It is a pious contention which

serves to unite them the closer to each other, by commanding their mutual esteem.

Directly contrary to this is the effect of the poor laws in England, where, in London at least, it is not uncommon to see men in good business neglecting their aged and diseased parents for no better reason than that the parish is bound to find them bread. These laws have other pernicious consequences; for they are obviously subversive of industry as well as morality among the lower orders of the people. "This is a heavy charge, but no less true than heavy. Fear of want is the only effectual motive to industry with the labouring poor: remove that fear, and they cease to be industrious. The ruling passion of those who live by bodily labour, is to save a pittance for their children, and for supporting themselves in old age. Stimulated by desire of accomplishing those ends, they are frugal and industrious; and the prospect of success is a continual feast to them. Now, what worse can man's ingenuity invent against such a man, under colour of friendship, than to secure bread to him and his children whenever he takes a dislike to work; which effectually deadens his sole ambition, and with it his honest industry? Relying on the certainty of a provision against want, he relaxes gradually till he sinks into idleness; idleness leads to profligacy; profligacy begets disease; and the wretch becomes an object of public charity before he has run half his course. Wisely therefore is it ordered by Providence, that charity should in every instance be voluntary, to prevent the idle and profligate from depending on it for support. During the reign of Elizabeth when the monasteries were recently suppressed, and all their revenues squandered, some compulsion might be necessary to prevent the poor from starving. A temporary provision for this purpose, so contrived as not to supersede voluntary charity, but rather to promote it, would have been a measure extremely proper. Unlucky it is for England that such a measure was overlooked; but the queen and her parliaments had not the talent of foreseeing consequences without the aid of experience. A perpetual tax for the poor was imposed, the most pernicious tax, says Lord Kames (B), that ever was imposed in any country."

POPA-MADRE, is a town of South America, in Terra Firma. In this place there is a convent and chapel dedicated to the Virgin Mary, to whose image the Spaniards in those parts go in pilgrimage, particularly those who have been at sea. It is seated on a high mountain, 50 miles east of Carthage. W. Long. 74. 32. N. Lat. 10. 15.

POPÆ. See VICTIMARIUS.

POPAYAN, a province of South America, in the kingdom of New Granada, between the audience of Panama, that of Quito, and the South sea; 400 miles in length, and 300 in breadth. A chain of barren mountains runs through the country from north to south; and

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(A) The presbytery is by law appointed auditor of the poor's accounts of the several parishes within its bounds; and if they find any difficult case occur in the discharge of this duty, they may lay it before the synod for advice.

(B) See *Sketches of Man*, book ii. sketch 10. where many other arguments equally forcible are urged against all involuntary *poor-rates*, and where many ingenious expedients are proposed for gradually abolishing them where they are established.

Pope. and near the sea the soil is so soaked with almost continual rains, that few care to reside there, except for the sake of the gold that is met with in great plenty in the sands of the rivulets. This bewitching metal brings many in search of it, though it is a great doubt whether they ever return back alive or not. For this reason the savage Americans are still masters of a great part of it, and continually annoy the Spaniards.

POPAYAN, the capital town of a province of that name in South America, with a bishop's see, a Spanish governor, and where the courts of justice are held. The inhabitants are almost all Creoles. It is 220 miles north-east of Quito. W. Long. 75. 55. N. Lat. 2. 35.

POPE, a name which comes from the Greek word *Παπα*, and signifies *Father*. In the east this appellation is given to all Christian priests; and in the west, bishops were called by it in ancient times: but now for many centuries it has been appropriated to the bishop of Rome, whom the Roman Catholics look upon as the common father of all Christians.

Much has been said, much written, and many warm disputes have been carried on concerning the pope, and the power belonging to him, within these two or three last centuries. We shall here, without entering into controversy, lay down distinctly, from the best authority, what the Roman Catholics really believe concerning the *pope*, after having described the manner of his election; and we shall give some other particulars relating to this subject that seem to deserve notice, and are in this country not generally known.

All in communion with the see of Rome unanimously hold, that our Saviour Jesus Christ constituted St Peter the apostle chief pastor under himself, to watch over his whole flock here on earth, and to preserve the unity of it; giving him the power requisite for these ends. They also believe, that our Saviour ordained, that St Peter should have successors with the like charge and power, to the end of time. Now, as St Peter resided at Rome for many years, and suffered martyrdom there, they consider the bishops of Rome as his successors in the dignity and office of the universal pastor of the whole Catholic church. There have been some varieties in the manner of choosing the bishop of Rome in different ages, as alterations may be made in discipline; but still the clergy of Rome have justly had the chief part in that election: and that clergy is now represented by, or in some manner consists of, the *cardinals*, who have for several centuries been the sole electors of the pope.

These *cardinals* or *principal persons* of the church of Rome are 70 in number, when the *sacred college*, as it is called, is complete. Of these six are cardinal bishops, the bishops of Ostia, of Porto, Albano, Sabino, Tusculum or Frascati, and Præneste or Palestrina; which are the six suburbicarian churches; 50 are cardinal priests, who have all titles from parish churches in Rome; and fourteen are cardinal deacons, who have their titles from churches in Rome of less note, called *Diaconias* or *Deaconries*. These cardinals are created by the pope when there happen to be vacancies; and sometimes he names one or two only at a time; but commonly he defers the promotion until there be ten or twelve vacancies or more; and then at every second such promotion the emperor, the kings of Spain and France, and of Britain, when Catholic, are allowed to present one each, to be made cardinal, whom the pope always admits if

there be not some very great and evident objection. These cardinals are commonly promoted from among such clergymen as have borne offices in the Roman court; some are assumed from religious orders; eminent ecclesiastics of other countries are likewise often honoured with this dignity, as the archbishops of Toledo and Vienna are at present cardinal priests of Rome. Sons of sovereign princes have frequently been members of the sacred college; and there ends the direct line of the royal family of Stuart. Their distinctive dress is scarlet, to signify that they ought to be ready to shed their blood for the faith and church, when the defence and honour of either require it. They wear a scarlet cap and hat: the cap is given to them by the pope if they are at Rome, and is sent to them if they are absent; but the hat is never given but by the pope's own hand. These cardinals form the pope's standing council or *consistory* for the management of the public affairs of church and state. They are divided into different *congregations* for the more easy dispatch of business; and some of them have the principal offices in the pontifical court, as that of cardinal-vicar—penitentiary—chancellor—camerlingo or chamberlain—prefect of the signature of justice—prefect of memorials—and secretary of state. They have the title given them of *eminence* and *most eminent*. But here we consider them principally as the persons entrusted with the choice of the pope. See **CARDINAL**.

On the demise of a pope his pontifical seal is immediately broken by the chamberlain, and all public business is interrupted that can be delayed: messengers are dispatched to all the Catholic sovereigns to acquaint them of the event, that they may take what measures they think proper; and that the cardinals in their dominions, if any there be, may hasten to the future election if they choose to attend; whilst the whole attention of the sacred college is turned to the preservation of tranquillity in the city and state, and to the necessary preparations for the future election. The cardinal chamberlain has, during the vacancy of the holy see, great authority; he coins money with his own arms on it, lodges in the pope's apartments, and is attended by body-guards. He, and the first cardinal bishop, the first cardinal priest, and the first cardinal deacon, have, during that time, the government almost entirely in their hands. The body of the deceased pope is carried to St Peter's, where funeral service is performed for him with great pomp for nine days, and the cardinals attend there every morning. In the mean time, all necessary preparations for the election are made; and the place where they assemble for that purpose, which is called the *conclave*, is fitted up in that part of the Vatican palace which is nearest to St Peter's church, as this has long been thought the most convenient situation. Here is formed by partitions of wood a number of cells or chambers equal to the number of cardinals, with a small distance between every two, and a broad gallery before them. A number is put on every cell, and small papers with corresponding numbers are put into a box: every cardinal, or some one for him, draws out one of these papers, which determines in what cell he is to lodge. The cells are lined with cloth; and there is a part of each one separated for the conclavists or attendants, of whom two are allowed to each cardinal, and three to cardinal princes. They are persons of some

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some rank, and generally of great confidence; but they must carry in their master's meals, serve him at table, and perform all the offices of a menial servant. Two physicians, two surgeons, an apothecary, and some other necessary officers, are chosen for the conclave by the cardinals.

On the 10th day after the pope's death, the cardinals, who are then at Rome, and in a competent state of health, meet in the chapel of St Peter's, which is called the *Gregorian chapel*, where a sermon on the choice of a pope is preached to them, and mass is said for invoking the grace of the Holy Ghost. Then the cardinals proceed to the conclave in procession two by two, and take up their abode. When all is properly settled, the conclave is shut up, having boxed *wheels* or places of communication in convenient quarters: there are also strong guards placed all around. When any foreign cardinal arrives after the inclosure, the conclave is opened for his admission. In the beginning every cardinal signs a paper, containing an obligation, that if he shall be raised to the papal chair he will not alienate any part of the pontifical dominion; that he will not be prodigal to his relations; and such other stipulations as may have been settled in former times or framed for that occasion.

We come now to the election itself; and that this may be effectual, two-thirds of the cardinals present must vote for the same person. As this is often not easily obtained, they sometimes remain whole months in the conclave. They meet in the chapel twice every day for giving their votes; and the election may be effectuated by *scrutiny*, *accession*, or *acclamation*. Scrutiny is the ordinary method; and consists in this: every cardinal writes his own name on the inner part of a piece of paper, and this is folded up and sealed; on a second fold of the same paper a conclavist writes the name of the person for whom his master votes. This, according to agreements observed for some centuries, must be one of the sacred college. On the outer side of the paper is written a sentence at random, which the voter must well remember. Every cardinal, on entering into the chapel, goes to the altar and puts his paper into a large chalice.

When all are convened, two cardinals number the votes; and if there are more or less than the number of cardinals present, the voting must be repeated. When that is not the case, the cardinal appointed for the purpose reads the outer sentence, and the name of the cardinal under it, so that each voter hearing his own sentence and the name joined with it, knows that there is no mistake. The names of all the cardinals that are voted for are taken down in writing, with the number of votes for each; and when it appears that any one has two-thirds of the number present in his favour the election is over: but when this does not happen, the voting papers are all immediately burnt without opening up the inner part. When several trials of coming to a conclusion by this method of *scrutiny* have been made in vain, recourse is sometimes had to what is called *accession*. By it, when a cardinal perceives that one or very few votes are wanting to any one for whom he had not voted at that time, he may say that he *accedes* to the one who has near the number of votes requisite; and if his one vote suffices to make up the two-thirds, or if he is followed by a sufficient number of *acceders* or

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new voters for the said cardinal, the election is accomplished. Lastly, a pope is sometimes elected by *acclamation*; and that is, when a cardinal, being pretty sure that he will be joined by a number sufficient, cries out in the open chapel, that such a one shall be pope. If he is supported properly, the election becomes unanimous; those who would perhaps oppose it foreseeing that their opposition would be fruitless, and rather hurtful to themselves. It is to be observed, that the emperor of Germany and the kings of France and Spain claimed a right of excluding one cardinal from being pope at every election. Hence, when the ambassador at Rome of any of these sovereigns perceived that any cardinal, disagreeable to his master, according to the instructions he had received, was likely to be made pope, he demanded an audience of the conclave, was admitted, and there declared his master's will, which was always attended to for the common good. But each of those sovereigns was allowed thus to exclude only one at one time; and they unwillingly and seldom put this right in execution.

When a pope is chosen in any of the three above-mentioned ways, the election is immediately announced from the balcony in the front of St Peter's, homage is paid to the new pontiff, and couriers are sent off with the news to all parts of Christendom. The pope appoints a day for his coronation at St Peter's, and for his taking possession of the patriarchal church of St John Lateran; all which is performed with great solemnity. He is addressed by the expression of *Holiness*, and *most holy Father*.

Let us now proceed to see what authority Roman Catholics attribute to the pope thus chosen. They believe, then, that the bishop of Rome is, under Christ, supreme pastor of the whole church; and as such is not only the first bishop in order and dignity, but has also a power and jurisdiction over all Christians, in order to preserve unity and purity of faith and moral doctrine, and to maintain order and regularity in all churches. Wherefore they hold, that when the pope understands that any error has been broached against faith or manners, or that any considerable difference on such subjects has arisen in any part of Christendom, it belongs to him, after due deliberation and consultation, to issue out his pastoral decree, condemning the error, clearing up the doubt, and declaring what has been delivered down, and what is to be believed. Some Catholic divines are of opinion that the pope cannot err, when he thus addresses himself *to all the faithful* on matters of doctrine. They well know, that as a private doctor he may fall into mistakes as well as any other man; but they think, that when he teaches the whole church Providence must preserve him from error; and they apprehend, that this may be deduced from the promises of Christ to St Peter, and from the writings of the ancient fathers. However, this infallibility of the pope, even when he pronounces in the most solemn manner, is only an opinion, and not an article of Roman Catholic faith. Wherefore, when he sends for the doctrinal decrees, the other bishops, who are also guardians of the faith in an inferior degree, may, with due respect, examine these decrees; and if they see them agree with what has been always taught, they either formally signify their acceptance, or they tacitly acquiesce, which, considering their duty, is equivalent to a formal approbation. When the acceptance of the generality of the bishops has been obtained,

Pope. obtained, either immediately or after some mutual correspondence and explanation, the decrees of the pope thus accepted come to be the sentence of the whole church, and are believed to be beyond the possibility of error!

Sometimes it may happen that the disputes and differences may be so great and intricate, that to the end it may be seen more clearly what has really been delivered down, and to give all possible satisfaction, it may appear proper to convene all the bishops who can conveniently attend to one place, to learn from them more distinctly what has been taught and held in their respective churches. Roman Catholics believe that it belongs to the pope to call such general councils, and to preside in them in person or by his legates. They likewise hold, that when the pope has approved the decrees of such councils concerning faith or manners, such decrees are then final, and must be received as such by all Catholics. In all this they believe, that the particular assistance of the Holy Ghost is with the pastors of the church, that *so the gates of hell may never prevail against her.*

The see of Rome, according to Roman Catholics, is the centre of Catholic unity. All their bishops communicate with the pope, and by his means with one another, and so form one body. However distant their particular churches may be, they all meet at Rome either in person or by their delegates, or at least by their letters. And, according to the discipline of the latter ages, though they are presented to the pope for their office from their respective countries, yet from him they must receive their bulls of consecration before they can take possession of their sees.

In matters of church discipline, the pope, as chief pastor, not only ought to take care that the canons actually in force be observed in all churches, but he may also make new canons and regulations when he sees it necessary or expedient for the spiritual benefit of the faithful, according to times and circumstances. But in doing this he must not infringe the established rights or customs with injury to any person; which if, through mistake or wrong information, he should ever do, the persons who think themselves aggrieved may remonstrate with respect and sue for redress. He may establish new episcopal sees, where there have been none before; and he may alter the limits of former dioceses; but in such alterations he always of course consults the temporal sovereign, if in communion with him. He sends pastors to preach the gospel to all countries where the Catholic religion is not by law established; and to him appeals may be made from all parts of Christendom in ecclesiastical causes of great importance.

The pope may dispense with the observation of ecclesiastical canons when there are just reasons for it, as may frequently happen; he may also dispense with vows when they are made with that express condition (A) that he really may dispense with them; he may also on some occasions declare that obligations have really ceased when that is truly the case, from a great alteration of circumstances: But he can never grant any dispensation, to the injury of any third person, and can

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never allow any one to do what is unjust, or to say what he knows to be false, whatever advantage might be expected from it.

The pope is also a temporal prince, and possesses considerable dominions in the middle part of Italy, besides Avignon, which the French have lately taken from him, and the duchy of Benevento inclosed within the kingdom of Naples. It is also supposed that the kingdoms of Naples and Sicily, and the duchies of Parma and Placentia, are still held of him in fief as they were before. His predecessors have acquired these possessions at different times and on different occasions, by various donations, concessions, treaties, and agreements, in like manner as has happened with regard to the establishment of other sovereignties; and his title to them is like to that of other potentates to their respective possessions. The revenue arising from this estate, and what he receives for various reasons from Catholic countries, which is now much reduced, is employed for the support of government, in salaries to the officers of his court, for the education of clergymen, and for the maintaining of missionaries in infidel countries. Great sums are particularly expended for the propagation of the Christian faith in different parts of Asia, especially in Armenia, Syria, and China. Nor is it much to be wondered at, if the families, of which the sovereign pontiffs happen to have been born, acquire greater riches and splendour from that connection. The princely families of Barberini, Borghese, Chigi, Corsini, Albani, are examples of this kind: but regulations have been made in later times to prevent excessive depotism. Beyond the limits of his own temporal dominions the pope has no temporal power or jurisdiction, excepting what any nation may be pleased to allow him: when any thing of that kind has been granted or brought in by custom, it is evident that it ought not to be taken away rashly nor without just reason. But, as chief pastor of the church, he has no right to any temporal jurisdiction over his flock. As such, his power is entirely spiritual, and has no means of coercion originally or necessarily connected with it, but only ecclesiastical censures. It must be owned, that the popes, in some ages, sometimes imagining that they could do much good, sometimes by the consent, or even at the desire, of the sovereigns, and sometimes no doubt out of ambitious views; have interfered a great deal in the temporal affairs of the different kingdoms of Europe, which has frequently given scandal and done harm to religion. But it is known to those most versant in history, that their faults of this kind have been exaggerated, and their conduct often misunderstood or misrepresented. However, in this a Roman Catholic is not obliged to approve what they have done; nay, without acting contrary to his religion, he may judge of them freely, and blame them if he think they deserve it; only he will do it with respect and regret. Thus a Roman Catholic may either apologise, if he think he can do it, for the conduct of Innocent III. in deposing King John of England; or, without being guilty of any offence against his religion, he may blame the pontiff for what he did on that occasion; because the power of the pope to depose princes, or to absolve subjects from their allegiance, was never proposed as an article of faith, or

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(A) Any other man may unquestionably do the same when they are made with that express condition.

made a term of communion with the church of Rome. Some Catholic divines, indeed, especially among the Jesuits, are universally known to have held this extravagant and dangerous opinion; but by far the greater part of them condemn and abhor it as absurd and impious; and surely it is but fair and just to allow them to know best what they themselves believe. And here, to conclude, we shall add, that it is very desirable that Christians of all denominations endeavour to understand one another better than they have often done; and instead of supposing imaginary differences, strive to remove real ones, for the general good of mankind, for the glory of God, and honour of religion; and that all vie with one another to excel in just and charitable sentiments, language, and behaviour.

The reader, who wishes to know what can be urged for and against the supremacy of the pope, and who is fitted by his knowledge of ecclesiastical history to understand the nature of the question at issue, may consult, on the one hand, the works of Bellarmine, together with a small tract lately published in English, under the title of *The Divine Economy of Christ in his Kingdom or Church*; and on the other, Barrow's treatise on the *Pope's Supremacy*, together with Chillingworth's *Religion of Protestants*, &c.

POPE, Dominions of, or Ecclesiastical States, a country of Italy, bounded on the north by the gulf of Venice and the Venetian dominions, on the south by the Mediterranean, on the east by the kingdom of Naples and the Adriatic, and on the west by Tuscany and Modena. It is 400 miles long on the coast of the Adriatic from Naples to the Venetian territory. It is but narrow, however, from north to south, not being more than 80 miles broad from the gulf of Venice to the Tuscan sea.

The soil, in general, of the pope's dominions is very fertile, but ill cultivated; and there are many fens and marshy grounds which are very prejudicial to the air. That the lands are badly cultivated and inhabited, the air bad, and the inhabitants poor, idle, lazy, and grossly superstitious, is owing to a variety of causes. With respect to the accommodations of life, this country is but in a very indifferent condition; for, notwithstanding the fertility of its soil, its advantageous situation for traffic, the large sums spent in it by travellers, or remitted to it from foreign countries, and its having, for its ruler, the successor of St Peter, the prince of the apostles, and the vicar of Jesus Christ; yet it is poor and thin of inhabitants, ill cultivated, and without trade and manufactures. This is partly owing to the great number of holidays, of sturdy beggars called *pilgrims*, and of hospitals and convents, with the amazing but perhaps useless wealth of churches and convents, and the inquisition: but the chief cause is the severity of the government, and the grievous exactions and hardships to which the subjects are exposed. The legates, though mostly clergymen, whose thoughts should be chiefly employed about laying up treasures in heaven, and who ought to set an example to the laity of disinterestedness and a contempt of this world, too often, it is said, scruple no kind of rapaciousness: even the holy father himself, and the cardinals, frequently make the enriching of their nephews and other relations, and the aggrandizing their families, too much the business of their lives. The extensive claims and great pretensions of the pope are well

known, and by a large part of Christendom, are now treated with contempt and mockery. The Reformation gave a great blow to his spiritual power; and the French revolution has lessened it still more. His temporal dominions, however, still continue much the same; though how long this may be the case, considering how much he hath lost, and is daily losing, of his ghostly empire, and the veneration in which he was formerly held, it is difficult to say. See *POPE*.—The Campania of Rome is under the pope's immediate government; but the other provinces are governed by legates and vice-legates, and there is a commander in chief of the pope's forces in every province. The pope is chosen by the cardinals in the conclave: See this particularly described above. The pope holds a consistory of cardinals on ecclesiastical affairs; but the cardinals do not meddle with his civil government. The pope's chief minister is the cardinal-patron, usually his nephew, who amasses an immense estate, if the reign be of any long duration. The cardinal that is chosen pope must generally be an Italian, and at least 55 years of age. The spiritual power of the pope, though far short of what it was before the Reformation, is still considerable. It is computed that the monks and regular clergy, who are absolutely at his devotion, do not amount to less than 2,000,000 of people, dispersed through all the Roman Catholic countries, to assert his supremacy over princes, and promote the interest of the church. The revenues of these monks do not fall short of 20,000,000*l.* Sterling, besides the casual profits arising from offerings, and the people's bounty to the church, who are taught that their salvation depends on this kind of benevolence.

The pope's revenues, as a temporal prince, may amount to about 1,000,000*l.* Sterling *per annum*, arising chiefly from the monopoly of corn, the duties on wine and other provisions. Over and above these, vast sums are continually flowing into the papal treasury from all the Roman Catholic countries, for dispensations, indulgences, canonizations, annates, the pallia, and investitures of archbishops, bishops, &c.

The pope has a considerable body of regular forces, well clothed and paid; but his fleet consists only of a few galleys. His life guards are 40 Switzers, 75 cuirassiers, and as many light horse. Since the beginning of the French revolutionary war he had at one time a guard of English horse. But what has now been said of the revenue and constitutions of the papal states must refer to the circumstances in which they were previous to the time when they were seized and plundered by the rapacity of the French; and the pope must now be considered, along with almost every other continental power, as completely under the subjection and controul of Bonaparte. See *FRANCE* and *ITALY*.

POPE, Alexander, a celebrated English poet, descended from a respectable family, was born the 8th of June 1688, at London, where his father was then a considerable merchant. He was taught to read very early by an aunt; and learned to write without any assistance, by copying printed books. The family being of the Romish religion, he was put, at eight years of age, under one Taverner, a priest, who taught him the rudiments of the Latin and Greek tongues together; and soon after was sent to a Popish seminary at Winchester, from whence he was removed to a school at Hyde-

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Hyde-Park Corner. He discovered early an inclination to versifying; and the translations of Ogilby and Sandys from Virgil and Ovid first falling in his way, they were his favourite authors. At twelve he retired with his parents to Binfield, in Windsor Forest; and there became acquainted with the writings of Spenser, Waller, and Dryden. Dryden struck him most, probably because the cast of that poet was most congenial with his own; and therefore he not only studied his works intensely, but ever after mentioned him with a kind of rapturous veneration. He once obtained a sight of him at a coffee-house, but never was known to him: a misfortune which he laments in these short but expressive words, *Virgilium tantum vidi*. Though Pope had been under more tutors than one, yet it seems they were so insufficient for the purpose of teaching, that he had learned very little from them: so that, being obliged afterwards to begin all over again, he may justly be considered as one of the *αὐτοδιδάκτοι* or *self-taught*. At fifteen he had acquired a readiness in the two learned languages; to which he soon after added the French and Italian. He had already scribbled a great deal of poetry in various ways; and this year set about an epic poem called *Alexander*. He long after communicated it to Atterbury, with a declared intention to burn it; and that friend concurred with him: "Though (adds he) I would have interceded for the first page, and put it, with your leave, among my curiosities." What the poet himself observes upon these early pieces is agreeable enough; and shows, that though at first a little intoxicated with the waters of Helicon, he afterwards arrived to great sobriety of thinking. "I confess (says he) there was a time when I was in love with myself; and my first productions were the children of Self-love upon Innocence. I had made an epic poem, and panegyrics on all the princes; and I thought myself the greatest genius that ever was. I cannot but regret these delightful visions of my childhood, which, like the fine colours we see when our eyes are shut, are vanished for ever." His pastorals, begun in 1704, first introduced him to the wits of the time; among which were Wycherly and Walfsh. This last gentleman proved a sincere friend to him; and soon discerning that his talent lay, not so much in striking out new thoughts of his own, as in improving those of other men, and in an easy versification, told him, among other things, that there was one way left open for him to excel his predecessors in, which was correctness: observing, that though we had several great poets, yet none of them were correct. Pope took the hint, and turned it to good account; for no doubt the distinguishing harmony of his numbers was in a great measure owing to it. The same year, 1704, he wrote the first part of his Windsor Forest, though the whole was not published till 1710. In 1708, he wrote the Essay on Criticism: which production was justly esteemed a masterpiece in its kind, and showed not only the peculiar turn of his talents, but that those talents, young as he was, were ripened into perfection. He was not yet twenty years old; and yet the maturity of judgement, the knowledge of the world, and the penetration into human nature, displayed in that piece, were such as would have done honour to the greatest abilities and experience. But whatever may be the merit of the Essay on Criticism, it was still surpassed, in a poetical view, by the Rape of the Lock, first com-

pletely published in 1712. The former excelled in the didactic way, for which he was peculiarly formed; a clear head, strong sense, and a sound judgement, being his characteristic qualities; but it is the creative power of the imagination that constitutes what is properly called a poet; and therefore it is in the Rape of the Lock that Pope principally appears one, there being more *vis imaginandi* displayed in this poem than perhaps in all his other works put together. In 1713, he gave out proposals for publishing a translation of Homer's Iliad, by subscription; in which all parties concurred so heartily, that he acquired a considerable fortune by it. The subscription amounted to 6000*l.* besides 1200*l.* which Lintot the bookseller gave him for the copy. Pope's finances being now in good condition, he purchased a house at Twickenham, whither he removed with his father and mother in 1715: where the former died about two years after. As he was a Papist, he could not purchase, nor put his money to interest on real security; and as he adhered to the cause of King James, he made it a point of conscience not to lend it to the new government; so that, though he was worth near 20,000*l.* when he laid aside business, yet, living afterwards upon the quick stock, he left but a slender subsistence to his family. Our poet, however, did not fail to improve it to the utmost: he had already acquired much by his publications, and he was all attention to acquire more. In 1717, he published a collection of all he had printed separately; and proceeded to give a new edition of Shakespeare: which, being published in 1721, discovered that he had consulted his fortune more than his fame in that undertaking. The Iliad being finished, he engaged upon the like footing to undertake the Odyssey. Mr Broome and Mr Fenton did part of it, and received 500*l.* of Mr Pope for their labours. It was published in the same manner, and on the same conditions to Lintot; excepting that, instead of 1200*l.* he had but 600*l.* for the copy. This work being finished in 1725, he was afterwards employed with Swift and Arbuthnot in printing some volumes of Miscellanies. About this time he narrowly escaped losing his life, as he was returning home in a friend's chariot; which, on passing a bridge, happened to be overturned, and thrown with the horses into the river. The glasses were up, and he was not able to break them: so that he had immediately been drowned, if the postillion had not broke them, and dragged him out to the bank. A fragment of the glass, however, cut him so desperately, that he ever after lost the use of two of his fingers. In 1727 his Dunciad appeared in Ireland; and the year after in England, with notes by Swift, under the name of *Scriblerus*. This edition was presented to the king and queen by Sir Robert Walpole; who, probably about this time, offered to procure Pope a pension, which however he refused, as he had formerly done a proposal of the same kind made him by Lord Halifax. He greatly cultivated the spirit of independency; and "Unplac'd, unpension'd, no man's heir or slave," was frequently his boast. He somewhere observes, that the life of an author is a state of warfare: he has shown himself a complete general in this way of warring. He bore the insults and injuries of his enemies long; but at length, in the Dunciad, made an absolutely universal slaughter of them: for even Cibber, who was afterwards advanced to be the

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hero of it, could not forbear owning, that nothing was ever more perfect and finished in its kind than this poem. In 1729, by the advice of Lord Bolingbroke, he turned his pen to subjects of morality; and accordingly we find him, with the assistance of that noble friend, who furnished him with the materials, at work this year upon the *Essay on Man*. The following extract of a letter to Swift discovers the reason of his lordship's advice: "Bid him (says Bolingbroke) talk to you of the work he is about, I hope in good earnest; it is a fine one, and will be, in his hands, an original. His sole complaint is, that he finds it too easy in the execution. This flatters his laziness: it flatters my judgement; who always thought, that, universal as his talents are, this is eminently and peculiarly his, above all the writers I know, living or dead; I do not except Horace." Pope tells the dean in the next letter, that "the work Lord Bolingbroke speaks of with such abundant partiality, is a system of ethics, in the Horatian way." In pursuing the same design, he wrote his *Ethic Epistles*: the fourth of which, upon Taste, giving great offence, as he was supposed to ridicule the duke of Chandos under the character of Timon, is said to have put him upon writing satires, which he continued till 1739. He ventured to attack persons of the highest rank, and set no bounds to his satirical rage. A genuine collection of his letters was published in 1737. In 1738, a French translation of the *Essay on Man*, by the Abbé Resnel, was printed at Paris; and Mr Croufaz, a German professor, animadverted upon this system of ethics, which he represented as nothing else but a system of naturalism. Mr Warburton, afterwards bishop of Gloucester, wrote a commentary upon the *Essay*; in which he defends it against Croufaz, whose objections he supposes owing to the faultiness of the Abbé Resnel's translation. The poem was republished in 1740, with the commentary. Our author now added a fourth book to the *Dunciad*, which was first printed separately in 1742: but the year after, the whole poem came out together, as a specimen of a more correct edition of his works. He had made some progress in that design, but did not live to complete it. He had all his life long been subject to the headach; and that complaint, which he derived from his mother, was now greatly increased by a dropsy in his breast, under which he expired the 30th of May 1744, in the 56th year of his age. In his will, dated December 11. 1743, Miss Blount, a lady to whom he was always devoted, was made his heir during her life: and among other legacies, he bequeathed to Mr Warburton the property of all such of his works, already printed, as he had written, or should write commentaries upon, and which had not otherwise been disposed of or alienated; with this condition, that they were published without future alterations. In discharge of this trust, that gentleman gave a complete edition of all Mr Pope's works, 1751, in nine vols. 8vo. A work, entitled, *An Essay on the Writings and Genius of Pope*, by Mr Warton, two vols 8vo, will be read with pleasure by those who desire to know more of the person, character, and writings of this excellent poet. Lord Orrery's account of him is very flattering: "If we may judge of him by his works (says this noble author), his chief aim was to be esteemed a man of virtue. His letters are written in that style; his last volumes are all of the

moral kind; he has avoided trifles, and consequently has escaped a rock which has proved very injurious to Swift's reputation. He has given his imagination full scope, and yet has preserved a perpetual guard upon his conduct. The constitution of his body and mind might really incline him to the habits of caution and reserve. The treatment which he met with afterwards, from an innumerable tribe of adversaries, confirmed this habit; and made him slower than the dean in pronouncing his judgement upon persons and things. His proferings are little less harmonious than his verse; and his voice, in common conversation was so naturally musical, that I remember honest Tom Southern used to call him the *little nightingale*. His manners were delicate, easy, and engaging; and he treated his friends with a politeness that charmed, and a generosity that was much to his honour. Every guest was made happy within his doors; pleasure dwelt under his roof, and elegance presided at his table."

Yet, from Dr Johnson's account of his domestic habits, we have reason to doubt the latter part of this character. His parsimony (he informs us) appeared in very petty matters, such as writing his compositions on the backs of letters, or in a niggardly reception of his friends, and a scantiness of entertainment—as the setting a single pint on the table to two friends, when, having himself taken two small glasses, he would retire, saying, I leave you to your wine. He sometimes, however, the Doctor acknowledges, made a splendid dinner; but this happened seldom. He was very full of his fortune, and frequently ridiculed poverty; and he seems to have been of an opinion not very uncommon in the world, that to want money is to want every thing. He was almost equally proud of his connection with the great, and often boasted that he obtained their notice by no meanness or servility. This admiration of the great increased in the advance of life; yet we must acknowledge, that he could derive but little honour from the notice of Cobham, Burlington, or Bolingbroke.

By natural deformity, or accidental distortion, his vital functions were so much disordered, that his life was a long disease; and from this cause arose many of his peculiarities and weaknesses. He stood constantly in need of female attendants; and to avoid cold, of which he was very sensible, he wore a fur doublet under his shirt, &c. The indulgence and accommodation which his sickness required, had taught him all the unpleasant and unfocial qualities of a valetudinary man.—When he wanted to sleep, he nodded in company; and once slumbered at his own table when the prince of Wales was talking of poetry. He was extremely troublesome to such of his friends as asked him out, which many of them frequently did, and plagued the servants beyond description. His love of eating is another fault, to which he is said to have fallen a sacrifice. In all his intercourse with mankind, he had great delight in artifice, and endeavoured to attain all his purposes by indirect and unsuspected methods.

In familiar conversation it is said he never excelled; and he was so fretful and so easily displeased, that he would sometimes leave Lord Oxford's silently without any apparent reason, and was to be courted back by more letters and messages than the servants were willing to carry.

Pope.

Pope,
Popery.

Dr Johnson also gives a view of the intellectual character of Pope, and draws a parallel between Dryden and him. For particulars, however, we must refer our readers to *Johnson's Lives of the Poets*.

POPERY, in ecclesiastical history, comprehends the religious doctrines and practices adopted and maintained by the church of Rome. The following summary, extracted chiefly from the decrees of the council of Trent, continued under Paul III. Julius III. and Pius IV. from the year 1545 to 1563, by successive sessions, and the creed of Pope Pius IV. subjoined to it, and bearing date November 1564, may not be unacceptable to the reader. One of the fundamental tenets, strenuously maintained by Popish writers, is the infallibility of the church of Rome; though they are not agreed whether this privilege belongs to the pope or a general council, or to both united; but they pretend that an infallible living judge is absolutely necessary to determine controversies, and to secure peace in the Christian church. However, Protestants allege, that the claim of infallibility in any church is not justified by the authority of Scripture; much less does it pertain to the church of Rome; and that it is inconsistent with the nature of religion, and the personal obligations of its professors; and that it has proved ineffectual to the end for which it is supposed to be granted, since popes and councils have disagreed in matters of importance, and they have been incapable, with the advantage of this pretended infallibility, of maintaining union and peace.

Another essential article of the popish creed is the supremacy of the pope, or his sovereign power over the universal church. See POPE.

Farther, the doctrine of the seven sacraments is a peculiar and distinguishing doctrine of the church of Rome; these are baptism, confirmation, the eucharist, penance, extreme unction, orders, and matrimony.

The council of Trent (sess. 7. can. 1.) pronounces an anathema on those who say, that the sacraments are more or fewer than seven, or that any one of the above number is not truly and properly a sacrament. And yet it does not appear that they amounted to this number before the 12th century, when Hugo de St Victor and Peter Lombard, about the year 1144, taught that there were seven sacraments. The council of Florence, held in 1438, was the first council that determined this number. These sacraments confer grace, according to the decree of the council of Trent, (sess. 7. can. 8.) *ex opere operato*, by the mere administration of them; three of them, viz. baptism, confirmation, and orders, are said, (can. 9.) to impress an indelible character, so that they cannot be repeated without sacrilege; and the efficacy of every sacrament depends on the intention of the priest by whom it is administered (can. 11.) Pope Pius expressly enjoins, that all these sacraments should be administered according to the received and approved rites of the Catholic church. With regard to the eucharist in particular, we may here observe, that the church of Rome holds the doctrine of transubstantiation; the necessity of paying divine worship to Christ under the form of the consecrated bread, or host; the propitiatory sacrifice of the mass, according to their ideas of which Christ is truly and properly offered as a sacrifice as often as the priest says mass; it practises likewise solitary mass, in which the

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priest alone, who consecrates, communicates, and allows communion only in one kind, viz. the bread, to the laity. Sess. 14.

The doctrine of merits is another distinguishing tenet of popery; with regard to which the council of Trent has expressly decreed (sess. 6. can. 32.) that the good works of justified persons are truly meritorious; deserving not only an increase of grace, but eternal life, and an increase of glory; and it has anathematized all who deny this doctrine. Of the same kind is the doctrine of satisfaction; which supposes that penitents may truly satisfy, by the afflictions they endure under the dispensations of Providence, or by voluntary penances to which they submit, for the temporary penalties of sin, to which they are subject, even after the remission of their eternal punishment. Sess. 6. can. 30. and sess. 14. can. 8. and 9. In this connection we may mention the popish distinction of venial and mortal sins: the greatest evils arising from the former are the temporary pains of purgatory; but no man, it is said, can obtain the pardon of the latter without confessing to a priest, and performing the penances which he imposes.

The council of Trent (sess. 14. can. 1.) has expressly decreed, that every one is accursed, who shall affirm that penance is not truly and properly a sacrament, instituted by Christ in the universal church, for reconciling those Christians to the divine majesty, who have fallen into sin after baptism: and this sacrament, it is declared, consists of two parts, the matter and the form; the matter is the act of the penitent, including contrition, confession, and satisfaction; the form of it is the act of absolution on the part of the priest. Accordingly it is enjoined, that it is the duty of every man, who hath fallen after baptism, to confess his sins once a year, at least, to a priest: that this confession is to be secret; for public confession is neither commanded nor expedient; and that it must be exact and particular, including every kind and act of sin, with all the circumstances attending it. When the penitent has so done, the priest pronounces an absolution; which is not conditional or declarative only, but absolute and judicial. This secret or auricular confession was first decreed and established in the fourth council of Lateran, under Innocent III. in 1215, (cap. 21). And the decree of this council was afterwards confirmed and enlarged in the council of Florence, and in that of Trent; which ordains, that confession was instituted by Christ, that by the law of God it is necessary to salvation, and that it has been always practised in the Christian church. As for the penances imposed on the penitent by way of satisfaction, they have been commonly the repetition of certain forms of devotion, as paternosters, or ave-marias, the payment of stipulated sums, pilgrimages, fasts, or various species of corporal discipline. But the most formidable penance, in the estimation of many who have belonged to the Romish communion, has been the temporary pains of purgatory. But under all the penalties which are inflicted or threatened in the Romish church, it has provided relief by its indulgences, and by its prayers or masses for the dead, performed professedly for relieving and rescuing the souls that are detained in purgatory.

Another article that has been long authoritatively enjoined and observed in the church of Rome, is the celibacy of her clergy. This was first enjoined at Rome by Gregory VII. about the year 1074, and established

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in England by Anselm archbishop of Canterbury about the year 1173; though his predecessor Lanfranc had imposed it upon the prebendaries and clergy that lived in towns. And though the council of Trent was repeatedly petitioned by several princes and states to abolish this restraint, the obligation of celibacy was rather established than relaxed by this council; for they decreed, that marriage contracted after a vow of continence, is neither lawful nor valid; and thus deprived the church of the possibility of ever restoring marriage to the clergy. For if marriage, after a vow, be in itself unlawful, the greatest authority upon earth cannot dispense with it, nor permit marriage to the clergy, who have already vowed continence.

To the doctrines and practices above recited may be farther added the worship of images, of which Protestants accuse the Papists. But to this accusation the Papist replies, that he keeps images by him to preserve in his mind the memory of the persons represented by them; as people are wont to preserve the memory of their deceased friends by keeping their pictures. He is taught (he says) to use them so as to cast his eyes upon the pictures or images, and thence to raise his heart to the things represented, and there to employ it in meditation, love, and thanksgiving, desire of imitation, &c. as the object requires.

*Papist mis-
represented
and repre-
sented.*

These pictures or images have this advantage, that they inform the mind by one glance of what in reading might require a whole chapter. There being no other difference between them, than that reading represents leisurely and by degrees; and a picture, all at once. Hence he finds a convenience in saying his prayers with some devout pictures before him, he being no sooner distracted, but the sight of these recalls his wandering thoughts to the right object; and as certainly brings something good into his mind, as an immodest picture disturbs his heart with filthy thoughts. And because he is sensible that these holy pictures and images represent and bring to his mind such objects as in his heart he loves, honours, and venerates; he cannot but upon that account love, honour, and respect, the images themselves.

Ibid.

The council of Trent likewise decreed, that all bishops and pastors who have the cure of souls, do diligently instruct their flocks, *that it is good and profitable to desire the intercession of saints reigning with Christ in heaven.* And this decree the Papists endeavour to defend by the following observations. They confess that we have but one Mediator of redemption; but affirm that it is acceptable to God that we should have many mediators of intercession. Moses (say they) was such a mediator for the Israelites; Job for his three friends; Stephen for his persecutors. The Romans were thus desired by St Paul to be his mediators; so were the Corinthians, so the Ephesians, *Ep. ad Rom. Cor. Eph.* so almost every sick man desires the congregation to be his mediators, by remembering him in their prayers. And so the Papist desires the blessed in heaven to be his mediators; that is, that they would pray to God for him. But between these living and dead mediators there is no similarity: the living mediator is present, and certainly hears the request of those who desire him to intercede for them; the dead mediator is as certainly absent, and cannot possibly hear the requests of all those who at the same instant may be begging him to intercede for them, unless

he be possessed of the divine attribute of omnipresence; and he who gives that attribute to any creature is unquestionably guilty of idolatry. And as this decree is contrary to one of the first principles of natural religion, so does it receive no countenance from Scripture, or any Christian writer of the three first centuries. Other practices peculiar to the Papists are the religious honour and respect that they pay to sacred relics; by which they understand not only the bodies and parts of the bodies of the saints, but any of those things that appertained to them, and which they touched; and the celebration of divine service in an unknown tongue: to which purpose the council of Trent hath denounced an anathema on any one who shall say that mass ought to be celebrated only in the vulgar tongue; *sess. 25. and sess. 22. can. 9.* Though the council of Lateran under Innocent III. in 1215 (*can. 9.*) had expressly decreed, that because in many parts within the same city and diocese there are many people of different manners and rites mixed together, but of one faith, the bishops of such cities or dioceses should provide fit men for celebrating divine offices, according to the diversity of tongues and rites, and for administering the sacraments.

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We shall only add, that the church of Rome maintains, that unwritten traditions ought to be added to the holy Scriptures, in order to supply their defect, and to be regarded as of equal authority; that the books of the Apocrypha are canonical scripture; that the vulgate edition of the Bible is to be deemed authentic; and that the Scriptures are to be received and interpreted according to that sense which the holy mother church, to whom it belongs to judge of the true sense, hath held, and doth hold, and according to the unanimous consent of the fathers.

Such are the principal and distinguishing doctrines of Popery, most of which have received the sanction of the council of Trent, and that of the creed of Pope Pius IV. which is received, professed, and sworn to by every one who enters into holy orders in the church of Rome; and at the close of this creed, we are told that the faith contained in it is so absolutely and indispensably necessary, that no man can be saved without it.

Many of the doctrines of Popery were relaxed, and very favourably interpreted by M. de Meaux, bishop of Condom, in his Exposition of the Doctrine of the Catholic Church, first printed in the year 1671: but this edition, which was charged with perverting, in endeavouring to palliate, the doctrine of the church, was censured by the doctors of the Sorbonne, and actually suppressed; nor does it appear that they ever testified their approbation in the usual form of subsequent and altered editions. It has, however, been published in this country, by a clergyman of the Romish church, whose integrity, piety, and benevolence, would do honour to any communion.

POPHAM, SIR JOHN, lord chief justice of the common pleas in the reign of Queen Elizabeth, was the eldest son of Edward Popham, Esq; of Huntworth in Somersetshire, and born in the year 1531. He was some time a student of Baliol college in Oxford; "being then (says Ant. Wood) given at leisure hours to many sports and exercises." After quitting the university, he fixed in the Middle Temple; where, during his novitiate, he is said to have indulged in that kind of dissipation to which youth and a vigorous constitution more naturally

Popham || naturally incline than to the study of voluminous *re-*
Population. || *ports*: but, fatiated at length with what are called the
pleasures of the town, he applied sedulously to the study
of his profession, was called to the bar, and in 1568 be-
came summer or autumn reader. He was soon after
made serjeant at law, and solicitor-general in 1579. In
1581, he was appointed attorney-general, and treasurer
of the Middle Temple. In 1592, he was made lord
chief justice of the king's bench, and the same year re-
ceived the honour of knighthood. In the year 1601, his
lordship was one of the council detained by the unfortu-
nate earl of Essex, when he formed the ridiculous pro-
ject of defending himself in his house: and, on the earl's
trial, he gave evidence against him relative to their dete-
nition. He died in the year 1607, aged 76; and was
buried in the south aisle of the church at Wellington in
Somersetshire, where he generally resided as often as it
was in his power to retire. He was thought somewhat
severe in the execution of the law against capital offen-
ders: but his severity had the happy effect of reducing
the number of highway robbers. He wrote, 1. Reports
and cases adjudged in the time of Queen Elizabeth. 2.
Resolutions and judgements upon cases and matters agitated
in all the courts at Westminster in the latter end of
Queen Elizabeth's reign.

POPLAR. See **POPULUS**, **BOTANY Index**.

POPLITÆUS, in *Anatomy*, a small muscle oblique-
ly pyramidal, situated under the ham. See **ANATOMY**,
Table of the Muscles.

POPPY. See **PAPAVER**, **BOTANY Index**, and **OPIUM**,
MATERIA MEDICA Index.

POPULAR, something that relates to the common
people.

POPULATION, means the state of a country with
respect to the number of people. See *Bills of MORTA-*
LITY and *POLITICAL-Arithmetic*.

The question concerning the number of men existing
upon earth, has been variously determined by different
writers. Riccioli states the population of the globe at
1000 millions, Vossius at 500; the Journalists of Tre-
voux at 720; and the editor (Xavier de Feller) of the
small Geographical Dictionary of Vofgien, reprinted at
Paris in 1778, at 370 millions. This last estimate is
perhaps too low, although the writer professes to have
taken considerable pains to ascertain the point with as
much accuracy as the nature of the subject will admit.
It may, perhaps, not be deemed unworthy the attention
of the curious speculatist to observe, that assuming the
more probable statement of the learned Jesuits of Tre-
voux, and that the world has existed about 6006 years
in its present state of population, then the whole number
of persons who have ever existed upon earth since the
days of Adam amounts only to about one hundred and
thirty thousand millions; because $720,000,000 \times 182$ (the
number of generations in 6006 years) = 131,040,000,000.
See on this subject the authors above mentioned, as like-
wise Beaufobre's *Etude de la Politique*.

With regard to the population of England, the reader
may consult, together with our article *POLITICAL-*
Arithmetic, An Inquiry into the present State of Popu-
lation, &c. by W. Wales, F. R. S.; and Mr Howlett's
Examination of Dr Price's Essay on the same subject.
But for a later account of the population of England,
see the different counties under their proper names; for

that of Scotland, see the different counties, and for the
general population, see **SCOTLAND**.

POPULUS, the **POPLAR**, a genus of plants belong-
ing to the diœcia class; and in the natural method rank-
ing under the 50th order, *Amentacœ*. See **BOTANY**
Index.

The poplar, one of the most beautiful of the aquatic
trees, has frequently been introduced into the poetical
descriptions of the ancients; as by Virgil, *Ecl.* vii. 66.
ix. 41. *Georg.* ii. 66. iv. 511. *Æn.* viii. 31. 276.; by
Ovid, *Amom. Parid.* 27.; by Horace, *Carm.* ii. 3. and
by Catullus, *Nupt. Phil. et Thet.* 290, &c. &c.

POQUELIN, or **POCQUELIN**, JOHN BAPTIST. See
MOLIERE.

PORANA, a genus of plants belonging to the pent-
andria class. See **BOTANY Index**.

PORCELAIN, in its more general signification, Nature of
comprehends all kinds of earthen ware, which are white, porcelain.
femitransparent, and have some degree of a vitreous tex-
ture. Hence, in this extensive meaning of the term, it
includes all kinds of pottery, stoneware, delft ware, &c.:
but in a more limited sense, the word *Porcelain* is em-
ployed to denote only the finer kinds of earthen ware;
and because this kind of ware has been, from time imme-
morial, manufactured in the greatest degree of perfection
in China, it has obtained the name of *Chinese Porcelain*,
or *China Ware*.

In the Chinese language, porcelain is denoted by the
word *tsé-ki*, so that the derivation of the term is not to
be sought for in that language; and hence it is supposed
to be of European extraction, and to be derived from
the Portuguese language; for in this language the word
porcellana signifies a cup or vessel.

The first porcelain which was seen in Europe was
brought from Japan and China. Its whiteness, trans-
parency, fineness of texture, with its elegance and
beautiful colours, soon introduced it as an ornament of
the tables of the rich and powerful, while at the same
time it excited the admiration and industry of the Eu-
ropean manufacturer. Accordingly attempts were made
to imitate this kind of ware, in different countries of Eu-
rope. These attempts have succeeded so well, that the
produce of the manufacture has acquired the name of
Porcelain. The first European porcelains were made in
Saxony; the manufacture was afterwards introduced in-
to France, and successively into England, Germany and
Italy, where it has arrived at various degrees of perfec-
tion, according to the nature of the materials which can
be obtained, and the industry and ingenuity of the artist
who superintends and directs it; but after all, to what-
ever degree of perfection the manufacture of this ware
has reached in Europe, it must still yield, in excel-
lence and perfection, to the porcelain of eastern coun-
tries.

Of the antiquity of the manufacture of porcelain in
China, little precise information can be expected from a
people who have always shewn themselves so extremely
averse to the freedom of intercourse with other nations;
but it is said that the village or town of King-te-tching
has furnished the emperors of China with porcelain since
the year 442 of the Christian era, and that it is an ob-
ject of so much attention to the Chinese government,
that the manufacture is carried on under the superintend-
ance of one or two mandarins sent from court.

Porcelain.
Grosier's
general
descript.
of China.

1. *History of the Manufacture of Porcelain in China.*

5
and history
of it.

THE fullest account which has yet been received in Europe of the manufacture of Chinese porcelain, has been given by Father D'Entrecolles, a Romish missionary, who lived for some time in the village or town where the principal manufactory is established. The account which is given of this village, and of the manufactory of porcelain, by this author, is the following :

This village or town which is celebrated as producing the best porcelain of China, is in the province of Kiang-si, and it is said to be a league and a half in length, containing not less than 1,000,000 of inhabitants. Other manufactories, indeed, have been established in different parts of the Chinese empire, and particularly in those places which are convenient for the European trade, as in the provinces of Fo-kien and Canton; but the porcelain produced at these manufactories is said to be held in inferior estimation. A Chinese emperor wishing to have a manufacture of porcelain under his own inspection at Peking, ordered workmen to be collected for the purpose, with all the necessary materials and implements; but after erecting furnaces and other expensive operations, the attempt failed, so that King-te-tching, in the time of our author, continued to be the most celebrated place in China for beautiful porcelain, and from this it was transported to all parts of the world.

6
Materials
employed in
its composition.

The chief ingredients which enter into the composition of fine porcelain are petuntse and kaolin, two kinds of earth from the mixture of which the paste is obtained. The petuntse is of a pure white, and when fully prepared, is in the form of an impalpable powder, so that it is very fine to the touch. The kaolin, he observes, is intermixed with small shining particles. These materials are carried to the manufactory in the shape of bricks. The petuntse is originally the fragments of rock dug out from certain quarries, and reduced to powder, and the colour of the stone which answers the purpose best, according to the Chinese, inclines somewhat to green. The fragments of rock are broken to pieces with a large iron club; they are then put into mortars, and by means of levers headed with hard stone, strongly secured with iron, they are reduced to the state of fine powder. The levers, it is scarcely necessary to observe, are moved either by the labour of men, or by water. The powder, which is afterwards collected, is thrown into a large vessel of water, which is strongly agitated with an iron shovel. When this mixture has been allowed to settle for some time, a substance resembling cream rises to the top, which is skimmed off, and poured into another vessel also filled with water. The water in the first vessel is again agitated, and the frothy substance which rises to the surface is collected as before, and the same operation is repeated till it appear that nothing remains but a coarse sediment which falls to the bottom by its own weight. This sediment is carefully collected, and again subjected to the process of pulverization.

7
Preparation
of petuntse,

The fluid in the second vessel is allowed to remain at rest till a sediment is produced, forming a kind of crust at the bottom; and when the water above seems to be quite transparent, it is poured off by gently inclining the vessel, that the sediment may not be disturbed. The paste is then put into large moulds, and allowed to dry slowly; but before it becomes quite hard, it is divided

into small square cakes, which are sold by the hundred. This is the substance which is called by the Chinese *petuntse*, and the name is said to be derived from the colour and form of this paste.

Porcelain.
8
and of
kaolin.

The kaolin, the other substance which is employed in the fabrication of porcelain, requires fewer operations in its preparation than the former, as it is found in nature in a state almost ready for the manufacturer. Of this substance it is said, that there are extensive mines in certain mountains; the external strata of which are composed of a kind of red earth. The kaolin is found in these mines in small lumps, and it is formed into bricks by being subjected to a similar process with the petuntse, &c.

The fine porcelain, it has been observed, derives its fabric and texture from the kaolin. It is to this that the qualities which it possesses of resisting the most powerful agents is owing; and it has been remarked as an extraordinary circumstance, that a soft earth should communicate strength and consistency to the petuntse, which is obtained from some of the hardest rocks. The author relates an anecdote which he received from a rich Chinese merchant, that the English and Dutch having purchased a quantity of petuntse, conveyed it to Europe for the purpose of manufacturing porcelain; but having procured none of the kaolin, the attempt failed. They wanted, added the Chinese with a smile, to form a body, the flesh of which should support itself without bones.

9
Nature of
the finer
porcelain.

It is said that the Chinese have discovered of late years a new substance which may be employed in the composition of porcelain. This stone is called *hoa-chè*, the first part of the word signifying glutinous, because it is of a saponaceous quality. Porcelain made with this substance is very rare, and bears a much higher price than any other. The grain is extremely fine, and the painting with which it is ornamented, when compared with that of common porcelain, seems to exceed it as much as vellum surpasses paper. This variety of porcelain, it is added, is also remarkable for its lightness. It is besides much more brittle, and it is found difficult to hit upon the proper degree of heat for tempering it. This substance, we are farther informed, is but rarely employed in the fabrication of the body of the porcelain; the reason of this perhaps is, the scarcity and high price of this precious article, in consequence of which the workman is contented with making it into a fine size, into which the vessel is immersed when it is dry, that it may receive a coat before it is painted and glazed; and by this process he finds that he can communicate to the ware a high degree of beauty. The previous processes in the preparation of this substance are similar to those which are followed in the preparation of kaolin. When *hoa-chè* is dug out from the mine, it is washed in rain or river water, for the purpose of separating a yellowish earth with which it is contaminated. It is then reduced to powder, thrown into a vessel filled with water, and then formed into cakes. The *hoa-chè* prepared in this manner, without the addition of any other earth, is said to be alone sufficient in the fabrication of porcelain. It is employed, as has been already noticed, as a substitute for kaolin; but, on account of its scarcity, is much dearer. The price of the former is three times that of the latter, and from this circumstance the value of porcelain made with *hoa-*

10
Substitute
for kaolin.

chè

Porcelain. ché is much higher than that which is manufactured with kaolin.

¹¹
Material
for glazing
porcelain.

The principal ingredients in the fabrication of porcelain are petuntse and kaolin; but to these must be added the glaze or varnish, or, as it is called in the account given of Chinese porcelain, the oil, on which depend its splendour and whiteness. This varnish is of a whitish colour, and is obtained from the same kind of stone which yields the petuntse; but for this purpose the whitest stone is always preferred. The glaze is obtained by a process similar to that which is followed in the preparation of petuntse. The stone is first washed and reduced to powder; it is then thrown into a vessel with water, and after being purified, a frothy matter rises to the surface. To 100 pounds of this matter, one pound of a substance called che-kae, is added. This latter is a saline substance, somewhat like alum, which is put into the fire, and allowed to remain till it become red hot, when it is reduced to powder. By the addition of this substance the glaze acquires a greater degree of consistence, but at the same time a proper degree of fluidity must be preserved. The glaze prepared in this manner is not employed alone. Another glaze is mixed with it, which is obtained from lime and ashes; to 100 pounds weight of which is also added one pound of che-kae, or the aluminous substance mentioned above. When the two substances are mixed, it is necessary to attend that they be nearly of the same consistence, and the workman ascertains this point by dipping into each of them some cakes of petuntse; and by a close examination of their surfaces after they are drawn out, he is able to judge of the consistence of the fluids. The proportions of the two which are usually employed, are 10 parts of the glaze obtained from the stone, to one of that which is prepared from the lime and from ashes.

¹²
Proportion
and mixture
of the
ingredients.

In the manufacture of the Chinese porcelain, the first process after the separate preparation of the materials, is a second purification of the petuntse and kaolin; and when they are found to be in a state of sufficient purity, the workmen proceed to mix the two ingredients together. The proportions employed for the finer kinds of porcelain are equal parts of kao-lin and petuntse; for an inferior kind, four parts of kaolin to six of petuntse are employed; and in some kinds of porcelain, only one part of the former is added to three of the latter. This is the smallest proportion of kaolin which is employed in the Chinese manufactories. When the proportions are fixed, and the mixture finished, the mass is thrown into a large pit, which is well paved and cemented. It is then trodden upon, and kneaded till it become hard. This is the most fatiguing part of the labour, for it must be continued without intermission. From the mass prepared in this manner the workmen detach different pieces, which they spread out upon large slates, where they knead and roll them in all directions, taking care that no vacuum be left, and that there be no mixture of any foreign body. The whole work would be entirely spoiled by the addition of a hair, or a particle of sand. When the paste has been properly prepared, the porcelain, when exposed to heat in the furnace, retains its form without becoming soft, or entering into fusion, and becomes semitransparent, without exhibiting cracks or superficial fissures; but when there is any defect in the mixture or preparation, the

porcelain cracks, and becomes warped, or melts in the furnace.

¹³
Method of
forming
porcelain
ware.

The paste being thus prepared, the next operation is to form the vessels for which it is designed. All kinds of plain ware are formed with the wheel. When a cup, for instance, has undergone this operation, the outside of the bottom is quite round. The workman first gives it the requisite height and diameter, and it comes from his hands almost the moment he has received it. Great dexterity and expedition are absolutely necessary, on account of the low price of labour in these manufactories. A workman, it is said, scarcely receives a farthing per board, each board containing no less than 26 pieces. The cup then passes to a second workman, by whom the base is formed; it is then delivered to a third, who applies it to the mould, and gives it the proper form. When it is taken off the mould, it must be turned carefully, and not pressed more to one side than the other; for without this necessary precaution it would become warped or disfigured. The business of the fourth workman is to polish it with the chisel, especially round the edges, and diminish the thickness, to give it the proper degree of transparency. Having at length passed through the different hands from whom it receives its form and various ornaments, it then comes to the last workman, who forms the bottom with a chisel. It is wonderful, it is said, to see with how much dexterity and expedition the workmen convey the vessels from one to another; and it is added, that a single piece of porcelain, before it is completely finished, must pass through the hands of no fewer than 70 different workmen. It is indeed, we may observe, to this minute division of labour that its low price is owing; and on the same circumstance the remarkable dexterity and expedition which have been noticed, depend.

¹⁴
Of large
works.

In the execution of large works of porcelain, different parts are first formed individually; and when all the pieces are finished, and nearly dry, they are put together and cemented with a paste formed of the same substance, and softened with water. Some time after, the seams are polished with a knife on both sides of the vessel, so that when it is covered with a varnish, or glazed, they are so completely concealed, that the least trace of them is not perceptible. It is in this way that spouts, handles, rings, and other parts of a similar nature, are united. In this way particularly are fabricated those pieces which are formed upon moulds, or by the hand, such as embossed works, grotesque images, idols, figures of trees or animals, and busts. All these are formed of four or five pieces joined together, which are afterwards brought to perfection by means of instruments proper for carving, polishing, and finishing the different traces which the mould has left imperfect. Flowers and ornaments which are not in relief, are either engraved, or the impression is made by means of a stamp; but ornaments in relief are prepared separately, and added to the pieces of porcelain to which they are designed.

¹⁵
Painting.

The piece of porcelain being prepared according to the operations now described, is next conveyed to the painter: and in this art it is observed that the Chinese workmen follow no certain rule, and seem to be unacquainted with any of the principles of perspective. Their knowledge is the effect of practice, guided often by a whimsical imagination. The labour of painting porcelain in the Chinese manufactories is also divided

A a among

Porcelain. among a great number of hands. The business of one man, for instance, is solely limited to tracing out the first coloured circle with which the brim of the vessel is adorned; another designs the flowers, and a third paints them. One delineates waters and mountains, while it is the province of another to draw and paint birds and other animals. Of the painting on Chinese porcelain, it has been observed, that the human figure is often most indifferently executed.

16 Veined porcelain and fret-work. A peculiar kind of glaze or varnish, we are informed, is obtained from white flint. This glaze, it is said, has the singular property of making the pieces of porcelain to which it is applied exhibit the appearance of veins distributed in all directions. Vessels glazed with this material seem as if the surface were cracked, without the fragments being separated or displaced. The colour of this glaze is whitish gray; and when it is applied to porcelain having an azure blue ground, it communicates a beautifully variegated appearance. Vases of Chinese porcelain are sometimes fabricated in a different manner. They are ornamented with a kind of fret-work, which has something of the appearance of fine lace, in the middle of which is placed a cup proper for holding any liquid; which constitutes one body with the surrounding fret-work.

17 Singular kind of porcelain. We are informed that the Chinese workmen formerly possessed the secret of fabricating a kind of porcelain of a more singular nature. On the sides of the vessel thus formed were painted the figures of fishes, insects, and other animals, which could not be seen unless the vessel was filled with water. It is said that this secret is in a great measure lost; but the following is given as part of the process of preparing this kind of porcelain. The vessel which is to be painted, for the purpose of producing this peculiar effect, must be extremely thin and delicate. When it is dry, the colour is laid on, not on the outside, however, as is usually the case, but on the inside of the vessel, and it is laid on pretty thick. The figures which are painted upon it are usually fishes, as being more characteristic of the element in which they live. When the colour is perfectly dry, it is coated over with a kind of glaze, composed of porcelain earth, so that the azure is thus inclosed between two layers of earthy matter; and when the glaze becomes dry, the workman pours some oil into the vessel, and putting it upon a mould, applies it to the lathe. Porcelain fabricated in this manner, having received its consistence and body within, it is the object of the workman to make it as thin as possible on the outside, without penetrating to the colour. The external surface is then dipped into a mixture for glazing, and when it is dry it is baked in a common furnace. This kind of porcelain is known by the name of *kia-tsing*, signifying pressed azure. It is supposed that the Chinese do not at present possess the art of making porcelain of this description, which requires a great deal of dexterity and delicate management; and it is added, that they have imperfectly succeeded in the attempts which have been occasionally made to discover the secret of this curious process.

18 Chinese furnaces. The next process in the manufacture of porcelain is baking; but before we describe the method of arranging and managing the furnaces employed for this purpose, we shall give a short account of their construction. The Chinese furnaces for baking porcelain are furnished with a long porch, for the purpose of conveying air, and in

some measure as a substitute for bellows. This porch answers the same purposes as the arch of a glass-house; but the furnaces which, as the author from whom the account is taken observes, were formerly only six feet in height, and the same in length, are now constructed upon a much more extensive plan. They are 12 feet high, and nearly four broad; and the roof and sides are so thick, that the powerful heat which is applied internally does not penetrate to the outside, at least so much as to be inconvenient to bear it on the application of the hand. The dome or roof is in the form of an inverted funnel, having a large aperture at the top by which the smoke escapes. Beside the principal aperture, there are five others of smaller dimensions, which are covered with broken pots in such a manner that the workman can increase or diminish the heat as he finds it necessary. Through these apertures also he is able to see the progress of the baking of the porcelain, and can judge when it is completed. By uncovering the hole which is nearest the principal opening, he opens with a pair of pincers one of the cases containing the pieces of porcelain, and if he perceives a bright fire in the furnace, and all the pieces brought to a red heat, as well as the colours of the porcelain appearing with a full lustre, he concludes that the process is finished. He then diminishes the fire, and entirely shuts up the mouth of the furnace for some time. In the bottom of the furnace there is a deep hearth about two feet in breadth, over which a plank is laid, in order that the workman may enter to arrange the porcelain. When the fire is kindled on the hearth, the mouth of the furnace is immediately closed up, and an aperture is left only sufficient for the admission of faggots, about a foot in length, but very narrow. The furnace is first heated for a day and a night, after which two men keep continually throwing wood into it, and relieve each other by turns. One hundred and eighty loads are consumed for one baking. As the porcelain is burning hot, the workman employs for the purpose of taking it out, long scarfs or pieces of cloth, which are suspended from his neck.

19 Method of baking porcelain. Having thus given a concise account of the construction of the Chinese furnaces, we proceed now to lay before our readers the method of baking porcelain which is followed in that country. After the porcelain has received its proper form, its colours, and all the intended ornaments, it is transported from the manufactory to the furnace, which is sometimes situated at the other end of the village already mentioned. In a kind of portico, which is erected before it, may be seen vast numbers of boxes and cases made of earth, for the purpose of inclosing the porcelain. Each piece, however inconsiderable it may be, has its own case; and the Chinese workman, by means of this procedure, imitates nature, which, in order to bring the fruits of the earth to maturity, clothes them in a covering, to defend them from the excessive heat of the sun during the day, and from the severity of the cold during the night.

A layer of fine sand is put into the bottom of these boxes, which is covered over with the powder of kaolin, to prevent the sand from adhering too closely to the bottom of the vessel. The piece of porcelain is then placed upon this bed of sand, and pressed gently down, in order that the sand may take the form of the bottom of the vessel, which does not touch the sides of its case: the case has no cover. A second, prepared in the same manner,

Porcelain. manner, and containing its vessel, is fitted into the first, so that it entirely shuts it, without touching the porcelain which is below; and thus the furnace is filled up with piles of cases, which defend the pieces they contain from the direct action of the fire.

With regard to small pieces of porcelain, such as tea-cups, they are inclosed in common cases about four inches in height. Each piece is placed upon a saucer of earth about twice as thick as a crown-piece, and equal in breadth to its bottom. These small cases are also sprinkled over with the dust of the kaolin. When the cases are large, the porcelain is not placed in the middle, because it would be too far removed from the sides, and consequently from the action of the fire.

These piles of cases are put into the furnace, and placed upon a bed of coarse sand six inches thick; those by which the middle space is occupied are at least seven feet high. The two boxes which are at the bottom of each pile remain empty, because the fire acts too feebly upon them, and because they are partly covered by the sand. For the same reason, the case which is placed at the top of each pile is also allowed to remain empty. The piles containing the finest porcelain are placed in the middle part of the furnace; the coarsest are put at its farthest extremity; and those pieces which have the most body and strongest colouring are near its mouth.

These different piles are placed very closely in the furnace; they materially support each other by pieces of earth, which bind them at the top, bottom, and middle, but in such a manner, that a free passage is left for the flame to insinuate itself everywhere around them.

The Chinese divide their porcelain into several kinds or classes, distinguishing each according to the different degrees of beauty and fineness. The whole of the first or most perfect kind is reserved for the emperor; none of it, we are assured, ever comes into the hands of the public, unless, on account of blemishes or imperfections, it is unworthy of being presented to the sovereign. Many have doubted whether at any time the largest and finest porcelain of China has ever been brought to Europe. None of that kind, at least, is offered to sale at Canton. The Chinese, who are apt to undervalue the productions of other countries, entertain a favourable opinion of the Dresden porcelain, and hold in still higher estimation the porcelain which is produced in the French manufactories.

The following is a short account of the Chinese porcelain manufactures by Sir George Staunton. "From the river," says he, "were seen several excavations made in extracting from the sides of the adjoining hills, the petuntse, useful in the manufacture of porcelain. This material is a species of fine granite, or compound of quartz, felspar, and mica, in which the quartz seems to bear the largest proportion. It appears from several experiments, that it is the same as the growan stone of the Cornish miners. The micaceous part, in some of this granite from both countries, often contains some particles of iron, in which case it will not answer the potter's purpose. This material can be calcined and ground much finer by the improved mills of England, than by the very imperfect machinery of the Chinese, and at a cheaper rate than the prepared petuntse of their own country, notwithstanding the cheapness of labour there.

"The kaolin, or principal matter mixed with the petuntse, is the growan clay also of the Cornish miners. The wha-she of the Chinese is the English soap-rock; and the sine-kan is asserted to be gypsum. It was related by a Chinese manufacturer in that article, that the asbestos, or incombustible fossil stone, entered also into the composition of porcelain. A village, or unwalled town, called Kin-te-chin, was not very far distant from this part of the present traveller's route, in which 3000 furnaces for baking porcelain were said to be lighted at a time, and gave to the place at night the appearance of a town on fire. The genius or spirit of that element is indeed, with some propriety, the principal deity worshipped there. The manufacture of porcelain is said to be precarious, from the want of some precise method of ascertaining and regulating the heat within the furnaces, in consequence of which their whole contents are baked sometimes into one solid and useless mass. Mr Wedgwood's thermometer, founded on the quality observed by him, of clay contracting in proportion to the degree of fire to which it is exposed, might certainly be of use to a Chinese potter *."

Porcelain.

* Embassy to China, iii. 299.

2. Inquiries of Reaumur into the Nature of Porcelain.

The first scientific investigation which was made into the nature of porcelain, was undertaken by the celebrated Reaumur, and the result of his researches was communicated to the French Academy of Sciences in the years 1727 and 1729. It was not the external form or appearance, nor was it the decorations of painting and gilding, which are by no means essential to porcelain, that constituted the object of his inquiries. His examination was particularly directed to the peculiar texture and fabric of this substance, with the view of ascertaining the nature and proportions of its constituent parts. For this purpose, he broke to pieces some of the Japanese, the Saxon, and the French porcelains, and carefully noted the peculiarities and differences in their texture. The grain or texture of the Japanese porcelain appeared to possess a considerable degree of closeness and compactness, with a smooth and somewhat shining aspect. He found that the Saxon porcelain was still more compact, and that it was smooth, and shining like enamel, but had nothing of the granular texture. In his examination of the French porcelain, he observed that it had not much of a shining appearance, and that its grain was not so close and fine as that of the oriental porcelain, having some resemblance to the grain or texture of sugar. Such were the observations which occurred to the French philosopher at the commencement of his inquiries into the nature of porcelains, and hence he justly concluded, that they were characterised by very marked differences.

Proceeding in his investigation, the same philosopher subjected different porcelains to the action of heat; and the result of his experiments with this powerful agent proved, that they might be distinguished by still more decisive characters; for it appeared that the porcelain of the east suffered no change from the action of the greatest heat, whereas that of European manufacture underwent fusion at no very high temperature. This remarkable difference between the Chinese and European porcelains, suggested to Reaumur an ingenious thought, which at last led him to the discovery of the

²² Composition of porcelain examined.

²³ Effects of heat on porcelain.

Porcelain. true nature of the composition of porcelain. Having observed that all porcelains have some resemblance to glass in some of their general properties, although they are less compact, he considered them as in the state of a semivitrified substance. An earthy substance, he observed, may be in a semivitrified state in two ways. It may, in the first place, be entirely composed of vitrifiable or fusible matters, and this being the case, when it is exposed to the action of fire, provided the heat be sufficiently strong and long continued, it will be melted or vitrified. But as this change is not effected instantly, particularly where a violent degree of heat is not applied; and as it passes through different degrees, the progress of which may be more easily observed, according as the heat is managed and regulated; it followed, that by stopping in proper time the application of the heat to porcelain prepared in this way, the ware may be obtained in an intermediate state between those of crude earths and completely vitrified substances, while, at the same time, it possesses the semitransparency and other distinguishing properties of porcelain. Porcelain of this nature, it is well known, being exposed to a stronger degree of heat, undergoes perfect fusion and complete vitrification. All the European porcelains which were subjected to experiment by Reaumur, were found to be of this fusible nature.

²⁴ Porcelain composed of fusible and infusible matter.

But, on the other hand, porcelain may be composed of fusible or vitrifiable matter, mixed in certain proportions with another matter, which is absolutely infusible in the strongest heat to which it can be exposed in the furnace; and hence, if a mixture of this kind be subjected to a heat sufficient to melt entirely the vitrifiable part of its composition, this will enter into fusion; but being mixed with another matter which is infusible, and which consequently retains its consistency and opacity, the whole will form a compound, partly opaque, and partly transparent, or, in other words, a semitransparent mass; that is, a semivitrified substance, or porcelain, but possessing qualities totally distinct from those of the former. For as the fusible part of the latter has been brought to its utmost degree of fusibility during the process of baking, although the compound may be exposed a second time to a still stronger degree of heat, it will not approach nearer to complete vitrification, that is, it will retain all the qualities of perfect porcelain. Reaumur found that the porcelain of the east was distinguished by the properties now described; and hence he concluded, that its component parts were arranged on the principle above alluded to. This opinion was afterwards confirmed by the most incontrovertible facts, deduced from a train of the most satisfactory and well directed experiments.

²⁵ The kaolin infusible, the petuntse a vitrifiable matter.

The ingredients which enter into the composition of the Chinese porcelain, namely, the petuntse and kaolin, were the next object of Reaumur's inquiries. Having obtained quantities of each, he subjected them separately to a strong heat, and he found that the petuntse entered into fusion, without addition; but it appeared that the kaolin was absolutely infusible. He then mixed the two ingredients, formed them into cakes, and exposed them in a furnace to the proper degree of heat; so that by baking they were converted into porcelain exactly similar to that of the Chinese. From these experiments it appeared, that the petuntse of the Chinese was a vitrifiable substance, and that the kaolin was of a

different nature, quite refractory, and totally infusible. **Porcelain.** After this discovery Reaumur, it would seem, entertained hopes that he might find materials in France, capable of making porcelain, possessing the same valuable qualities as that of China; but whether his researches in the discovery of proper materials in his own country, particularly that which corresponds to the petuntse of the Chinese, or whether he was prevented by other avocations from prosecuting his inquiries, it does not appear. But in his second memoir upon porcelain, we find, that he afterwards attempted to compose an artificial petuntse, by mixing vitrifiable stones with such saline bodies as were capable of rendering them fusible, or even by substituting for this artificial preparation glass ready formed, with the addition of such matters as he supposed might be successfully employed in the place of kaolin; but it would appear that he did not at the time prosecute his inquiries, for the subject was not resumed till the year 1739, when he announced the discovery of a process for converting common glass to a peculiar kind of porcelain, which has been since known by the name of *Reaumur's porcelain*.

Although it must appear, from the detail now given, ²⁶ that Reaumur was directed in his researches by the true Reaumur spirit of philosophical inquiry, he seems to have been misled in certain points. One of his errors was relative to the Saxon porcelain, which he confounded with the other fusible porcelains of European manufacture, unless it be supposed that the porcelain of Saxony was formerly composed of entirely fusible or vitrifiable matters, and that it was porcelain of this description which he examined; for it is now certain, that all the porcelain of that country is capable of resisting the most powerful heat, and is therefore equally infusible with that of China or Japan. The appearance of the internal texture of the Saxon porcelain may have led the philosopher to this erroneous conclusion; for when it is broken, the internal surface does not exhibit a granular texture, but is uniform, smooth, shining, and compact, having much resemblance to white enamel. This appearance, however, so far from proving that the porcelain of Saxony is a fused or vitrified substance, shews, that it is not entirely composed of fusible matters. The internal surface of the most fusible porcelains, it is well known to those who are acquainted with the subject, is also the least dense, and the least compact; for no vitreous matter can be internally smooth and dense, without having been in a state of complete fusion. ²⁷ But if the Saxon porcelain, the density and shining appearance of the porcelain of Saxony depended only on the effects of the fusion of a vitreous matter, how is it to be supposed, that vessels formed of that fusible matter should have sustained the necessary degree of heat for producing the density and shining appearance, without having entirely lost their shape?

This peculiar quality of the Saxon porcelain, it is inferred, must then depend on another cause. Like every other porcelain, especially that of China and Japan, it contains a fusible substance, which has been in a state of complete fusion during the process of baking. The density and the internal lustre depend chiefly on this fused matter; but it is also certain, that the Saxon porcelain contains a large proportion of a substance which is absolutely infusible, and from which it derives its beautiful white appearance, its firmness and solidity, during

Porcelain. during the process of baking. It is this infusible substance which is to be considered as the substitute for the kaolin of China, and which possesses the property of considerably contracting its dimensions, while it unites with the fusible material. According to the observation of Macquer, if it be subjected to the most decisive trial, namely, the action of a violent fire, which is capable of melting every porcelain composed only of fusible materials, it appears as the result of numerous experiments, that it remains infusible, unless it be exposed to a heat which is also capable of melting the best and most perfect porcelain of Japan. The Saxon porcelain, therefore, is not to be confounded with porcelain manufactured of vitreous and fusible materials; for it seems to be equally excellent as that of Japan, and in some of its properties perhaps superior, as will appear from an examination of the qualities which constitute the peculiar excellence of porcelain.

28
and with
regard to
the Chinese
kaolin.

Reaumur seems also to have taken an erroneous view of the nature of the Chinese kaolin. According to his account, this matter is a fine talky powder, from the mixture of which with petuntse, the porcelain of the east is manufactured. It is not impossible, it has been observed, that a porcelain similar to the Chinese might be produced from a talky substance of this nature mixed with petuntse; but it is well known to those who are at all familiar with the manufacture of any porcelain, that no vessels can be formed, unless the paste of which they are made possess that degree of ductility and tenacity which renders them fit for being worked upon the lathe, or fashioned in the mould. But substances of a talky nature, to whatever degree of fineness they may be reduced, never acquire the requisite ductility and tenacity which clays of all earthy substances only possess. But as it appears that the Chinese porcelain has been turned upon the lathe, it is obvious that they must have been formed of a very tenacious paste; and hence it is concluded, that kaolin is not purely a talky matter, but mixed with clay, otherwise the petuntse and kaolin, according to the supposition of Reaumur, are not the only ingredients which enter into the composition of Chinese porcelain; but the addition of a certain proportion of some matter of a tenacious quality is absolutely requisite.

3. Peculiar Properties of Porcelain.

29
Essential
qualities of
porcelain.

It may be worth while now to consider the properties which constitute the perfection of porcelain; and here it is necessary, carefully to discriminate between the qualities which are to be regarded as only contributing to the external decoration, and the intrinsic and essential properties in which the fabric and perfection of porcelain consist. Those who have been occupied in experiments on this subject, have not found it difficult to form compositions which are very white, beautifully semitransparent, and covered with a shining glazing; but which are extremely deficient in the more essential properties, as it appears they cannot be subjected to the necessary operations for want of a proper degree of tenacity; are not sufficiently compact; are quite fusible, subject to break by the sudden application of heat or cold, and from the softness of the glazing, which cracks and becomes rough, are soon deprived of their lustre. On the other hand, it is by no means difficult to form

compositions of pastes, which are very tenacious, and which are capable of being easily worked and well baked, and in the process of baking, which acquire the requisite degree of hardness and density; which are infusible, and capable of resisting the effects of sudden changes of heat and cold, and, in short, which possess all the qualities of the most excellent porcelain, excepting its whiteness and beauty. Materials fit for the composition of such porcelains, it will appear, may be found abundantly in most countries; but the difficulty in the manufacture of this ware is to unite beauty and goodness in one composition. The materials fit for the manufacture of the finer and more perfect porcelains, seem to be sparing productions of nature; and therefore the best kind of porcelain, it is presumed, will always be regarded as a valuable and high-priced commodity.

It may be observed, that the potteries called *stone-ware*, possess all the essential qualities of the Japanese *stone-ware*.³⁰ Nature of porcelain; for, excepting the whiteness, on which alone the semitransparency depends, if we compare the properties of Japanese porcelain with those of our stone-ware, little difference is found to exist between them. Both seem to possess the same granular texture; both have the same sonorous quality, when struck with a hard body; both have the same density; they possess also the same hardness, by which they strike fire with steel; they can resist the effects of the heat of boiling liquors without breaking, and are equally infusible when subjected to violent heat. Hence it is inferred, that if the earth which enters into the composition of stoneware, were free from foreign colouring matters, which prevent the whiteness and semitransparency, and if the vessels were carefully formed and coloured with a fine glaze, they would not be less perfect than the porcelain of the east. Earths fit for the production of the more perfect kinds of porcelain, are supposed to be more rare in Europe than in Japan and China; and hence probably it has happened, that, from the want of these earths, the first manufacturers of the porcelain in Europe confined themselves to an external imitation, by employing only vitrifiable matters with fusible salts, and a small quantity of white earth, from which fusible and vitreous porcelains were composed. Such might not improperly be denominated *false porcelains*; but great improvements have taken place since the first introduction of the manufacture of porcelain into Europe. Genuine white porcelains have been long ago produced in Germany, and especially in Saxony. These porcelains are in no respect inferior to those of China or Japan. They are found even to be considerably superior in beauty and whiteness to the productions of the eastern manufactories of modern times; for in these qualities the porcelains of the latter have greatly degenerated. And in one of the most valuable qualities of porcelain, namely, the property of resisting the effects of sudden changes of heat and cold, the European porcelain exceeds that of China or Japan. The quality of porcelain, it is to be observed, is not to be judged of by a slight trial; for as numerous circumstances concur to render a piece of porcelain capable or incapable of resisting the effects of heat or cold, boiling water may be at the same time poured into two vessels, one of which is good porcelain, and the other of an opposite quality, it is not impossible that the former may break, and the latter may remain entire. The true method of discover-
ing.

Porcelain. ing what is good porcelain, is to examine several pieces of it which are in daily use; and it has been found, that in many such pieces of porcelain of oriental manufacture, which have been long used, cracks are always seen in the direction of their height, which are never perceived in the more perfect porcelains of European manufacture.

31
Japanese porcelain reckoned the most perfect,

It has long been a very general opinion, that the Japanese porcelain is the most perfect; it has indeed continued to be the object of admiration and emulation, and has been held up as a model for the European manufacturer; a model which has not yet been equalled, and which, according to the opinion of some, cannot be equalled. In deciding on this subject, the Saxon porcelain is considered as inferior to the Japanese, on account of its greater smoothness, lustre, and less granular aspect of its internal texture, qualities in which it ought really to be regarded as superior to the porcelain from Japan. This surface has a near resemblance to that of glass, and it is supposed that this similarity has suggested the opinion; and it would be well founded, if the density and lustre of the European porcelain depended on the fusible and vitreous property of the ingredients of which it is composed: but this not being the case, and the Saxon porcelain being equally fixed and infusible as that of Japan, its superior density must be admitted as a valuable property. For in the comparison of different porcelains which are equal in other properties, that which is most firm and compact certainly claims the superiority. Hence it is that the internal texture of the Japanese porcelain is held in greater estimation, because it possesses a greater degree of density, compactness and lustre, than the European porcelain which is composed only of vitreous sand or frit. For a similar reason the superior density of the Saxon porcelain ought to obtain for it a preference to that which is imported from the east. It is supposed besides, that it would be no difficult matter to communicate to the Saxon porcelain the granular texture of the Japanese, by mixing with the paste a certain proportion of sand or siliceous earth. But in this point, in producing by these means a nearer resemblance to the Japanese porcelain, those who conducted and brought to perfection the Saxon manufactures, were not insensible that their porcelain would sink in its valuable properties.

32
but not superior to that of Saxony.

4. Porcelain Manufactories in different parts of Europe.

Manufactories of porcelain have been long established in almost every country of Europe. Besides that of Saxony, which was the first established in Europe, porcelain is made to a considerable extent at Vienna, at Frankenthal, and in the neighbourhood of Berlin, and in other places of the German states. The German porcelains are similar to those of Saxony, and are composed of similar materials, although from differences in the proportions, or in the modes of managing the manufactories, considerable differences arise in the porcelains manufactured at different places. Italy also is celebrated for its porcelain manufactures, the chief of which, it is said, are carried on at Naples. When M. de la Condamine travelled into Italy, he visited a manufacture of porcelain established at Florence, by the marquis de la Ginor, who was then governor of Leghorn. The French traveller was particularly struck with the large size of

some of the pieces of this porcelain. Statues, and even groups of figures half as large as nature, and modelled from some of the finest antiques, were formed of it. The furnaces, he observed, in which the porcelain was subjected to the process of baking, were constructed with a great deal of ingenuity, and were lined with bricks made of the same materials as those which entered into the composition of the porcelain itself; and hence they were able to resist the effects of high degrees of heat. The paste of the porcelain manufactured at Florence appeared to be extremely beautiful, and to possess all the qualities of the best oriental porcelain. The glazing employed in this manufactory seemed to be inferior in whiteness, a circumstance which is supposed to be owing to the desire of using those materials only which are found in the country.

In France a greater number of manufactories of porcelain has been established than in any other country; and it must be allowed that the French have had wonderful success in the improvement and perfection of this manufacture. Some time even before Reaumur communicated the result of his inquiries, porcelain was manufactured at St Cloud, and in the suburb of St Antoine at Paris. This porcelain indeed was of the vitreous or fusible kind, but at the same possessed no inconsiderable degree of beauty. Since the period to which we allude, extensive manufactories of porcelain have been established at Villeroy, Chantilly, and Orleans, and at those places the manufacture has been brought to a great degree of perfection. But the productions of the celebrated porcelain manufactory at Sevres, on account of the pure shining white, the fine glazing and coloured grounds, the splendour and magnificence of the gilding, and the elegance and taste displayed in the shape and figures, are universally allowed to surpass every thing of the kind which has yet appeared.

In speaking of the French porcelain, we may notice the result of some researches which were made on this subject by Guettard, and of which an account appeared in the Memoirs of the Academy of Sciences for the year 1765. In the neighbourhood of Alençon, M. Guettard discovered a whitish argillaceous earth, in which mica considerably predominated. This earth he employed as a substitute for kaolin. The substance which he used in place of the petuntse, he obtained from a hard stone, which is described as a quartzose gritt stone, very abundant in that country, and with which the streets of Alençon are paved. With these materials Guettard instituted a series of experiments on porcelain, previous to the year 1751, and was associated in his inquiries with the duke of Orleans. For many years the count de Lauraguais, a member of the Academy of Sciences, was keenly engaged in prosecuting experiments to discover the true nature of porcelain, and the means by which the manufacture might be improved and perfected. To obtain the object of his researches, which was to produce porcelain that in its essential qualities might be equal to that of eastern countries, he spared no trouble or expence; and it would appear that he was not unsuccessful in his labours; for in the year 1766, when he exhibited some species of porcelain from his manufactory to the members of the Academy of Sciences, the persons who were appointed by that learned body to examine their properties, delivered it as their opinion, that of all the porcelain made in France, that

Porcelain.

33
Manufactures of porcelain in France.

Porcelain. of the count de Lauraguais approached most nearly in the essential properties of solidity, texture and infusibility, to that of China and Japan. It is said, however, that it was considerably deficient in whiteness and lustre, when compared with the ancient porcelain of Japan.

³⁴
In England. The manufacture of porcelain has been brought to a great degree of perfection in England. In many of the essential qualities, and particularly in the beauty and richness of the paintings, as well as in the elegance of the forms, the English porcelain is little inferior to that of any other country. Manufactories of this ware have been established in different parts of England. This manufacture was first established at Derby about the year 1750, by a Mr Duesbury, who is said to have been a very ingenious artist. Since his death the manufactories received very considerable improvement, and chiefly in the judicious methods pursued in the preparation of the paste, and increasing the beauty of the ornaments. The ware itself is said not to equal in fineness that which is manufactured in Saxony and France, although it is greatly superior in respect of decoration and workmanship. The paintings in general are rich, and executed with taste, and the gilding and burnishing are extremely beautiful. The body of the semi-vitreous kind, which is formed of a fine white clay, in combination with various proportions of different fusible matters, has obtained the name of porcelain. The best kind is wholly infusible, and is glazed with a vitreous substance which has not a single particle of lead in its composition.

³⁵
In Staffordshire. The most famous manufactory of stone-ware, as well as of other kinds of pottery, is at Burslem in Staffordshire. This can be traced with certainty at least two centuries back; but of its first introduction no tradition remains. In 1686, as we learn from Dr Plot's Natural History of Staffordshire published in that year, only the coarse yellow, red, black, and mottled wares, were made in this country; and the only materials employed for them appear to have been the different coloured clays which are found in the neighbourhood, and which form some of the measures or strata of the coal-mines. These clays made the body of the ware, and the glaze was produced by powdered lead-ore, sprinkled on the pieces before firing, with the addition of a little manganese for some particular colours. The quantity of goods manufactured was at that time so inconsiderable, that the chief sale of them, the Doctor says, was "to poor cratemmen, who carried them on their backs all over the country."

About the year 1690, two ingenious artificers from Germany, of the name of Eller, settled near Burslem, and carried on a small work for a little time. They brought into this country the method of glazing stone-ware, by casting salt into the kiln while it is hot, and some other improvements of less importance; but finding they could not keep their secrets to themselves, they left the place rather in disgust. From this time various kinds of stone-ware, glazed by the fumes of salt in the manner above mentioned, were added to the wares before made. The white kind, which afterwards became, and for many succeeding years continued, the staple branch of pottery, is said to have owed its origin to the following accident. A potter, Mr Astbury, travelling to London, perceived something amiss with one of his horse's eyes; an hostler at Dunstable said he could soon

cure him, and for that purpose put a common black Porcelain. flint stone into the fire. The potter observing it, when taken out, to be of a fine white, immediately conceived the idea of improving his ware by the addition of this material to the whitest clay he could procure: accordingly he sent home a quantity of the flint stones of that country, where they are plentiful among the chalk, and by mixing them with tobacco-pipe clay, produced a white stone-ware much superior to any that had been seen before.

Some of the other potters soon discovered the source of this superiority, and did not fail to follow his example. For a long time they pounded the flint stones in private rooms by manual labour in mortars; but many of the poor workmen suffered severely from the dust of the flint getting into their lungs, and producing dreadful coughs, consumptions, and other pulmonary disorders. These disasters, and the increased demand for the flint powder, induced them to try to grind it by mills of various constructions; and this method being found both effectual and safe, has continued in practice ever since. With these improvements, in the beginning of the present century, various articles were produced for tea and coffee equipages. Soon after attempts were made to furnish the dinner table also; and before the middle of the century, utensils for the table were manufactured in quantity as well for exportation as home consumption.

But the salt glaze, the only one then in use for this purpose, is in its own nature so imperfect, and the potters, from an injudicious competition among themselves for cheapness, rather than excellence, had been so inattentive to elegance of form and neatness of workmanship, that this ware was rejected from the tables of persons of rank; and about the year 1760, a white ware, much more beautiful and better glazed than ours, began to be imported in considerable quantities from France.

The inundation of a foreign manufacture, so much ³⁶ Improved superior to any of our own, must have had very bad effects upon the potteries of this kingdom, if a new one, still more to the public taste, had not appeared soon after. In the year 1763, Mr Josiah Wedgwood, who had already introduced several improvements into this art, invented a species of earthen ware for the table quite new in its appearance, covered with a rich and brilliant glaze, bearing sudden alterations of heat and cold, manufactured with ease and expedition, and consequently cheap, and having every requisite for the purpose intended. To this new manufacture the queen was pleased to give her ³⁷ name and patronage, commanding it to be called *Queen's ware*, and honouring the inventor by appointing him *Queen's* her majesty's potter. *ware.*

The common clay of the country is used for the ordinary sorts; the finer kinds are made of clay from Devonshire and Dorsetshire, chiefly from Biddeford; but the flints from the Thames are all brought rough by sea, either to Liverpool or Hull, and so by Burton. The convenience of plenty of coals, which abound in that part of the country, is supposed, and with good reason, to be the chief cause of the manufacture having been established here.

The flints are first ground in mills, and the clay prepared by breaking, washing, and sifting, and then they are mixed in the requisite proportions. The flints are bought

Porcelain bought first by the people about the country, and by them burn sand ground, and sold to the manufacturers by the peck.

The mixture is then laid in large quantities on kilns to evaporate the moisture; but this is a nice work, as it must not be too dry: next it is beaten with large wooden hammers, and then is in order for throwing, and is moulded into the forms in which it is to remain; this is the most difficult work in the whole manufacture. A boy turns a perpendicular wheel, which by means of thongs turns a small horizontal one, just before the thrower, with such velocity, that it twirls round the lump of clay he lays on it into any form he directs it with his fingers.

There are 300 houses which are calculated to employ, upon an average, twenty hands each, or 6000 in the whole; but of all the variety of people that work in what may be called the preparation for the employment of the immediate manufacturers, the total number cannot be much short of 10,000, and it is increasing every day. Large quantities are exported to Germany, Ireland, Holland, Russia, Spain, the East Indies, and much to America; some of the finest sorts to France.

5. Different Processes in the Manufacture of Porcelain.

³⁸
Vitreous or
fusible por-
celain.

The basis of those porcelains which are known by the name of *vitreous* or *fusible*, and sometimes *fasse porcelain*, is denominated by the workmen a *fritt*. This is a mixture of sand or powdered flints, with a saline substance, capable of bringing it to a state of fusion when the mixture is exposed to a sufficient degree of heat. The fritt is then mixed with a proper proportion of clay or argillaceous earth, so that it may have such a degree of tenacity as to make it capable of being worked upon the wheel. The whole mixture is, after being well ground in a mill, to be made into a paste, which is to be formed, either upon the wheel or in moulds, into pieces of such forms or figures as may be required. Each of the pieces, when it is sufficiently dried, is put into a case made of earthen ware, and placed in the furnace, that it may be subjected to the process of baking. These cases are known among the English potters by the name of *seggars* or *saggars*, and they are generally formed of a coarser kind of clay, but this clay must possess the property of resisting the action of heat necessary for the baking of porcelain, without being fused. The porcelain contained in the cases is thus protected from the smoke of the burning fuel; the whiteness of the porcelain depends greatly on the purity of the clay of which it is made, so that being of a more compact texture, the smoke is more effectually excluded. These cases are arranged in the furnace or kiln in piles, one upon the other, to the very top of the furnace.

The furnaces are chambers or cavities of various forms and sizes, and they are so constructed that the fire-place is situated on the outside, opposite to one or more openings, which have a communication with the furnace internally. The flame of the fuel is drawn within the furnace, the air of which being rarefied, determines a strong current of air to the inside, as is the case in other furnaces. A small fire is first made, that the furnaces may be gradually heated, and it is to be increased more and more, till the process of baking is completed; that is, till the porcelain shall have acquir-

ed a proper degree of hardness and transparency. To ascertain this point, a good deal of attention is necessary; and this is done by taking out of the furnace from time to time, and examining, small pieces of porcelain placed for that purpose in the cases which have lateral openings, to render them accessible. When it appears from the examination of those pieces, that the porcelain is sufficiently baked, the fire is no longer to be supplied with fuel; the furnace is allowed to cool gradually, and the porcelain is afterwards taken out. In this state the porcelain has the appearance of white marble, having nothing of that shining surface which it acquires by covering it with a vitreous composition known by the name of *glazing*, a process which is afterwards to be described; but in the mean time we shall speak of the infusible porcelains.

The materials which enter into the composition of the infusible porcelains, and such as approach to the nature of stone ware, are first to be ground in a mill, and the earths or clays being well washed, are next to be carefully mixed and formed into a paste. The pieces at first receive a rude form from the wheel or lathe of the potter, according to their nature and magnitude. As the wheel and lathe are the principal machines employed in the manufacture of porcelain or pottery, we shall here give a short description of their construction. The potter's wheel, which is used for larger works, consists principally in the nut, which is a beam or axis, whose foot or pivot plays perpendicularly on a free-stone sole or bottom. From the four corners of this beam, which does not exceed two feet in height, arise four iron bars, called the *spokes of the wheel*; which forming diagonal lines with the beam, descend, and are fastened at bottom to the edges of a strong wooden circle, four feet in diameter, perfectly like the felloes of a coach-wheel, except that it has neither axis nor radii, and is only joined to the beam, which serves it as an axis, by the iron-bars. The top of the nut is flat, of a circular figure, and a foot in diameter: and on this is laid the clay which is to be turned and fashioned. The wheel thus disposed is encompassed with four sides of four different pieces of wood fastened on a wooden frame; the hind-piece, which is that on which the workman sits, is made a little inclining towards the wheel; on the fore-piece is placed the prepared earth; on the side pieces he rests his feet, and these are made inclining to give him more or less room. Having prepared the earth, the potter lays a round piece of it on the circular head of the nut, and sitting down turns the wheel with his feet till it has got the proper velocity; then, wetting his hands with water, he presses his fist or his fingers-ends into the middle of the lump, and thus forms the cavity of the vessel, continuing to widen it from the middle; and thus turning the inside into form with one hand, while he proportions the outside with the other, the wheel constantly turning all the while, and he wetting his hands from time to time. When the vessel is too thick, he uses a flat piece of iron, somewhat sharp on the edge, to pare off what is redundant; and when it is finished, it is taken off from the circular head by a wire passed under the vessel.

The potter's lathe is also a kind of wheel, but more simple and slight than the former: its three chief members are an iron beam or axis three feet and a half high, and two feet and a half diameter, placed horizontally

Porcelain. tally at the top of the beam, and serving to form the vessel upon: and another larger wooden wheel, all of a piece, three inches thick, and two or three feet broad, fastened to the same beam at the bottom, and parallel to the horizon. The beam or axis turns by a pivot at the bottom in an iron stand. The workman gives the motion to the lathe with his feet, by pushing the great wheel alternately with each foot, still giving it a greater or lesser degree of motion as his work requires. He works with the lathe with the same instruments, and after the same manner, as with the wheel. The mouldings are formed by holding a piece of wood or iron cut in the form of the moulding to the vessel, while the wheel is turning round; but the feet and handles are made by themselves and set on with the hand; and if there be any sculpture in the work, it is usually done in wooden moulds, and stuck on piece by piece on the outside of the vessel. The lathe is employed for smaller works in porcelain.

After the first application of the pieces of porcelain to the wheel or lathe, they are allowed to become nearly dry; and to give the requisite form, or a greater degree of accuracy and perfection, they are again subjected to the same operation. They are afterwards introduced into the furnace, not, however, for the purpose of baking them completely, but only to apply a sufficient heat, to give them that firmness and solidity that they may undergo the various necessary manipulations without being disfigured or broken. In this state they are ready for the process of glazing. As the pieces of porcelain, after being subjected to this moderate degree of heat, are very dry, they readily imbibe water, and it is this property of absorbing water, which greatly assists in the application of the glazing; and having received this covering, the pieces of porcelain are again put into the furnace, to complete the process of baking. The heat is gradually raised, and at last brought to that degree that all the objects within the furnace shall be white, and the cases shall be scarcely distinguished from the flame. To ascertain when the porcelain is sufficiently baked, small pieces are taken out in the manner already described, after which the fire is withdrawn, and the furnace allowed to cool gradually. If the process of baking have succeeded properly, the pieces of porcelain will, after this operation, be sonorous, compact, having a moderate degree of lustre, and covered externally with a fine coat of glaze. If this porcelain is destined to receive the ornaments of painting and gilding, these operations are performed in the manner to be afterwards described.

After the porcelain has been subjected to the process of baking, and before it is glazed, it is said to be in the state of *biscuit*, in which it possesses various degrees of beauty and perfection, according to the nature and proportions of the materials employed. For particular purposes, the porcelain is sometimes allowed to remain in this state, and particularly when it is employed in smaller and finer pieces of sculpture, where the fineness of the workmanship and the sharpness of the figures are wished to be preserved, as it is well known that these

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will be greatly injured by being covered with a coat of glazing. The celebrated manufactory of Sevres in France has been long distinguished for figures or small statues, and even for larger works, as ornamental vases, &c. which are left in the state of biscuit. The English manufactories, and particularly that of Mr Wedgwood, are probably not inferior in the delicacy and accuracy of execution of ornamental productions of this kind.

The next operation in the manufacture of porcelain is the process of glazing. This process consists in covering the porcelain with a thin coat of vitreous or fusible matter, which adds greatly to its beauty, by its lustre or shining appearance. In preparing and applying the materials fit for glazing porcelain, it has been found that the same kind of glass will not admit of general application; for it appears that a glass which forms a fine glazing for one kind of porcelain, will not answer the same purpose when applied to another. In the former it may have all the necessary requisites, but in the latter it may crack in many places, may have no lustre, and may contain bubbles or be apt to scale off. The first thing then is to prepare a glass which shall be suited to the nature of the porcelain for which it is intended. The glazing must be appropriated to each kind of porcelain, that is, to the ingredients which enter into its composition, or to the degree of hardness or density of the ware. The materials of which the glazing is composed are prepared by previously fusing together all the substances of which they consist, and thus forming a vitreous mass (A). This mass of vitrified matter is to be finely ground in a mill, and the vitreous powder thus obtained is to be mixed with a sufficient quantity of water, so that the liquor shall have the consistence of cream of milk. The pieces of porcelain are to be covered with a thin coating of this matter, which is done by immersing them hastily in the liquid, and as they greedily imbibe the water, there remains on the surface a uniform covering of the glazing materials. This covering, which it is necessary to observe, should be very thin; in a short time becomes so dry, that it does not adhere to the fingers, when the pieces are handled. When they are sufficiently dry, they are replaced in the furnace in the same manner as in preparing the biscuit, and the heat is continued till the glazing be completely fused; but the degree of heat necessary for that purpose is far inferior to that which is requisite in baking the paste. The pieces of porcelain which are intended to remain white, are now finished, but those which are to be ornamented with painting and gilding must go through various other operations, of which the following is a general account.

The colours which are employed in painting porcelain are similar to those which are applied in the painting of enamel. They are all composed of metallic oxides or calces, combined with a very fusible, vitreous matter. The different colours are obtained from different metals. The oxides of iron afford a red colour; gold precipitated by means of tin, furnishes a purple and violet colour; copper precipitated from its solution in acids by means of an alkali, gives a fine green; cobalt,

B b

or

(A) The proportion of the materials employed for common white pottery-ware are 60 parts of litharge, 10 of clay, and 20 of ground flint.

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Method of
glazing por-
celain.

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cuit.

Porcelain.

or when combined with vitreous matter, *as far*, as it is called, yields a fine blue. Earthy matters which are slightly ferruginous, produce a yellow colour, and brown and black colours are obtained from iron in different states, and from manganese. A coloured glazing has been recommended by O'Reilly *, which may be applied to coarse articles of earthen ware. It is obtained from the residuum after the distillation of oxymuriatic acid. The manganese contained in this residuum is said to communicate a blackish appearance like that of bronze, which, says the author, is far from being disagreeable to the eye. This glazing he employed several times by way of trial, first fusing it with sand in a potter's furnace, throwing it into cold water to facilitate its division, and grinding it in a mill, that it may be more completely diffused in water. This glazing is attended with the advantage of being free from those dangerous qualities so common in all preparations made from the oxides of lead. Whatever colouring matters are employed, they are finely ground with gum water, or with some essential oil, in which state they are fit to be employed for the painting of porcelain with figures of flowers, or any other designs with which it is intended to be adorned.

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and gilding.

In gilding porcelain, the oxide or calx of gold (B) is employed, and it is applied nearly in the same manner as the coloured enamels. The gold, which is in the state of very minute division, is mixed with gum water and borax, and in this state is applied to the clean surface of the porcelain with a fine camel's hair pencil. The painted and gilded porcelains are then exposed to such a degree of heat in the furnace as is capable of fusing the vitreous matter with which the metallic colours are mixed. The gold is fixed by means of the borax undergoing the process of vitrification, and thus strongly adhering to the porcelain. Most of the metallic colouring matters exhibit all their beauty when the porcelain is taken from the furnace; but to bring out the lustre and beauty of the gold, those parts of the porcelain which have been gilt are afterwards subjected to the operation of burnishing.

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Use of platina in colouring porcelain.

The use of platina in porcelain painting has been recommended by Klaproth; and experiments have been made on the subject by that celebrated chemist, with the view of ascertaining its effects for this purpose. The following is the conclusion of his observations.

"The process which I employ in the application of platina to painting on porcelain is simple and easy: it is as follows:—I dissolve crude platina in aqua regia, and precipitate it by a saturated solution of sal ammoniac in water. The red crystalline precipitate thence produced is dried, and being reduced to a very fine powder is slowly brought to a red heat in a glass retort. As the volatile neutral salt, combined with the platina in this

precipitate, becomes sublimated, the metallic part remains behind in the form of a gray soft powder. This powder is then subjected to the same process as gold; that is to say, it is mixed with a small quantity of the same flux as that used for gold, and being ground with oil of spike is applied with a brush on the porcelain; after which it is burnt in under the muffle of an enameller's furnace, and then polished with a burnishing tool.

Porcelain.

"The colour of platina burnt into porcelain in this manner is a silver white, inclining a little to a steel gray. If the platina be mixed in different portions with gold, different shades of colour may be obtained; the gradations of which may be numbered, from the white colour of unmixed platina to the yellow colour of gold. Platina is capable of receiving a considerable addition of gold before the transition from the white colour to yellow is perceptible. Thus, for example, in a mixture of four parts of gold and one of platina, no signs of the gold were to be observed, and the white colour could scarcely be distinguished from that of unmixed platina: it was only when eight parts of gold to one of platina were employed that the gold colour assumed the superiority.

"I tried, in the like manner, different mixtures of platina and silver; but the colour produced was dull, and did not seem proper for painting on porcelain.

"Besides this method of burning in platina in substance on porcelain, it may be employed also in its dissolved state; in which case it gives a different result both in its colour and splendour. The solution of it in aqua regia is evaporated, and the thickened residuum is then applied several times in succession to the porcelain. The metallic matter thus penetrates into the substance of the porcelain itself, and forms a metallic mirror of the colour and splendour of polished steel".

The same substance has been applied as a glazing to porcelain in some of the English manufactories, but however valuable and important the application of platina to this purpose may be, the scarcity of that metal, and its consequent high price, must always prevent it from coming into very general use.

We have already noticed the establishment of the manufacture of porcelain at Derby. The following is a short detail of the method of conducting that manufacture. After the paste has been properly prepared, by grinding and other necessary operations, it is delivered to the workmen, by whose dexterity the shapeless mass is converted into various beautiful forms. Vessels of a round form are usually made by a man called a *thrower*, by whom they are worked on a circular block moving horizontally on a vertical spindle. They are next carried to the lathe; and being fixed on the end of a horizontal spindle, they are reduced to the proper form and thickness.

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Manufac-
ture of por-
celain at
Derby.

(B) A powder of gold is prepared for this purpose in other two different ways. By one of those methods a quantity of gold leaf is put into a glass or earthen mortar, with a little honey or thick gum water, and ground till the gold is reduced to very minute particles; a little warm water is then added, which will wash out the honey or gum, and leave the gold behind: but the process by which the finest ground gold is obtained, is by gradually heating a gold amalgam in an open earthen vessel, and continuing the heat till the mercury is entirely evaporated, stirring the mixture with a glass rod, or tobacco pipe, that the particles of gold may be prevented from adhering as the mercury flies off. The gold remaining after the evaporation of the mercury is then ground with a little water in a Wedgwood-ware mortar, and after being dried is fit for use.

^{Porcelain.} thickness. They are afterwards finished, and handled by other persons, if that should be necessary, and are then introduced into a stove, where the moisture is entirely evaporated, and they become fit for the process of baking. Vessels of an oval figure, such as tea-pots, tureens, &c. acquire their form by being pressed with the hand into moulds of plaster or gypsum. The pieces of porcelain being thus prepared, are put into the sag-gars or cases, which are of various sizes and dimensions, and these are set in the kiln or furnace, one upon the other, till they are filled up nearly to the top, in the manner already described. The furnace being full, the ware is baked, and after this first baking, the porcelain is in the state of *biscuit*.

⁴⁷
Glazing.

The next process is the glazing, which, according to the description already given, is performed by dipping the pieces of porcelain in glaze of the consistence of cream. They are then conveyed to the glaze furnace, where they are again baked, but in a degree of heat inferior to that necessary for the first baking.

⁴⁸
Painting.

If the pieces of porcelain are to receive the additional ornaments of painting and gilding, they are next delivered to another set of workmen. The colouring matters, as already noticed, are extracted from mineral bodies, and after proper preparation, they are applied to the ware by the painters, in the form of landscapes or figures, according to the requisite pattern. After this process the ware is again conveyed to the furnace, and the colours are vitrified, to give them the proper degree of fixation and lustre. After every coat or layer of colour, a fresh burning is necessary. In the common kind of porcelain, once or twice is found sufficient for the ornaments it requires; but in the finer decorations, the colours must be laid on several times, and as often subjected to the action of heat, before the full effect can be produced. This completes the process for those articles of porcelain in which glazing and painting only are required.

⁴⁹
Gilding.

But when the pieces of porcelain are to be farther decorated with gilding, they are pencilled with a mixture of oil and gold, dissolved or thrown down by quicksilver with the aid of heat, and are again introduced to the furnace. Here the gold returns to its solid state, but comes out with a dull surface; and to recover its lustre and usual brilliancy, it is burnished with blood-stones, and other polishing substances. Much care and attention are necessary in the latter part of the process; for if the gold be not sufficiently burnt, it will be apt to separate in thin flakes, and if it have been exposed to too great a heat, it is not susceptible of a fine polish. In this manufactory, when pieces of porcelain are to be finished in the highest style, they are frequently returned to the enamel furnace, where the colours are fluxed six or seven different times; and having gone through the processes now described, the porcelain is fit for the market.

⁵⁰
Biscuit figures.

White ware, or biscuit figures, are made at this manufactory, which are supposed to be equal in beauty and delicacy to any European productions of a similar kind. In this kind of porcelain, the lathe is of no use, for the figures are cast in moulds of plaster or gypsum. The materials of which they are composed being properly prepared, and previously reduced to a liquid of the appearance and consistence of thick cream, are poured into the moulds, which from the absorbent property of the

plaster, imbibe the water contained in the mixture, so that the paste soon becomes sufficiently hard to part freely from the mould. The different parts of figures, as the head, arms, legs, &c. are cast in separate moulds, and after being dried and repaired, they are joined by a paste of the same kind, but of a thinner consistence. The porcelain pieces thus formed are then conveyed to the furnace, and after being subjected for a proper length of time, to a regular and continued heat, they come out extremely white and delicate.

Porcelain manufactories have been long established at ⁵¹Manufactory at Tournay in Flanders; one of these manufactories furnishes all Flanders with blue and white porcelain. At this manufactory they have a particular process in forming cups and other vessels, which is somewhat similar to that now described. They are neither turned on the lathe, nor is the clay compressed in a mould; but after being diluted in water, and when the liquid has acquired a proper consistency, the workmen pour it into moulds, two or three hundred of which are arranged together. When they have filled them all, they return to the first in the row. The liquid part is drawn off by a gentle inclination; the surplus adheres to the side of the vessel, and thus forms the piece which it is intended to make. The piece is detached from the mould by means of a slight stroke, and after being sufficiently dried, is conveyed to the furnace, to undergo the process of baking.

In the manufacture of utensils for chemical purposes, ⁵²Utensils for chemical purposes, where they are to be subjected to the effects of powerful agents, greater attention is necessary. Vessels of this description should be infusible at any degree of heat; possess a sufficient compactness of texture, to retain saline and other fluxes in fusion, without undergoing any change; and should bear sudden changes of temperature, particularly sudden heating, without cracking, or in any degree giving way. It has been found impracticable to have the three requisites now mentioned united in the same ware, so that it becomes necessary to select the kind of ware according to the purpose for which they are intended. For bearing high degrees of heat, Hessian crucibles are found to answer best; they are composed of a very refractory clay, mixed with sand, of which the finest part is separated by a sieve, and thrown away. These vessels are made by mixing the clay with a smaller proportion of water than usual, so that a stiffer mass is obtained, and the vessel brought to the requisite shape by ramming the clay strongly into an iron mould. In this way they are very compact, and for a considerable time retain saline fluxes. Ordinary crucibles, it is found, are rendered more retentive by lining them on the inside, before they are quite dry, with a thin coating of pure clay, without the addition of any other mixture. But the most refractory material known is a mixture of unburnt with burnt clay. Vessels made of this material are found capable of resisting the effects of saline fluxes longer than any other, and hence this material is employed in making large crucibles for glasshouses.

One of the most valuable qualities of porcelain ware, is to bear sudden changes of heat and cold; but in this quality some of the most perfect kinds of ware in other respects are extremely deficient, and can scarcely be subjected, without danger of cracking, to the draught of a wind furnace, even when the heat is slowly and gradually applied. This happens to the celebrated porce-

Porcelain.
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Wedg-
wood's por-
celain.

lain fire ware invented by an enlightened and philosophical manufacturer, the late Mr Wedgwood. This effect of cracking, on sudden changes of temperature, seems to depend on the hardness and closeness of texture; and the closeness of texture is found to be in proportion to the minute division of the materials before baking. The clay and flint of Wedgwood's ware are brought to a most impalpable powder before mixture, so that the texture is uncommonly hard and close. It may be worth while to mention, that Wedgwood's porcelain resists the effects of sudden heat and cold much better, by being covered with a thin coating of Windsor loam, or of a fire lute composed of coarse sand and clay, and tow or horse-dung. When crucibles are intended merely for the fusion of metals, they are greatly improved by a mixture of black lead. This substance being involved in the clay, is protected from the access of air, and is then incombustible. It has no affinity for the earths at any temperature, and being absolutely infusible, it enables the clay to bear, without melting, the greatest degree of heat. The mixture of this substance, as a material for crucibles, has another advantage, that no part of the melted metal is detained in the crucible, as is the case in the common rough ware. It also bears sudden heating and cooling better than any other.

6. General Principles of the Manufacture of Porcelain.

Convinced that every accurate and scientific investigation into the nature and processes of any important art, will always be deemed of some value to the philosophic observer, or the enlightened manufacturer, we shall introduce the following observations on the principles of the manufacture of porcelain.

Observations by Vauquelin.

According to this celebrated chemist, four things may occasion difference in the qualities of earthen-ware: 1st, The nature or composition of the matter; 2^d, The mode of preparation; 3^d, The dimensions given to the vessels; 4th, The baking to which they are subjected. By composition of the matter, the author understands the nature and proportions of the elements of which it is formed. These elements, in the greater part of earthen ware, either valuable or common, are siliceous, argil, lime, and sometimes a little oxide of iron. Hence it is evident that it is not so much by the diversity of the elements that good earthen-ware differs from bad, as by the proportion in which they are united. Siliceous or quartz makes always two-thirds at least of earthen-ware; argil or pure clay, from a fifth to a third; lime, from 5 to 20 parts in the hundred; and iron from 0 to 12 or 15 parts in the hundred. Siliceous gives hardness, infusibility, and unalterability; argil makes the paste pliable, and renders it fit to be kneaded, moulded, and turned at pleasure. It possesses at the same time the property of being partially fused by the heat which unites its parts with those of the siliceous; but it must not be too abundant, as it would render the earthen-ware too fusible and too brittle to be used over the fire.

Hitherto it has not been proved by experience that lime is necessary in the composition of pottery: and if traces of it are constantly found in that substance, it is because it is always mixed with the other earths, from which the washings and other manipulations have

not been able to separate it. When this earth, however, does not exceed five or six parts in a hundred, it appears that it is not hurtful to the quality of the pottery; but if more abundant, it renders it too fusible.

The oxide of iron, besides the inconvenience of communicating a red or brown colour, according to the degree of baking, to the vessels in which it forms a part, has the property of rendering them fusible, and even in a greater degree than lime.

As some kinds of pottery are destined to melt very penetrating substances, such as salts, metallic oxides, glass, &c. they require a fine kind of paste, which is obtained only by reducing the earths employed to very minute particles. Others destined for melting metals, and substances not very penetrating, and which must be able to support, without breaking, a sudden transition from great heat to great cold, require for their fabrication a mixture of calcined argil with raw argil. By these means you obtain pottery, the coarse paste of which resembles *breche*, or small grained pudding-stone, and which can endure sudden changes of temperature.

The baking of pottery is also an object of great importance. The heat must be capable of expelling humidity, and agglutinating the parts which enter into the composition of the paste, but not strong enough to produce fusion; which, if too far advanced, gives to pottery a homogeneity that renders it brittle. The same effect takes place in regard to the fine pottery, because the very minute division given to the earths reduces them nearly to the same state as if this matter had been fused. This is the reason why porcelain strongly baked is more or less brittle, and cannot easily endure alternations of temperature. Hence coarse porcelain, in the composition of which a certain quantity of calcined argil is employed, porcelain retorts, crucibles, tubes, and common pottery, the paste of which is coarse, are much less brittle than dishes and saucers formed of the same substance, ground with more labour.

The general and respective dimensions of the different parts of vessels of earthen-ware have also considerable influence on their capability to stand the fire.

In some cases the glazing or covering, especially when too thick, and of a nature different from the body of the pottery, also renders them liable to break. Thus, in making some kinds of pottery, it is always essential, 1st, To follow the best proportion in the principles; 2^d, To give to the particles of the paste, by grinding, a minuteness suited to the purpose for which it is intended, and to all the parts the same dimensions as far as possible; 3^d, To carry the baking to the highest degree that the matter can bear without being fused; 4th, To apply the glazing in thin layers, the fusibility of which ought to approach as near as possible to that of the matter, in order that it may be more intimately united.

C. Vauquelin, being persuaded that the quality of good pottery depends chiefly on using proper proportions of the earthy matters, thought it might be of importance, to those engaged in this branch of manufacture, to make known the analysis of different natural clays employed for this purpose, and of pottery produced by some of them, in order that, when a new earth

is

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Nature of
the compo-
nent parts
of porce-
lain.

Porcelain.

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Mode of
preparation.

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Baking.

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Dimensions
of the differ-
ent parts of
vessels.

Porcelain is discovered, it may be known by a simple analysis whether it will be proper for the same object, and to what kind of pottery already known it bears the greatest resemblance.

	Hessian Crucibles.	Argil of Dreux.	Porcelain Capsules.	Wedgwood's Pyrometer's.
Silex	69	43.5	61	64.2
Argil	21.5	33.2	28	25
Lime	1	3.5	6	6
Oxide of iron	8	1	0.5	0.2
Water	18	6.2

Raw kaolin 100 parts.—Silex 74, argil 16.5, lime 2, water 7. A hundred parts of this earth gave eight of alum, after being treated with the sulphuric acid.

Washed kaolin 100 parts.—Silex 55, argil 27, lime 2, iron 0.5, water 14. This kaolin, treated with the sulphuric acid, gave about 45 or 50 per cent. of alum.

Petuntzé.—Silex 74, argil 14.5, lime 5.5, loss 6. A hundred parts of this substance, treated with the sulphuric acid, gave seven or eight parts of alum. But this quantity does not equal the loss sustained.

Porcelain of retorts.—Silex 64, argil 28.8, lime 4.55, iron 0.50, loss 2.77. Treated with the sulphuric acid, this porcelain gave no alum.

There is a kind of earthen vessels, called *Alcarrezes*, used in Spain for cooling the water intended to be drunk. These vessels consist of 60 parts of calcareous earth, mixed with alumina and a little oxyd of iron, and $36\frac{1}{4}$ of siliceous earth, also mixed with alumina and the same oxide. The quantity of iron may be estimated at almost one hundredth part of the whole. This earth is first kneaded into a tough paste, being for that purpose previously diluted with water; formed into a cake of about six inches in thickness, and left in that state till it begin to crack. It is then kneaded with the feet, the workman gradually adding to it a quantity of sea-salt, in the proportion of seven pounds to a hundred and fifty: after which it is applied to the lathe, and baked in any kind of furnace used by potters. The *alcarrezes*, however, are only about half as much baked as the better kinds of common earthen ware; and being exceedingly porous, water oozes through them on all sides. Hence the air, which comes in contact with it, by making it evaporate, carries off the caloric contained in the water in the vessel, which is thus rendered remarkably cool.

Observations of Brongniart.

The author of the following observations is superintendent of the celebrated porcelain manufactory at Sevres in France. The extensive views he has taken of the subject, and the general principles which he has advanced, will, we doubt not, be favourably received by the intelligent manufacturer, and meet with attention and consideration adequate to their importance and utility.

“The art of employing metallic oxides for colouring by fusion different vitreous matters, is of very great antiquity: every body knows that the antients manufactured coloured glass and enamel, and that this art was practised in particular by the Egyptians, the first people who in this manner imitated precious stones. The practice of this art in modern times has been carried to a high degree of perfection: but the theory has been

neglected; it is almost the only one of the chemical arts in which no attempt has yet been made to apply the new principles of that science.

“It is well known that all vitrifiable colours have for their basis metallic oxides; but all the metallic oxides are not proper for this purpose: besides, as they are not vitrifiable by themselves, they can scarcely ever be employed alone.

“Highly volatile oxides, and those which adhere little to the great quantity of oxygen they contain, either cannot be employed in any manner, as the oxide of mercury and that of arsenic, or are employed only as agents. The colour they present cannot be depended on, since they must lose it in the slightest heat by losing a part of their oxygen: such are the puce-coloured and red oxides of lead, the yellow oxide of gold, &c. Oxides in which the proportions of oxygen are susceptible of varying with too much facility are rarely employed: the oxide of iron, though black, is never employed for that colour; and the green oxide of copper is, under many circumstances, very uncertain. I have said that oxides alone are not susceptible of fusion: however, as they are destined to be applied in thin strata on vitrifiable substances, they may be attached to them by a violent heat. But, except the oxides of lead and bismuth, they would give only dull colours. The violent heat, often necessary to fix them, would change or totally destroy the colours. A flux then is added to all metallic oxides.

“This flux is glass, lead, and silex; glass of borax, or a mixture of both. Its general effect is, to give splendour to the colours after their fusion; to fix them on the article which is painted, by promoting more or less the softening of its surface; to envelop the metallic oxides, and to preserve their colour by sheltering them from the contact of the air: in a word, to facilitate the fusion of the colour at a low temperature not capable of destroying it.

“I shall speak here only of the application of metallic colours to vitreous bodies or to vitreous surfaces. These bodies may be divided into three classes, very distinct by the nature of the substances which compose them, the effects produced on them by the colours, and the changes they experience. These classes are: 1st, Enamel, soft porcelain, and all crusts, enamels, or glass, that contain lead in a notable quantity. 2^d, Hard porcelain, or porcelain which has a crust of feldspar. 3^d, Glass in the composition of which no lead enters, such as common window-glass.

“I shall here examine in succession the principles of the composition of these colours, and the general phenomena they exhibit on these three kinds of bodies.

“It is well known that enamel is glass rendered opaque by the oxide of tin, and exceedingly fusible by the oxide of lead. It is the oxide of lead, in particular, contained in it, that gives it properties very different from those of the other excipients of metallic colours. Thus all glass and glazing that contain lead will participate in the properties of enamel; and what we shall say of one may be applied to the rest with very trifling differences.

Such are the white and transparent glazing of stone ware, and the glazing of porcelain called *soft glazing*.

“Enamel

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Porous
ware.

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Enamel of
the anci-
ents.

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Metallic
oxides em-
ployed as
colours for
porcelain.

61
Nature of
the sub-
stances to
which they
are applied.

Porcelain.
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Flux for soft
porcelain
colours.

“ Enamel or soft porcelain colours require less flux than others, because the glass on which they are applied becomes sufficiently soft to be penetrated by them. This flux may be either glass of lead and pure silica, called *rocaille*, or the same glass mixed with borax. Montamy asserts that glass of lead ought to be banished from among the enamel fluxes; and he employs only borax. He then dilutes his colours in a volatile oil. On the other hand, the painters of the manufactory of Sevres employ only colours without borax, because they dilute them in gum; and borax does not dilute well in that substance. I have found that both methods are equally good; and it is certain that Montamy was wrong to exclude fluxes of lead, since they are daily employed without any inconvenience, and as they even render the application of colours easier.

“ I have said that in the baking of these colours, the crust, softened by the fire, suffers itself to be easily penetrated by them. This is the first cause of the change which they experience. By mixing with the crust they become weaker, and the first heat changes a figure which appeared to be finished into a very light sketch.

The two principal causes of the changes which colours on enamel and soft porcelain are susceptible of experiencing do not depend in any manner on the composition of these colours, but on the nature of the glass to which they are applied. It follows from what has been said, that painting on soft porcelain has need of being several times retouched, and of several heats, in order that it may be carried to the necessary degree of strength. These paintings have always a certain faintness; but they are constantly more brilliant, and they never are attended with the inconvenience of detaching themselves in scales.

“ Hard porcelain, according to the division which I have established, is the second sort of excipient of metallic colours. This porcelain, as is well known, has for its base a very white clay called *kaolin*, mixed with a siliceous and calcareous flux, and for its covering feldspar fused without an atom of lead.

63
Colours ap-
plied to
hard porce-
lain

“ This porcelain, which is that of Saxony, is much newer at Sevres than the soft porcelain. The colours applied to it are of two kinds: the first, destined to represent different objects, are baked in a heat very inferior to that necessary for baking porcelain. They are exceedingly numerous and varied. The others, destined to be fused in the same heat as that which bakes porcelain, lay themselves flat, and are much less numerous. The colours of painting are made nearly like those destined for soft porcelain; they only contain more flux. Their flux is composed of glass of lead and borax. When porcelain is exposed to heat in order to bake the colours, the covering of feldspar dilates itself and opens its pores, but does not become soft: as the colours do not penetrate it, they experience none of those changes which they undergo on soft porcelain. It must however, be said that they lose a little of their intensity by acquiring that transparency which is given to them by fusion.

“ One of the greatest inconveniences of these colours, especially in the manufactory of Sevres, is the facility with which they scale off when exposed several times in the fire.

“ To remedy this defect without altering the quality of the paste, I was of opinion that the crust only ought

to be softened by introducing into it more siliceous or calcareous flux, according to the nature of the feldspar. This method has succeeded; and for about a year past the colours might be exposed two or three times to the fire without scaling, if not overcharged with flux, and if not laid on too thick.

“ The third sort of excipient of vitrifiable metallic colours is glass without lead.

“ The application of these colours to glass constitutes painting on glass; an art very much practised some centuries ago, and which was supposed to be lost because out of fashion; but it has too direct a dependence on painting in enamel and porcelain to be entirely lost.

“ The matters and fluxes which enter into the composition of the colours employed on glass are in general the same as those applied to porcelain. Neither of them differ but in their proportions; but there are a great number of enamel or porcelain colours which cannot be applied to glass, where they are deprived of the white ground which serves to give them relief.

Of Colours in particular.

“ After collecting the general phenomena exhibited by each class of vitrifiable colours, considered in regard to the body on which they are applied, I must make known the most interesting particular phenomena exhibited by each principal kind of colours employed on soft porcelain and glass in a porcelain furnace.

Of Reds, Purples, and Violets, made from Gold.

“ Carmine red is obtained by the purple precipitate of cassius: it is mixed with about six parts of its flux; and this mixture is employed directly, without being fused. It is then of a dirty violet, but by baking it acquires a beautiful red carmine colour: it is, however, exceedingly delicate; a little too much heat and carbonaceous vapours easily spoil it. On this account it is more beautiful when baked with charcoal than with wood.

“ This colour and the purple, which is very little different, as well as all the shades obtained from it, by mixing it with other colours, really change on all porcelain and in every hand. But it is the only one that changes on hard porcelain. Its place may be supplied by a rose-colour from iron which does not change; so that by suppressing the carmine made with gold, and substituting for it the rose oxide of iron here alluded to, you may exhibit a palette composed of colours none of which change in a remarkable manner. This rose-coloured oxide of iron has been long known; but it was not employed on enamel, because on that substance it changes too much. As the painters on enamel, however, have become the painters on porcelain, they have preserved their ancient method.

“ It might be believed that, by first reducing to a vitreous matter the colour called *carmine* already mixed with its flux, it might be made to assume its last tint. But the heat necessary to fuse this vitreous mass destroys the red colour, as I have experienced. Besides, it is remarked that, to obtain this colour very beautiful, it must be exposed to the fire as few times as possible.

“ The carmine for soft porcelain is made with fulminating gold slowly decomposed, and muriate of silver: no tin enters into it; which proves that the combination of the oxide of this metal with that of gold is not necessary to the existence of the purple colour.

“ Violet

Porcelain. " Violet is made also with purple oxide of gold. A greater quantity of lead in the flux is what gives it this colour, which is almost the same crude or baked.

" These three colours totally disappear when exposed to a great porcelain heat.

" Carmine and purple have given us in glass tints only of a dirty violet. The violet, on the other hand, produces on glass a very beautiful effect, but it is liable to turn blue. I have not yet been able to discover the cause of this singular change, which I saw for the first time a few days ago.

Red, Rose, and Brown Colours, extracted from Iron.

" These colours are made from red oxide of iron prepared with nitric acid. These oxides are further calcined by keeping them exposed to the action of heat. If heated too much, they pass to brown.

" Their flux is composed of borax, sand, and minium, in small quantity.

" These oxides give rose and red colours capable of supplying the place of the same colours made with oxide of gold. When properly employed on hard porcelain, they do not change at all. I have caused roses to be painted with these colours, and found no difference between the baked flower and that not baked, except what might be expected to result from the brilliancy given to colours by fusion.

" These colours may be employed indiscriminately, either previously fused or not fused.

" In a great heat they in part disappear, or produce a dull brick red ground, which is not agreeable.

" The composition of them is the same both for soft porcelain and for glass. They do not change on the latter; but on soft porcelain they disappear almost entirely on the first exposure to heat, and to make any thing remain they must be employed very deep.

" This singular effect must be ascribed to the presence of lead in the crust or glazing. I assured myself of this by a very simple experiment. I placed this colour on window glass, and having exposed it to a strong baking, it did not change.

" I covered several parts of it with minium; and again exposing it to the fire, the colour was totally removed in the places where the red oxide of lead had been applied.

" By performing this operation on a larger scale in close vessels, a large quantity of oxygen gas was disengaged.

" It appears to me that this observation clearly proves the action of oxidated lead on glass as a destroyer of colour: it is seen that it does not act, as was believed, by burning the combustible bodies, which might tarnish the glass, but by dissolving, discolouring, or volatilizing with it the oxide of iron, which might alter its transparency.

Yellows.

" Yellows are colours which require a great deal of care in the fabrication on account of the lead which they contain, and which, approaching sometimes to the metallic state, produces on them black spots.

" The yellows for hard and soft porcelain are the same: they are composed of the oxide of lead, white oxide of antimony, and sand.

" Oxide of tin is sometimes mixed with them; and

when it is required to have them livelier, and nearer the colour *du fouci*, red oxide of iron is added, the too great redness of which is dissipated in the previous fusion to which they are exposed by the action of the lead contained in this yellow. These colours, when once made, never change: they disappear, however, almost entirely when exposed to a porcelain heat.

" These yellows cannot be applied to glass: they are too opaque and dirty. That employed by the old painters on glass has, on the contrary, a beautiful transparency, is exceedingly brilliant, and of a colour which approaches near to that of gold. The processes which they gave clearly showed that silver formed part of their composition; but, when exactly followed, nothing satisfactory was obtained. C. Miraud, whom I have already had occasion to mention, has found means to make as beautiful paintings on glass as the ancients, by employing muriate of silver, oxide of zinc, white argil, and yellow oxide of iron. These colours are applied on glass merely pounded, and without a flux. The oxide of iron brings the yellow to that colour which it ought to have after baking, and contributes with the argil and oxide of zinc to decompose the muriate of silver without deoxidating the silver. After the baking, there remains a dust which has not penetrated into the glass, and which is easily removed.

" This yellow, when employed thicker, gives darker shades, and produces a ruffet.

Blues.

" It is well known that these are obtained from the oxide of cobalt. All chemists are acquainted with the preparation of them. Those of Sevres, which are justly esteemed for their beauty, are indebted for it only to the care employed in manufacturing them, and to the quality of the porcelain, which appears more proper for receiving them in proportion to the degree of heat which it can bear.

" I remarked respecting the oxide of cobalt a fact which is perhaps not known to chemists: it is volatile in a violent heat: it is to this property we must ascribe the blueish tint always assumed by white in the neighbourhood of the blue. I have placed expressly on purpose, in the same case, a white piece close to a blue one, and found that the side of the white piece next the blue became evidently blueish.

" The blue of hard porcelain, destined for what is called the ground for a great heat (*les fonds au grand feu*) is fused with feldspar; that of soft porcelain has for its flux silica, potash, and lead: it is not volatilized like the preceding; but the heat it experiences is very inferior to that of hard porcelain.

" These colours, when previously fused, do not change at all in the application.

" Blues on glass exhibit the same phenomena as those on soft porcelain.

Greens.

" The greens employed in painting are made with green oxide of copper, or sometimes with a mixture of yellow or blue. They must be previously fused with their flux, otherwise they will become black; but after this first fusion they no longer change.

" They cannot stand a strong heat, as it would make them disappear entirely. Green grounds for a strong heat

Porcelain.

Porcelain heat are composed with the oxides of cobalt and nickel, but a brownish green only is obtained.

“ Blueish greens called *celestial blues*, which were formerly colours very much in vogue, can be applied only upon soft porcelain; on hard porcelain they constantly become scaly, because potash enters into their composition.

“ These greens cannot be applied on glass: they give a dirty colour. To obtain a green on glass, it is necessary to put yellow on one side, and blue, more or less pale, on the other. This colour may be made also by a mixture of blue with yellow oxide of iron. I hope to obtain from oxide of chrome a direct green colour. The trials I have made give me reason to hope for success. Pure chromate of lead, which I applied to porcelain in a strong heat, gave me a pretty beautiful green of great intensity and very fixed.

Bijoues and Ruffets.

“ These are obtained by mixtures in different proportions of manganese, brown oxide of copper, and oxide of iron from ombre earth. They are also previously fused with their flux, so that they do not change in any manner on soft porcelain, as lead has not the same action on oxide of manganese as on that of iron, as I assured myself by an experiment similar to that already mentioned.

“ This colour fades very speedily on glass.

“ Ruffet grounds in a great heat, known under the name of *tortoise-shell grounds*, are made in the same manner. Their flux is feldspar: no titanium enters into their composition, though said so in all printed works. Titanium was not known at the manufactory of Sevres when I arrived there. I treated this singular metal in various ways, and never obtained but grounds of a pale dirty yellow, and very variable in its tone.

Blacks.

“ Blacks are the colours most difficult to be obtained very beautiful. No metallic oxide gives alone a beautiful black. Manganese is that which approaches nearest to it. Iron gives an opaque, dull, cloudy black, which changes very easily to red: the colour-makers, therefore, to obtain a black which they could not hope for from the best theorist, have united several metallic oxides which separately do not give black, and have obtained a very beautiful colour, which, however, is liable to become scaly and dull.

“ These oxides are those of manganese, the brown oxides of copper, and a little of the oxide of cobalt. The gray is obtained by suppressing the copper, and increasing the dose of the flux.

“ The manufactory of Sevres is the only one which has hitherto produced beautiful blacks in a strong heat. This is owing rather to the quality of its paste than to any peculiar processes, since it does not conceal them. It is by darkening the blue by the oxides of manganese and iron that they are able in that manufactory to obtain very brilliant blacks.

“ Having here made known the principles of the fabrication of each principal colour, it may be readily conceived that by mixing these colours together all the shades possible may be obtained. It is evident also that care in the preparation, choice in the raw materials, and a just proportion of doses, must produce in the results

differences very sensible to an eye accustomed to painting. A mere knowledge of the composition of the colours does not give the talent of executing them well.

“ In recapitulating the facts above mentioned, to present them under another general point of view, it is seen, 65
“ 1st, That among colours generally employed on hard porcelain one only is susceptible of changing, viz. carmine, and the tints into which it enters: that its place may be supplied by the reds of iron, and that no colour then changes. Facts relative to colours recapitulated.

“ I have presented to the Institute a head not baked, executed according to this method: and the painting of two roses, that of the one baked, and that of the other not baked. It has been seen that there was no difference between them.

“ 2d, That among the colours for soft porcelain and enamel, several change in a considerable degree. These are principally the reds of gold and iron, the yellows, the greens, the browns. They have not been replaced by others, because this kind of painting has been almost abandoned.

“ 3d, That several of the colours on glass change also by acquiring complete transparency. These in particular are the yellows and greens.

“ 4th, That it is neither by calcinating the colours in a higher degree, nor previously fusing them, as supposed by some, that they are prevented from changing, since these means really alter the changing colours, and produce no effect on the rest. The change which several colours experience on soft porcelain and on glass does not then depend on the nature of their composition, but rather on that of the body on which they are applied.

“ Consequently, by suppressing from the colours of hard porcelain the carmine of gold, which is not indispensably necessary, we shall have a series of colours which do not change. 66

As it must be of no small importance to the chemical manufacturer to be acquainted with the results of experiments on the effects of heat, when applied to different proportions of the materials employed in making porcelain, or other analogous ware, we shall insert the following tables, exhibiting those results. The first table contains the results of the numerous experiments of Achard and Morveau on the vitrification of earths with saline bodies. The mixture of the earths and salts was made in a clay crucible, and, in the experiments of Morveau, the crucible was exposed for two hours to a heat from 22° to 26° of Wedgwood's pyrometer; but in those of Achard, the crucible was kept for three hours in the heat of a strong wind furnace, in which the temperature was probably higher than the former. Results of experiments on materials for porcelain important.

The second table presents a view of the effects of the vitrification of earths by means of metallic oxides. The mixtures were exposed in earthen crucibles to the heat of a porcelain furnace during the whole time required to bake porcelain ware.

In the third table are exhibited the curious results of the effects of vitrifying materials on the crucibles in which the vitrification takes place. It is to be observed, that the effects of the same materials, and in the same proportions are very different, in different vessels; and without attending to this circumstance, very erroneous conclusions will be drawn in estimating the action of vitrifiable substances on each other. This diversity of the effects of the same materials in different crucibles, was

Porcelain. was first noticed by Pott. The subject was still farther prosecuted by Gerrard, who made a number of experiments, from which he obtained the results expressed in the table. He exposed various natural minerals to a degree of heat sufficient to melt cast iron for an hour, un-

der precisely the same circumstances, with this difference only, that one specimen of each mineral was inclosed in a crucible of clay, another in one of chalk, and a third in one of charcoal. The difference of the result which is given in the tables was particularly noticed.

TABLE I. *Shewing the Results of the Vitrification of Earths with Saline Bodies.*

<i>Mixture.</i>		<i>Result.</i>	
A.	SILEX - - - - -	1. }	A yellow glass, not hard enough to give sparks with steel.
	Carbonate of potash - - - - -	1. }	
M.	Silex - - - - -	1. }	A colourless transparent glass, but deliquescent from the excess of alkali.
	Carbonate of soda (dry) - - - - -	2. }	
A.	Silex - - - - -	3. }	A yellow glass, not scintillant.
	Carbonate of potash - - - - -	1. }	
A.	Silex - - - - -	4. }	A vitriform mass, yellow, hard, and scintillant.
	Carbonate of potash - - - - -	1. }	
M.	Silex - - - - -	1. }	A beautiful transparent glass, not at all soluble in water.
	Borax (calcined) - - - - -	2. }	
A.	Silex - - - - -	1. }	A white porcellaneous mass, scarcely scintillant.
	Boracic acid - - - - -	1. }	
A.	Silex - - - - -	1. }	A hard transparent glass—scintillant.
	Boracic acid - - - - -	2. }	
A.	Silex - - - - -	4. }	A white opaque melted porous mass—scintillant.
	Boracic acid - - - - -	1. }	
A.	Silex - - - - -	3. }	A transparent glass—hard and scintillant.
	Calcined borax - - - - -	1. }	
A.	Silex - - - - -	4. }	A mass resembling agate—but perfectly fused and scintillant.
	Calcined borax - - - - -	1. }	
A.	Silex - - - - -	2. }	A green scintillant glass.
	Sulphate of soda - - - - -	1. }	
A.	Silex - - - - -	3. }	A soft green transparent glass.
	Nitre - - - - -	1. }	
A.	Silex - - - - -	1. }	Scoria—the crucible entirely destroyed.
	Common salt - - - - -	2. }	
M.	Silex - - - - -	1. }	A white opaque, puffy, vitreous mass, deliquescent and reddening litmus.
	Phosphate of soda and ammonia - - - - -	2. }	
M.	LIME - - - - -	1. }	A white spongy opaque mass, crumbling between the fingers.
	Carbonate of soda - - - - -	2. }	
A.	Chalk - - - - -	2. }	Partly fused—the rest pulverulent—the crucible strongly corroded.
	Carbonate of potash - - - - -	1. }	
A.	Chalk - - - - -	1. }	A well-fused, polished, black scintillant glass.
	Carbonate of potash - - - - -	2. }	
A.	Chalk - - - - -	4. }	Remained a white powder.
	Carbonate of potash - - - - -	1. }	
M.	Lime - - - - -	1. }	A fine transparent yellowish glass—the crucible strongly corroded.
	Borax - - - - -	2. }	
A.	Chalk - - - - -	4. }	A well-fused, black, scintillant polished mass.
	Borax - - - - -	1. }	
A.	Chalk - - - - -	3. }	A yellow scintillant glass.
	Borax - - - - -	1. }	
A.	Chalk - - - - -	1. }	A yellow glass—run through the crucible.
	Boracic acid - - - - -	2. }	

Porcelain.

Porcelain.

	<i>Mixture.</i>		<i>Result.</i>
A.	Chalk - - -	3.	} A hard yellow scintillant glass.
	Sulphate of foda - - -	1.	
A.	Chalk - - -	1.	} A hard brown scoria—the crucible totally destroyed.
	Sulphate of foda - - -	4.	
A.	Chalk - - -	1.	} A hard yellow glass.
	Nitrate of foda - - -	1.	
A.	Chalk - - -	1.	} A yellow scintillant glass—the crucible entirely destroyed.
	Common salt - - -	1.	
M.	Lime - - -	1.	} A white opaque crumbly mass.
	Phosphate of foda and ammonia	2.	
M.	ALUMINE - - -	1.	} A gray opaque ill-fused frit, not cohering to the crucible and deliquescent.
	Carbonate of foda - - -	2.	
A.	Alumine - - -	4.	} Remained unmelted and uncohering.
	Carbonate of foda and potash in all proportions from 1 to 12.		
A.	Alumine - - -	1.	} Partially melted, but soft and friable.
	Carbonate of potash - - -	4.	
M.	Alumine - - -	1.	} A fine transparent clear green glass.
	Borax - - -	2.	
A.	Alumine - - -	1.	} Remained pulverulent.
	Borax - - -	1.	
A.	Alumine - - -	1.	} Part unfused and remaining pulverulent, the rest partially melted.
	Boracic acid - - -	4.	
M.	Alumine - - -	1.	} A green frit easily friable.
	Phosphate of foda and ammonia	2.	
M.	MAGNESIA - - -	1.	} A white opaque uncohering mass.
	Carbonate of foda - - -	2.	
M.	Magnesia - - -	1.	} A semi-transparent somewhat milky glass of a gelatinous appearance, but very hard and brilliant on the surface.
	Borax - - -	2.	
M.	Magnesia - - -	1.	} A white mass a little agglutinated but not adhering to the crucible.
	Phosphate of foda and ammonia	2.	
M.	Barytes (pure) - - -	1.	} A very hard semi-vitrified mass, of a clear green.
	Carbonate of foda - - -	2.	
M.	Barytes - - -	1.	} A beautiful transparent glass with a faint yellow tinge, strongly adhering to the crucible.
	Borax - - -	2.	
M.	Barytes - - -	1.	} A remarkably fine transparent glass.
	Phosphate of foda and ammonia	2.	

TABLE II. *Containing the Results of the Vitriification of Earths by Metallic Oxides.*

	<i>Mixture.</i>		<i>Result.</i>	<i>Colour and Texture.</i>
	Silex - - -	1.	} Scoria	Black and polished—hard, giving sparks with steel.
	Oxide of iron - - -	1.		
	Silex - - -	2.	} Not fused	Black and friable.
	Oxide of iron - - -	1.		
	Silex - - -	1.	} Scoria run through the crucible	Black and hard—scintillant.
	Oxide of iron - - -	2.		
	Silex - - -	1.	} Not fused.	
	Oxide of copper	1.		
	Silex - - -	1.	} Not fused.	
	Oxide of copper	4.		

Silex

Porcelain.

Mixture.

Result.

Colour and Texture.

Porcelain.

Silex -	1.	} A solid mass but not fused	-	-	White and hard.
Oxide of lead -	1.				
Silex -	1.	} Fused, porous, and semi-vitrified	-	-	Yellow—not scintillant.
Oxide of lead -	2.				
Silex -	1.	} Perfect glass	-	-	Green—not scintillant.
Oxide of lead -	3.				
Silex -	1.	} A coherent mass	-	-	Grey—easily friable.
Oxide of tin -	1.				
Silex -	1.	} Vitrified	-	-	Greenish yellow—not scintillant.
Oxide of tin -	2.				
Silex -	1.	} Remained in powder.	-	-	
Oxide of bismuth	1.				
Silex -	1.	} Perfect glass	-	-	Deep yellow—not scintillant.
Oxide of bismuth	4.				
Silex -	1.	} Glass	-	-	Colourless—scintillant.
Oxide of antimony	1.				
Silex -	2.	} Not melted	-	-	Grey and friable.
Oxide of antimony	1.				
Silex -	1.	} Remained in powder.	-	-	
Oxide of zinc	1.				
Silex -	1.	} Melted only where touching the crucible.	-	-	White—hard.
Oxide of zinc	2.				
Silex -	1.	} Perfectly fused	-	-	Gray—scintillant.
Oxide of zinc	3.				
LIME (carbonated)	1.	} A melted porous mass	-	-	Black—scintillant.
Oxide of iron	1.				
Lime -	1.	} Melted, polished in the fracture, part of the	-	-	Red—scintillant.
Oxide of copper	1.				
Lime -	3.	} Melted, but porous	-	-	The same.
Oxide of copper	1.				
Lime -	4.	} Part only melted, the rest pulverulent	-	-	Grey.
Oxide of copper	1.				
Lime -	1.	} Glass	-	-	Greenish yellow—scintillant.
Oxide of lead	1.				
Lime -	2.	} Glass run through the crucible	-	-	Yellow—scintillant.
Oxide of lead	1.				
Lime -	3.	} Remained in powder.	-	-	
Oxide of lead	1.				
Lime -	1.	} Semi-vitrified	-	-	Yellow—scintillant.
Oxide of tin	1.				
Lime -	2.	} Glass	-	-	Greenish yellow—scintillant.
Oxide of tin	1.				
Lime -	3.	} Melted only where touching the crucible	-	-	Grey.
Oxide of tin	1.				
Lime -	4.	} Glass	-	-	Greenish yellow—scintillant.
Oxide of tin	1.				
Lime -	1.	} Vitriform mass	-	-	Green.
Oxide of bismuth	2.				
Lime -	1.	} Glass penetrating the crucible	-	-	Yellow—scintillant.
Oxide of antimony	1.				

Porcelain.	Mixture.	Result.	Colour and Texture.	Porcelain.
	Lime - Oxide of antimony	2. } 1. }	Remained in powder.	
	Lime - Oxide of antimony	1. } 4. }		Deep yellow—scintillant.
	Lime - Oxide of antimony	4. } 1. }	A semi-transparent polished mass	
	Lime - Oxide of zinc	1. } 1. }		Glasf
	ALUMINE - Oxide of iron	1. } 1. }	Only partially fused.	
	Alumine - Oxide of iron	1. } 3. }		A melted porous mass
	Alumine - Oxide of copper	1. } 1. }	Only partially fused.	
	Alumine - Oxide of copper	1. } 4. }		The same.
	Alumine - Oxide of lead	1. } 1. }	Remained in powder.	
	Alumine - Oxide of lead	1. } 3. }		The same.
	Alumine - Oxide of lead	1. } 4. }	Glasf	
	Alumine - Oxide of tin	1. } 2. }		A melted porous mass, not polished in the fracture
	Alumine - Oxide of bismuth	1. } 2. }	Partially fused.	
	Alumine - Oxide of antimony	1. } 4. }		Only partially fused.
	Alumine - Oxide of zinc	1. } 4. }	Remained in powder.	
	MAGNESIA - Oxide of iron	1. } 3. }		Half fused, but not cohering.
	Magnesia - Oxide of copper	1. } 3. }	A porous half-fused mass	
	Magnesia - Oxide of lead	1. } 3. }		Not fused.
	Magnesia - Oxide of lead	1. } 4. }	A porous melted mass, part of the oxide reduced.	
	Magnesia - Oxide of antimony	1. } 3. }		Beginning to fuse

TABLE III. *Shewing the Action of the Vitrifying matters on the Crucibles that contain them.*

Substances used.	Result in the Clay crucible (A).	Result in the Chalk crucible (B).	Result in the Charcoal crucible (C).
Common flint.	Opake and milk-white, but without fusion.	Opake and white, but with beginning fusion where in contact with the crucible.	As in A.
Marble.	Run into a green glass.	No change.	No change.
Gypsum.	Run into a radiated green glass.	No change.	No change.

Porcelain Porcupine- Man.	Substances used.	Result in the Clay Crucible (A).	Result in the Chalk crucible (B).	Results in the Charcoal crucible (C).	Porcelain Porifm.
	Fluor spar.	Melted and ran through the crucible.	Melted down with the crucible to a tough slag.	Scarcely altered, except slight fusion at the edges.	}
	Porcelain clay.	Compact, white and no signs of fusion.	Run into a hard blue clear glass.	As in A.	
	Ditto, another kind.	A compact mass partially melted.	A perfectly black glass.	As in A.	
	Reddle.	A black glass covered with a crust of reduced iron.	A semitransparent apple-green glass.	A brown scoria containing grains of iron.	
	Jasper.	No fusion, but the colour changed to brown.	Completely fused in the parts touching the crucible.	As in A.	
	Muscovy talc.	A black glass with interspersed grains of iron.	The whole crucible was penetrated with a scoria so as not to fall to powder on exposure to air.	As in A.	
	Spanish chalk.	Only hardened.	A gray semitransparent glass	As in A.	
	Basalt.	Brown-yellow glass with a crust of iron.	A green scoria, also with a crust of iron.	A green glass with many grains of iron.	

For an account of some valuable experiments of a similar nature, which were made by the celebrated Klaproth, in crucibles of clay and charcoal, in which the differences of the results are very striking, the reader is referred to his *Analyt. Essays*, or to *Aikin's Dictionary of Chemistry and Mineralogy*.

PORCELAIN-Shell, a species of *CYPRÆA*. See *CYPRÆA*, *CONCHOLGY Index*.

PORCH, in *architecture*, a kind of vestibule supported by columns; much used at the entrance of the ancient temples, halls, churches, &c.

A porch, in the ancient architecture, was a vestibule, or a disposition of insulated columns usually crowned with a pediment, forming a covert place before the principal door of a temple or court of justice. Such is that before the door of St Paul's, Covent-Garden, the work of Inigo Jones. When a porch had four columns in front, it was called a *tetrapyle*; when six, *hexapyle*; when eight, *octopyle*, &c.

PORCH, in Greek *Πορτ*, a public portico in Athens, adorned with the pictures of Polygnotus and other eminent painters. It was in this portico that Zeno the philosopher taught; and hence his followers were called *Stoics*. See *STOICS* and *ZENO*.

PORCUPINE. See *HYSTRIX*, *MAMMALIA Index*.

PORCUPINE-Man, the name by which one Edward Lambert, who had a distempered skin, went in London. We have the following account of him in the *Philosophical Transactions* for 1755, by Mr Henry Baker, F. R. S. "He is now (says he) 40 years of age, and it is 24 years since he was first shewn to the society. The skin of this man, except on his head and face, the palms of his hands, and the soles of his feet, is covered with excrescences that resemble an innumerable company of warts, of a brown colour and cylindrical figure; all rising to an equal height, which is about an inch, and growing as close as possible to each other at their basis; but so stiff and elastic as to make a rustling noise when the hand is drawn over them. These excrescences are annually shed, and renewed in some of the autumn or winter months. The new ones, which are of a paler colour, gradually rise up from beneath as the old ones fall off; and at this time it has been found necessary for him to lose a little blood, to prevent a slight

sickness which he had been used to suffer before this precaution was taken. He has had the smallpox, and he has been twice salivated, in hopes to get rid of this disagreeable covering; but though just when the pustules of the smallpox had scaled off, and immediately after his salivations, his skin appeared white and smooth, yet the excrescences soon returned by a gradual increase, and his skin became as it was before. His health, during his whole life, has been remarkably good: but there is one particular of this case more extraordinary than all the rest; this man has had six children, and all of them had the same rugged covering as himself, which came on like his own about nine weeks after the birth. Of these children only one is now living, a pretty boy, who was shewn with his father. It appears, therefore, as Mr Baker remarks, that a race of people might be propagated by this man, as different from other men as an African is from an Englishman; and that if this should have happened in any former age, and the accidental original have been forgotten, there would be the same objections against their being derived from the same common stock with others: it must therefore be admitted possible, that the differences now subsisting between one part of mankind and another may have been produced by some such accidental cause, long after the earth has been peopled by one common progenitor."

PORE, in *anatomy*, a little interstice or space between the parts of the skin, serving for perspiration.

PORELLA, a genus of plants, belonging to the cryptogamia class. See *BOTANY Index*.

PORENTRU, is a town of Switzerland, in Elsgaw, and capital of the territory of the bishop of Basle, which is distinguished only by its castle and cathedral. The bishop was formerly a prince of the empire. It is seated on the river Halle, near Mount Jura, 22 miles south of Basle. E. Long. 7. 2. N. Lat. 47. 34.

PORISM, in *geometry*, is a name given by the ancient geometers to two classes of mathematical propositions. Euclid gives this name to propositions which are involved in others which he is professedly investigating, and which, although not his principal object, are yet obtained along with it, as is expressed by their name *porismata*, "acquisitions." Such propositions are now called

Porism.

called *corollaries*. But he gives the same name, by way of eminence, to a particular class of propositions which he collected in the course of his researches, and selected from among many others on account of their great subserviency to the business of geometrical investigation in general. These propositions were so named by him, either from the way in which he discovered them, while he was investigating something else, by which means they might be considered as gains or acquisitions, or from their utility in acquiring farther knowledge as steps in the investigation. In this sense they are porismata; for $\pi\omicron\rho\iota\sigma\mu\alpha$ signifies both to investigate and to acquire by investigation. These propositions formed a collection, which was familiarly known to the ancient geometers by the name of Euclid's *porisms*; and Pappus of Alexandria says, that it was a most ingenious collection of many things conducive to the analysis or solution of the most difficult problems, and which afforded great delight to those who were able to understand and to investigate them.

Unfortunately for mathematical science, this valuable collection is now lost, and it still remains a doubtful question in what manner the ancients conducted their researches upon this curious subject. We have, however, reason to believe that their method was excellent both in principle and extent; for their analysis led them to many profound discoveries, and was restricted by the severest logic. The only account we have of this class of geometrical propositions, is in a fragment of Pappus, in which he attempts a general description of them as a set of mathematical propositions distinguishable in kind from all others; but of this description nothing remains, except a criticism on a definition of them given by some geometers, and with which he finds fault, as defining them only by an accidental circumstance, "*A Porism is that which is deficient in hypothesis from a local theorem.*"

Pappus then proceeds to give an account of Euclid's porisms; but the enunciations are so extremely defective, at the same time that they refer to a figure now lost, that Dr Halley confesses the fragment in question to be beyond his comprehension.

The high encomiums given by Pappus to these propositions have excited the curiosity of the greatest geometers of modern times, who have attempted to discover their nature and manner of investigation. M. Fermat, a French mathematician of the 17th century, attaching himself to the definition which Pappus criticises, published an introduction (for this is its modest title) to this subject, which many others tried to elucidate in vain. At length Dr Simson, Professor of Mathematics in the University of Glasgow, was so fortunate as to succeed in restoring the Porisms of Euclid. The account he gives of his progress and the obstacles he encountered will always be interesting to mathematicians. In the preface to his treatise *De Porismatibus*, he says, "Postquam vero apud Pappum legeram Porismata Euclidis Collectionem fuisse artificiosissimam multarum rerum, quæ spectant ad analysin difficiliorum et generalium problematum, magno desiderio tenebar, aliquid de iis cognoscendi; quare sæpius et multis variisque viis tum Pappi propositionem generalem, mancã et imperfectam, tum primum lib. 1. porisma, quod, ut dictum fuit, solum ex omnibus in tribus libris integrum adhuc manet, intelligere et restituere conabar; frustra tamen,

I

Porism.

nihil enim proficiebam. Cumque cogitationes de hac re multum mihi temporis consumpserint, atque tandem molestæ admodum evaserint, firmiter animum induxi nunquam in posterum investigare; præsertim cum optimus Geometra Halleius spem omnem de iis intelligendis abjecisset. Unde quoties menti occurrerant, toties eas arcebam. Postea tamen accidit ut improvidum et propositi immemorem invaserint, meque detinuerint donec tandem lux quædam effulserit quæ spem mihi faciebat inveniendi saltem Pappi propositionem generalem, quam quidem multa investigatione tandem restitui. Hæc autem paulo post una cum Porismate primo lib. 1. impressa est inter Transactiones Philosophicas anni 1723, N^o 177."

Dr Simson's Restoration has all the appearance of being just; it precisely corresponds to Pappus's description of them. All the lemmas which Pappus has given for the better understanding of Euclid's propositions are equally applicable to those of Dr Simson, which are found to differ from local theorems precisely as Pappus affirms those of Euclid to have done. They require a particular mode of analysis, and are of immense service in geometrical investigation; on which account they may justly claim our attention.

While Dr Simson was employed in this inquiry, he carried on a correspondence upon the subject with the late Dr M. Stewart, professor of mathematics in the university of Edinburgh; who, besides entering into Dr Simson's views, and communicating to him many curious porisms, pursued the same subject in a new and very different direction. He published the result of his inquiries in 1746, under the title of *General Theorems*, not wishing to give them any other name, lest he might appear to anticipate the labours of his friend and former preceptor. The greater part of the propositions contained in that work are porisms, but without demonstrations; therefore, whoever wishes to investigate one of the most curious subjects in geometry, will there find abundance of materials, and an ample field for discussion.

Dr Simson defines a porism to be "a proposition, in which it is proposed to demonstrate, that one or more things are given, between which, and every one of innumerable other things not given, but assumed according to a given law, a certain relation described in the proposition is shown to take place."

This definition is not a little obscure, but will be plainer if expressed thus: "A porism is a proposition affirming the possibility of finding such conditions as will render a certain problem indeterminate, or capable of innumerable solutions." This definition agrees with Pappus's idea of these propositions, so far at least as they can be understood from the fragment already mentioned; for the propositions here defined, like those which he describes, are, strictly speaking, neither theorems nor problems, but of an intermediate nature between both; for they neither simply enunciate a truth to be demonstrated, nor propose a question to be resolved, but are affirmations of a truth in which the determination of an unknown quantity is involved. In as far, therefore, as they assert that a certain problem may become indeterminate, they are of the nature of theorems; and, in as far as they seek to discover the conditions by which that is brought about, they are of the nature of problems.

We shall endeavour to make our readers understand this

Porism. this subject distinctly, by considering them in the way in which it is probable they occurred to the ancient geometers in the course of their researches: this will at the same time show the nature of the analysis peculiar to them, and their great use in the solution of problems.

It appears to be certain, that it has been the solution of problems which, in all states of the mathematical sciences, has led to the discovery of geometrical truths: the first mathematical inquiries, in particular, must have occurred in the form of questions, where something was given, and something required to be done; and by the reasoning necessary to answer these questions, or to discover the relation between the things given and those to be found, many truths were suggested, which came afterwards to be the subject of separate demonstrations.

The number of these was the greater, because the ancient geometers always undertook the solution of problems, with a scrupulous and minute attention, inasmuch that they would scarcely suffer any of the collateral truths to escape their observation.

Now, as this cautious manner of proceeding gave an opportunity of laying hold of every collateral truth connected with the main object of inquiry, these geometers soon perceived, that there were many problems which in certain cases would admit of no solution whatever, in consequence of a particular relation taking place among the quantities which were given. Such problems were said to become impossible; and it was soon perceived, that this always happened when one of the conditions of the problem was inconsistent with the rest. Thus, when it was required to divide a line, so that the rectangle contained by its segments might be equal to a given space, it was found that this was possible only when the given space was less than the square of half the line; for when it was otherwise, the two conditions defining, the one the magnitude of the line, and the other the rectangle of its segments, were inconsistent with each other. Such cases would occur in the solution of the most simple problems; but if they were more complicated, it must have been remarked, that the constructions would sometimes fail, for a reason directly contrary to that just now assigned. Cases would occur, where the lines, which by their intersection were to determine the thing sought, instead of intersecting each other as they did commonly, or of not meeting at all as in the above mentioned case of impossibility, would coincide with one another entirely, and of course leave the problem unresolved. It would appear to geometers upon a little reflection, that since, in the case of determinate problems, the thing required was determined by the intersection of the two lines already mentioned, that is, by the points common to both; so in the case of their coincidence, as all their parts were in common, every one of these points must give a solution, or, in other words, the solutions must be indefinite in number.

Upon inquiry, it would be found that this proceeded from some condition of the problem having been involved in another, so that, in fact, the two formed but one, and thus there was not a sufficient number of independent conditions to limit the problem to a single or any determinate number of solutions. It would soon be perceived, that these cases formed very curious propositions

of an intermediate nature between problems and theorems; and that they admitted of being enunciated in a manner peculiarly elegant and concise. It was to such propositions that the ancients gave the name of *porisms*. This deduction requires to be illustrated by an example: suppose, therefore, that it were required to resolve the following problem.

A circle ABC (fig. 1.), a straight line DE, and a point F, being given in position, to find a point G in the straight line DE such, that GF, the line drawn from it to the given point, shall be equal to GB, the line drawn from it touching the given circle.

Suppose G to be found, and GB to be drawn touching the given circle ABC in B, let H be its centre, join HB, and let HD be perpendicular to DE. From D draw DL, touching the circle ABC in L, and join HL; also from the centre G, with the distance GB or GF, describe the circle BKF, meeting HD in the points K and K'. It is evident that HD and DL are given in position and magnitude: also because GB touches the circle ABC, HBG is a right angle; and since G is the centre of the circle BKF, HB touches that circle, and consequently HB^2 or $HL^2 = KH \times HK'$; but because KK' is bisected in D, $KH \times HK' + DK^2 = DH^2$, therefore $HL^2 + DK^2 = DH^2$. But $HL^2 + LD^2 = DH^2$, therefore $DK^2 = DL^2$ and $DK = DL$. But DL is given in magnitude, therefore DK is given in magnitude, and consequently K is a given point. For the same reason K', is a given point, therefore the point F being given in position, the circle KFK' is given in position. The point G, which is its centre, is therefore given in position, which was to be found. Hence this construction:

Having drawn HD perpendicular to DE, and DL touching the circle ABC, make DK and DK' each equal to DL, and find G the centre of the circle described through the points K'FK; that is, let FK' be joined and bisected at right angles by MN, which meets DE in G, G will be the point required; or it will be such a point, that if GB be drawn touching the circle ABC, and GF to the given point, GB is equal to GF.

The synthetical demonstration is easily derived from the preceding analysis; but it must be remarked, that in some cases this construction fails. For, first, if F fall anywhere in DH, as at F', the line MN becomes parallel to DE, and the point G is nowhere to be found; or, in other words, it is at an infinite distance from D.—This is true in general; but if the given point F coincide with K, then MN evidently coincides with DE; so that, agreeable to a remark already made, every point of the line DE may be taken for G, and will satisfy the conditions of the problem; that is to say, GB will be equal to GK, wherever the point G is taken in the line DE: the same is true if F coincide with K. Thus we have an instance of a problem, and that too a very simple one, which, in general, admits but of one solution; but which, in one particular case, when a certain relation takes place among the things given, becomes indefinite, and admits of innumerable solutions. The proposition which results from this case of the problem is a *porism*, and may be thus enunciated:

“A circle ABC being given by position, and also a straight line DE, which does not cut the circle, a point K may be found, such, that if G be any point whatever

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Plate

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fig. 1.

Porism.

in DE, the straight line drawn from G to the point K shall be equal to the straight line drawn from G touching the given circle ABC."

The problem which follows appears to have led to the discovery of many porisms.

Fig. 2.

A circle ABC (fig. 2.) and two points D, E, in a diameter of it being given, to find a point F in the circumference of the given circle; from which, if straight lines be drawn to the given points E, D, these straight lines shall have to one another the given ratio of α to β , which is supposed to be that of a greater to a less.— Suppose the problem resolved, and that F is found, so that FE has to FD the given ratio of α to β ; produce EF towards B, bisect the angle EFD by FL, and DFB by FM: therefore $EL : LD :: EF : FD$, that is in a given ratio, and since ED is given, each of the segments EL, LD, is given, and the point L is also given; again, because DFB is bisected by FM, $EM : MD :: EF : FD$, that is, in a given ratio, and therefore M is given. Since DFL is half of DFE, and DFM half of DFB, therefore LFM is half of (DFE + DFB), that is, the half of two right angles, therefore LFM is a right angle; and since the points L, M, are given, the point F is in the circumference of a circle described upon LM as a diameter, and therefore given in position. Now the point F is also in the circumference of the given circle ABC, therefore it is in the intersection of the two given circumferences, and therefore is found. Hence this construction: Divide ED in L, so that EL may be to LD in the given ratio of α to β , and produce ED also to M, so that EM may be to MD in the same given ratio of α to β ; bisect LM in N, and from the centre N, with the distance NL, describe the semicircle LFM; and the point F, in which it intersects the circle ABC, is the point required.

The synthetical demonstration is easily derived from the preceding analysis. It must, however, be remarked, that the construction fails when the circle LFM falls either wholly within or wholly without the circle ABC, so that the circumferences do not intersect; and in these cases the problem cannot be solved. It is also obvious that the construction will fail in another case, viz. when the two circumferences LFM, ABC, entirely coincide. In this case, it is farther evident, that every point in the circumference ABC will answer the conditions of the problem, which is therefore capable of numberless solutions, and may, as in the former instances, be converted into a porism. We are now to inquire, therefore, in what circumstances the point L will coincide with A, and also the point M with C, and of consequence the circumference LFM with ABC. If we suppose that they coincide, $EA : AD :: \alpha : \beta :: EC : CD$, and $EA : EC :: AD : CD$, or by conversion, $EA : AC :: AD : CD - AD :: AD : 2DO$, O being the centre of the circle ABC; therefore, also, $EA : AO :: AD : DO$, and by composition, $EO : AO :: AO : DO$, therefore $EO \times OD = AO^2$. Hence, if the given points E and D (fig. 3.) be so situated that $EO \times OD = AO^2$, and at the same time $\alpha : \beta :: EA : AD :: EC : CD$, the problem admits of numberless solutions; and if either of the points D or E be given, the other point, and also the ratio which will render the problem indeterminate, may be found. Hence we have this porism:

Fig. 3.

"A circle ABC, and also a point D being given, another point E may be found, such that the two lines

Porism.

inflected from these points to any point in the circumference ABC, shall have to each other a given ratio, which ratio is also to be found." Hence also we have an example of the derivation of porisms from one another, for the circle ABC, and the points D and E remaining as before (fig. 3.), if, through D we draw any line whatever HDB, meeting the circle in B and H; and if the lines EB, EH, be also drawn, these lines will cut off equal circumferences BF, HG. Let FC be drawn, and it is plain from the foregoing analysis, that the angles DFC, CFB, are equal; therefore if OG, OB, be drawn, the angles BOC, COG, are also equal; and consequently the angles DOB, DOG. In the same manner, by joining AB, the angle DBE being bisected by BA, it is evident that the angle AOF is equal to AOH, and therefore the angle FOB to HOG; hence the arch FB is equal to the arch HG. It is evident that if the circle ABC, and either of the points DE were given, the other point might be found. Therefore we have this porism, which appears to have been the last but one of the third book of Euclid's Porisms. "A point being given, either within or without a circle given by position. If there be drawn, anyhow through that point, a line cutting the circle in two points; another point may be found, such, that if two lines be drawn from it to the points in which the line already drawn cuts the circle, these two lines will cut off from the circle equal circumferences."

The proposition from which we have deduced these two porisms also affords an illustration of the remark, that the conditions of a problem are involved in one another in the porismatic or indefinite case; for here several independent conditions are laid down, by the help of which the problem is to be resolved. Two points D and E are given, from which two lines are to be inflected, and a circumference ABC, in which these lines are to meet, as also a ratio which these lines are to have to each other. Now these conditions are all independent of one another, so that any one may be changed without any change whatever in the rest. This is true in general; but yet in one case, viz. when the points are so related to another that the rectangle under their distances from the centre is equal to the square of the radius of the circle; it follows, from the preceding analysis, that the ratio of the inflected lines is no longer a matter of choice, but a necessary consequence of this disposition of the points.

From what has been already said, we may trace the imperfect definition of a porism which Pappus ascribes to the later geometers, viz. that it differs from a local theorem, by wanting the hypothesis assumed in that theorem.—Now, to understand this, it must be observed, that if we take one of the propositions called *loci*, and make the construction of the figure a part of the hypothesis, we get what was called by the ancient geometers, a *local theorem*. If, again, in the enunciation of the theorem, that part of the hypothesis which contains the construction be suppressed, the proposition thence arising will be a porism, for it will enunciate a truth, and will require to the full understanding and investigation of that truth, that something should be found, viz. the circumstances in the construction supposed to be omitted.

Thus, when we say, if from two given points E, D, (fig. 3.) two straight lines EF, FD, are inflected to a third point F, so as to be to one another in a given ratio,

Fig. 3.

Fig. 1.

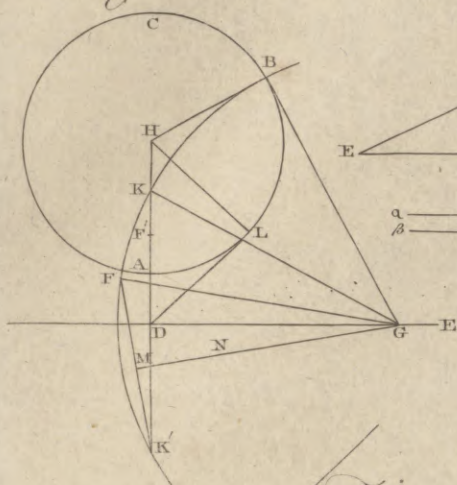


Fig. 2.

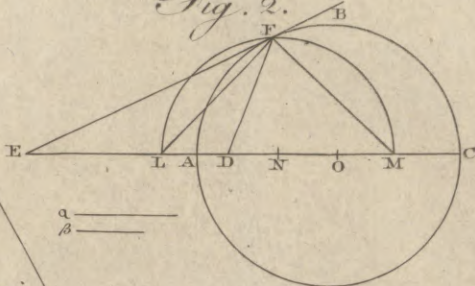


Fig. 3.

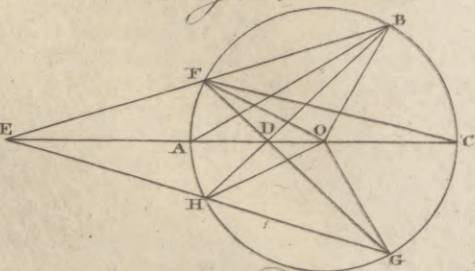


Fig. 6.

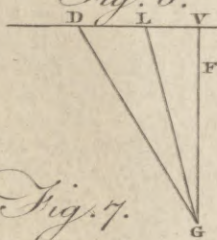


Fig. 5.

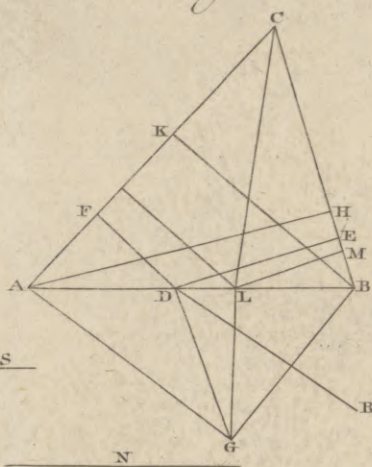


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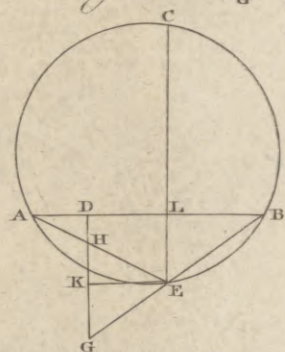
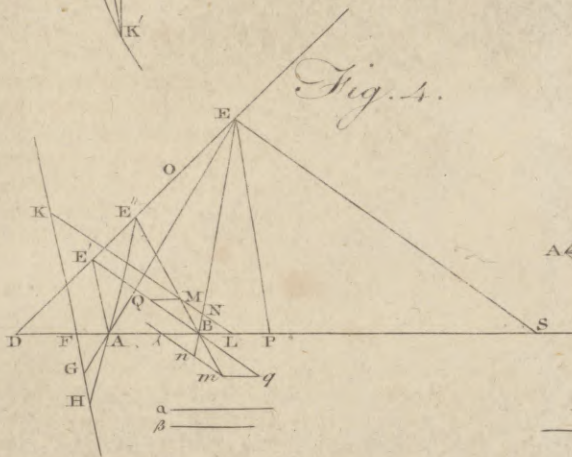


Fig. 4.



Machine for draining Ponds without disturbing the Mud.

Fig. 2.

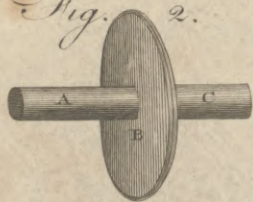
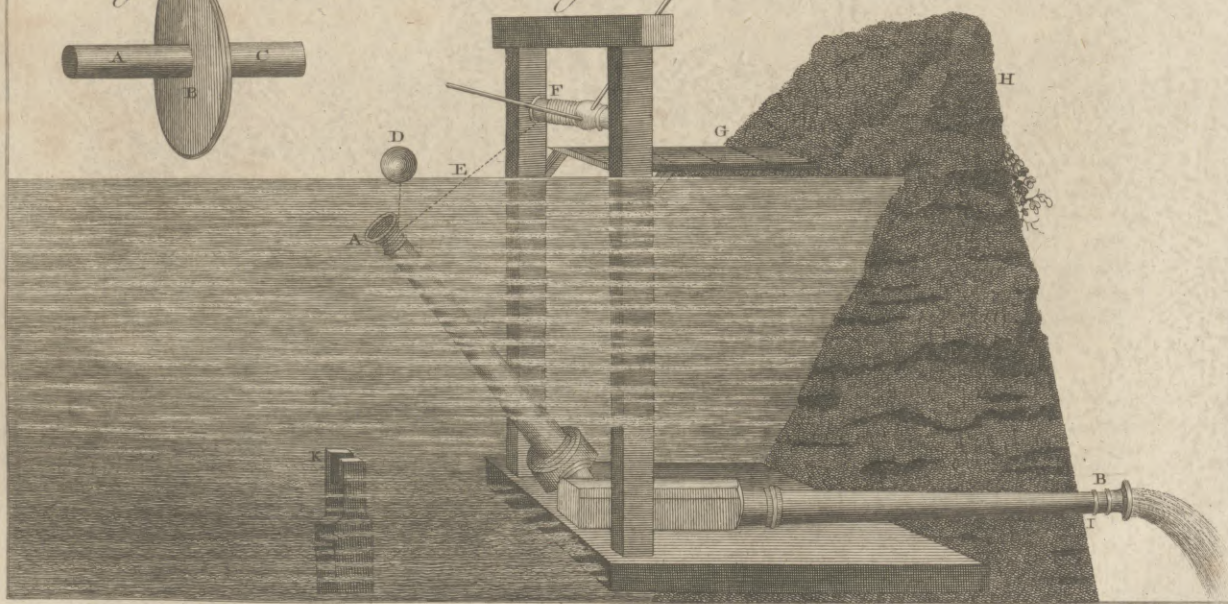


Fig. 1.



Al Bell Pin. W. al. Sculptor. fecit.

Porism. tio, the point F is in the circumference of a given circle, we have a locus. But when conversely it is said, if a circle ABC, of which the centre is O, be given by position, as also a point E; and if D be taken in the line EO, so that $EO \times OD = AO^2$; and if from E and D the lines EF, DF be inflected to any point of the circumference ABC, the ratio of EF to DF will be given, viz. the same with that of EA to AD, we have a local theorem.

Lastly, when it is said, if a circle ABC be given by position, and also a point E, a point D may be found, such that if EF, FD be inflected from E and D to any point F in the circumference ABC, these lines shall have a given ratio to one another, the proposition becomes a porism, and is the same that has just now been investigated.

Hence it is evident, that the local theorem is changed into a porism, by leaving out what relates to the determination of D, and of the given ratio. But though all propositions formed in this way from the conversion of loci, are porisms, yet all porisms are not formed from the conversion of loci; the first, for instance, of the preceding cannot by conversion be changed into a locus; therefore Fermat's idea of porisms, founded upon this circumstance, could not fail to be imperfect.

To confirm the truth of the preceding theory, it may be added, that Professor Dugald Stewart, in a paper read a considerable time ago before the Philosophical Society of Edinburgh, defines a porism to be "A proposition affirming the possibility of finding one or more conditions of an indeterminate theorem;" where, by an indeterminate theorem, he means one which expresses a relation between certain quantities that are determinate and certain others that are indeterminate; a definition which evidently agrees with the explanation which has been here given.

If the idea which we have given of these propositions be just, it follows, that they are to be discovered by considering those cases in which the construction of a problem fails, in consequence of the lines which by their intersection, or the points which by their position, were to determine the problem required, happening to coincide with one another. A porism may therefore be deduced from the problem to which it belongs, just as propositions concerning the *maxima* and *minima* of quantities are deduced from the problems of which they form limitations; and such is the most natural and obvious analysis of which this class of propositions admits.

The following porism is the first of Euclid's, and the first also which was restored. It is given here to exemplify the advantage which, in investigations of this kind, may be derived from employing the *law of continuity* in its utmost extent, and pursuing porisms to those extreme cases where the indeterminate magnitudes increase *ad infinitum*.

This porism may be considered as having occurred in the solution of the following problem: Two points A, B, (fig. 4.) and also three straight lines DE, FK, KL, being given in position, together with two points H and M in two of these lines, to inflect from A and B to a point in the third line, two lines that shall cut off from KF and KL two segments, adjacent to the given points H and M, having to one another the given ratio of α to β . Now, to find whether a porism be connected with this

problem, suppose that there is, and that the following proposition is true. Two points A and B, and two straight lines DE, FK, being given in position, and also a point H in one of them, a line LK may be found, and also a point in it M, both given in position, such that AE and BE inflected from the points A and B to any point whatever of the line DE, shall cut off from the other lines FK and LK segments HG and MN adjacent to the given points H and M, having to one another the given ratio of α to β .

First, let AE', BE', be inflected to the point E', so that AE' may be parallel to FK, then shall E'B be parallel to KL, the line to be found; for if it be not parallel to KL, the point of their intersection must be at a finite distance from the point M, and therefore making as β to α , so this distance to a fourth proportional, the distance from H at which AE' intersects FK, will be equal to that fourth proportional. But AE' does not intersect FK, for they are parallel by construction; therefore BE' cannot intersect KL, which is therefore parallel to BE', a line given in position. Again, let AE'', BE'', be inflected to E'', so that AE'' may pass through the given point H: then it is plain that BE'' must pass through the point to be found M; for if not, it may be demonstrated just as above, that AE'' does not pass through H, contrary to the supposition. The point to be found is therefore in the line E''B, which is given in position. Now if from E there be drawn EP parallel to AE', and ES parallel to BE', BS : SE :: BL

$$: LN = \frac{SE \times BL}{BS}, \text{ and } AP : PE :: AF : FG = \frac{PE \times AF}{AP};$$

$$\text{therefore } FG : LN :: \frac{PE \times AF}{AP} : \frac{SE \times BL}{BS} :: PE \times AF$$

$\times BS : SE \times BL \times AP$; wherefore the ratio of FG to LN is compounded of the ratios of AF to BL, PE to ES, and BS to AP; but PE : SE :: AE' : BE', and BS : AP :: DB : DA, for DB : BS :: DE' : E'E :: DA : AP; therefore the ratio of FG to LN is compounded of the ratios of AF to BL, AE' to BE', and DB to DA. In like manner, because E'' is a point in the line DE and AE'', BE'' are inflected to it, the ratio of FH to LM is compounded of the same ratios of AF to BL, AE' to BE', and DB to DA; therefore FH : LM :: FG : NL (and consequently) :: HG : MN; but the ratio of HG to MN is given, being by supposition the same as that of α to β ; the ratio of FH to LM is therefore also given, and FH being given, LM is given in magnitude. Now LM is parallel to BE', a line given in position; therefore M is in a line QM, parallel to AB, and given in position; therefore the point M, and also the line KLM, drawn through it parallel to BE', are given in position, which were to be found. Hence this construction: From A draw AE' parallel to FK, so as to meet DE in E'; join BE', and take in it BQ, so that $\alpha : \beta :: HF : BQ$, and through Q draw QM parallel to AB. Let HA be drawn, and produced till it meet DE in E'', and draw BE'', meeting QM in M; through M draw KML parallel to BE', then is KML the line and M the point which were to be found. There are two lines which will answer the conditions of this porism; for if in QB, produced on the other side of B, there be taken Bq = BQ, and if qm be drawn parallel to AB, cutting MB in m; and if mλ be drawn parallel to BQ, the part mn, cut

Fig. 4.

Porism. off by EB produced, will be equal to MN, and have to HG the ratio required. It is plain, that whatever be the ratio of α to β , and whatever be the magnitude of FH, if the other things given remain the same, the lines found will be all parallel to BE. But if the ratio of α to β remain the same likewise, and if only the point H vary, the position of KL will remain the same, and the point M will vary.

Another general remark which may be made on the analysis of porisms is, that it often happens, as in the last example, that the magnitudes required may all, or a part of them, be found by considering the extreme cases; but for the discovery of the relation between them, and the indefinite magnitudes, we must have recourse to the hypothesis of the porism in its most general or indefinite form; and must endeavour so to conduct the reasoning, that the indefinite magnitudes may at length totally disappear, and leave a proposition asserting the relation between determinate magnitudes only.

For this purpose Dr Simson frequently employs two statements of the general hypothesis, which he compares together. As for instance, in his analysis of the last porism, he assumes not only E, any point in the line DE, but also another point O, anywhere in the same line, to both of which he supposes lines to be inflected from the points A, B. This double statement, however, cannot be made without rendering the investigation long and complicated; nor is it even necessary, for it may be avoided by having recourse to simpler *porisms*, or to *loci*, or to propositions of the *data*. The following porism is given as an example where this is done with some difficulty, but with considerable advantage both with regard to the simplicity and shortness of the demonstration. It will be proper to premise the following lemma. Let AB (fig. 7.) be a straight line, and D, L any two points in it, one of which D is between A and B; also let CL be any straight line. Then shall

Fig. 7.

$$\frac{LB}{CL} \cdot AD^2 + \frac{LA}{CL} \cdot BD^2 = \frac{LB}{CL} \cdot AL^2 + \frac{LA}{CL} \cdot BL^2 + \frac{AB}{CL} \cdot DL^2.$$

For place CL perpendicular to AB, and through the points A, C, B describe a circle, and let CL meet the circle again in E, and join AE, BE. Also draw DG parallel to CE, meeting AE and BE in H and G, and draw EK parallel to AB. Then, from the elements of geometry,

$$CL : LB :: (LA : LE ::) LA^2 : LA \times LE,$$

$$\text{and hence } LA \times LE = \frac{LB}{CL} \cdot LA^2.$$

$$\text{Also } CL : LA :: (LB : LE ::) LB^2 : LB \times LE,$$

$$\text{and hence } LB \times LE = \frac{LA}{CL} \cdot LB^2.$$

$$\text{Now } CL : LB :: LA : LE :: EK \text{ or } LD : KH,$$

$$\text{and } CL : LA :: LB : LE :: EK \text{ or } LD : KG,$$

therefore, (GEOM. Sect. III. Theor. 8.)

$$CL : AB :: (LD : GH ::) LD^2 : EK \times GH,$$

$$\text{and hence } EK \times GH = \frac{AB}{CL} \cdot LD^2.$$

From the three equations which we have deduced from

the first, second, and fifth of these propositions, it is manifest that

$$\frac{LB}{CL} \cdot LA^2 + \frac{LA}{CL} \cdot LB^2 + \frac{AB}{CL} \cdot LD^2 = AB \times LE + EK \times GH.$$

Again, because

$$CL : LA :: (LB : LE :: DB : DG ::) DB^2 : DB \times DG,$$

$$\text{therefore } DB \times DG = \frac{LA}{CL} \cdot DB^2.$$

And because

$$CL : LB :: (LA : LE :: DA : DH ::) DA^2 : DA \times DH,$$

$$\text{therefore } DA \times DH = \frac{LB}{CL} \cdot DA^2.$$

From the result of these two last propositions we have

$$\frac{LB}{CL} \cdot DA^2 + \frac{LA}{CL} \cdot DB^2 = DA \times DH + DB \times DG;$$

But $DA \times DH =$ twice trian. ADH, and $DB \times DG =$ twice trian. BDG, and therefore $DA \times DH + DB \times DG = 2(\text{trian. ADH} + \text{trian. BDG}) = 2(\text{trian. AEB} + \text{trian. HEG}) = AB \times LE + EK \times HG.$ Now it has

been proved, that $DA \times DH + DB \times DG = \frac{LB}{CL} \cdot DA^2$

+ $\frac{LA}{CL} \cdot DB^2$, and that $AB \times LE + EK \times HG = \frac{LB}{CL} \cdot DA^2$

+ $\frac{LA}{CL} \cdot DB^2 + \frac{AB}{CL} \cdot LD^2$, therefore $\frac{LB}{CL} \cdot DA^2 +$

$\frac{LA}{CL} \cdot DB^2 = \frac{LB}{CL} \cdot AL^2 + \frac{LA}{CL} \cdot BL^2 + \frac{AB}{CL} \cdot DL^2$, as was

to be demonstrated.

Porism. Let there be three straight lines AB, AC, CB given in position (fig. 5.); and from any point whatever in one of them, as D, let perpendiculars be drawn to the other two, as DF, DE, a point G may be found, such, that if GD be drawn from it to the point D, the square of that line shall have a given ratio to the sum of the squares of the perpendiculars DF and DE, which ratio is to be found.

Draw AH, BK perpendicular to BC and AC; and in AB take L, so that $AL : LB :: AH^2 : BK^2 :: AC^2 : CB^2$. The point L is therefore given; and if a line N be taken, so as to have to AL the same ratio that AB^2 has to AH^2 , N will be given in magnitude. Also, since $AH^2 : BK^2 :: AL : LB$, and $AH^2 : AB^2 :: AL : N$, *ex equo*, $BK^2 : AB^2 :: LB : N$. Draw LO, LM perpendicular to AC, CB; LO, LM are therefore given in magnitude. Now, because $AB^2 : BK^2 ::$

$$AD^2 : DF^2, N : LB :: AD^2 : DF^2, \text{ and } DF^2 = \frac{LB}{N} \cdot AD^2;$$

$$\text{and for the same reason } DE^2 = \frac{AL}{N} \cdot BD^2; \text{ but,}$$

$$\text{by the preceding lemma, } \frac{LB}{N} \cdot AD^2 + \frac{AL}{N} \cdot BD^2 = \frac{LB}{N} \cdot AL^2 + \frac{AL}{N} \cdot BL^2 + \frac{AB}{N} \cdot DL^2;$$

$$\text{that is, } DE^2 + DF^2 = LO^2 + LM^2 + \frac{AB}{N} \cdot DL^2.$$

Join LG, then by hypothesis $LO^2 + LM^2$ has to LG^2 , the same ratio as $DF^2 + DE^2$ has to DG^2 ; let it be that of R to N, then $LO^2 + LM^2$

Porism. $LM^2 = \frac{R}{N} \cdot LG^2$; and therefore $DE^2 + DF^2 = \frac{R}{N} \cdot LG^2 + \frac{AB}{N} \cdot DL^2$; but $DE^2 + DF^2 = \frac{R}{N} \cdot DG^2$; therefore, $\frac{R}{N} \cdot LG^2 + \frac{BA}{N} \cdot DL^2 = \frac{R}{N} \cdot DG^2$, and $\frac{AB}{N} \cdot DL^2 = \frac{R}{N} (DG^2 -$

$LG^2)$; therefore $DG^2 - LG^2$ has to DL^2 a constant ratio, viz. that of AB to R . The angle DLG is therefore a right angle, and the ratio of AB to R that of equality, otherwise LD would be given in magnitude, contrary to the supposition. LG is therefore given in position: and since $R : N :: AB : N :: LO^2 + LM^2 : LG^2$; therefore the square of LG , and consequently LG , is given in magnitude. The point G is therefore given, and also the ratio of $DE^2 + DF^2$ to DG^2 , which is the same with that of AB to N .

The construction easily follows from the analysis, but it may be rendered more simple; for since $AH^2 : AB^2 :: AL : N$, and $BK^2 : AB^2 :: BL : N$; therefore $AH^2 + BK^2 : AB^2 :: AB : N$. Likewise, if AG, BG , be joined, $AB : N :: AH^2 : AG^2$, and $AB : N :: BK^2 : BG^2$; wherefore $AB : N :: AH^2 + BK^2 : AG^2 + BG^2$, but it was proved that $AB : N :: AH^2 + BK^2 : AB^2$, therefore $AG^2 + BG^2 = AB^2$; therefore the angle AGB is a right one, and $AL : LG :: LG : LB$. If therefore AB be divided in L , so that $AL : LB :: AH^2 : BK^2$; and if LG , a mean proportional between AL and LB , be placed perpendicular to AB , G will be the point required.

The step in the analysis, by which a second introduction of the general hypothesis is avoided, is that in which the angle GLD is concluded to be a right angle; which follows from $DG^2 - GL^2$ having a given ratio to LD^2 , at the same time that LD is of no determinate magnitude. For, if possible, let GLD be obtuse (fig. 6.), and let the perpendicular from G to AB meet it in V , therefore V is given: and since $GD^2 - LG^2 = LD^2 + 2DL \times LV$; therefore, by the supposition, $LD^2 + 2DL \times LV$ must have a given ratio to LD^2 ; therefore the ratio of LD^2 to $DL \times VL$, that is, of LD to VL , is given, so that VL being given in magnitude, LD is also given. But this is contrary to the supposition; for LD is indefinite by hypothesis, and therefore GLD cannot be obtuse, nor any other than a right angle. The conclusion that is here drawn immediately from the indetermination of LD would be deduced, according to Dr Simson's method, by assuming another point D' any how, and from the supposition that $GD'^2 - GL^2 : LD'^2 :: GD^2 - GL^2 : LD^2$, it would easily appear that GLD must be a right angle, and the ratio that of equality.

These porisms facilitate the solution of the general problems from which they are derived. For example, let three straight lines AB, AC, BC (fig. 5.), be given in position, and also a point R , to find a point D in one of the given lines, so that DE and DF being drawn perpendicular to BC, AC , and DR , joined; $DE^2 + DF^2$ may have to DR^2 a given ratio. It is plain, that having found G , the problem would be nothing more than to find D , such that the ratio of GD^2 to DR^2 , and therefore that of GD to DR , might be given, from which it would follow, that the point D is in the circumference of a given circle, as is well known to geometers.

The same porism also assists in the solution of another problem. For if it were required to find D such that $DE^2 + DF^2$ might be a given space; having found G , DG^2 would have to $DE^2 + DF^2$ a given ratio, and DG would therefore be given; whence the solution is obvious.

The connection of this porism with the impossible case of the problem is evident; the point L being that from which, if perpendiculars be drawn to AC and CB , the sum of their squares is the least possible. For since $DF^2 + DE^2 : DG^2 :: LO^2 + LM^2 : LG^2$; and since LG is less than DG , $LO^2 + LM^2$ must be less than $DF^2 + DE^2$.

It is evident from what has now appeared, that in some instances at least there is a close connection between these propositions and the *maxima* or *minima*, and of consequence the impossible cases of problems. The nature of this connection requires to be farther investigated, and is the more interesting because the transition from the indefinite to the impossible case seems to be made with wonderful rapidity. Thus in the first proposition, though there be not properly speaking an impossible case, but only one where the point to be found goes off *ad infinitum*, it may be remarked, that if the given point F be anywhere out of the line HD (fig. 1.), the problem of drawing GB equal to GF is always possible, and admits of just one solution; but if F be in DH , the problem admits of no solution at all, the point being then at an infinite distance, and therefore impossible to be assigned. There is, however, this exception, that if the given point be at K in this same line, DH is determined by making DK equal to DL . Then every point in the line DE gives a solution, and may be taken for the point G . Here therefore the case of numberless solutions, and of no solution at all, are as it were *conteminal*, and so close to one another, that if the given point be at K the problem is indefinite; but if it remove ever so little from K , remaining at the same time in the line DH , the problem cannot be resolved. This affinity might have been determined *a priori*: for it is, as we have seen, a general principle, that a problem is converted into a porism when one or when two of the conditions of it necessarily involve in them some one of the rest. Suppose, then, that two of the conditions are exactly in that state which determines the third; then while they remain fixed or given, should that third one vary or differ ever so little from the state required by the other two, a contradiction will ensue: therefore if, in the hypothesis of a problem, the conditions be so related to one another as to render it indeterminate, a porism is produced; but if, of the conditions thus related to one another, some one be supposed to vary, while the others continue the same, an absurdity follows, and the problem becomes impossible. *Wherever, therefore, any problem admits both of an indeterminate and an impossible case, it is certain, that these cases are nearly related to one another, and that some of the conditions by which they are produced are common to both.*

It is supposed above, that *two* of the conditions of a problem involve in them a third; and wherever that happens, the conclusion which has been deduced will invariably take place. But a porism may in some cases be so simple as to arise from the mere coincidence of *one* condition with another, though in no case whatever any inconsistency can take place between them. There are,

Porism.

however, comparatively few porisms so simple in their origin, or that arise from problems where the conditions are but little complicated; for it usually happens that a problem which can become indefinite may also become impossible; and if so, the connection already explained never fails to take place.

Another species of impossibility may frequently arise from the porismatic case of a problem which will affect in some measure the application of geometry to astronomy, or any of the sciences depending on experiment or observation. For when a problem is to be resolved by means of data furnished by experiment or observation, the first thing to be considered is, whether the data so obtained be sufficient for determining the thing sought; and in this a very erroneous judgement may be formed, if we rest satisfied with a general view of the subject; for though the problem may in general be resolved from the data with which we are provided, yet these data may be so related to one another in the case under consideration, that the problem will become indeterminate, and instead of one solution will admit of an indefinite number. This we have already found to be the case in the foregoing propositions. Such cases may not indeed occur in any of the practical applications of geometry; but there is one of the same kind which has actually occurred in astronomy. Sir Isaac Newton, in his *Principia*, has considered a small part of the orbit of a comet as a straight line described with an uniform motion. From this hypothesis, by means of four observations made at proper intervals of time, the determination of the path of the comet is reduced to this geometrical problem: Four straight lines being in position, it is required to draw a fifth line across them, so as to be cut by them into three parts, having given ratios to one another. Now this problem had been constructed by Dr Wallis and Sir Christopher Wren, and also in three different ways by Sir Isaac himself in different parts of his works; yet none of these geometers observed that there was a particular situation of the lines in which the problem admitted of innumerable solutions: and this happens to be the very case in which the problem is applicable to the determination of the comet's path, as was first discovered by the abbé Boscovich, who was led to it by finding, that in this way he could never determine the path of a comet with any degree of certainty.

Besides the geometrical there is also an algebraical analysis belonging to porisms; which, however, does not belong to this place, because we give this account of them merely as an article of ancient geometry; and the ancients never employed algebra in their investigations. Mr Playfair, formerly professor of mathematics, and now of natural philosophy in the university of Edinburgh, has written a paper on the origin and geometrical investigation of porisms, which is published in the third volume of the *Transactions of the Royal Society of Edinburgh*, from which this account of the subject is taken. He has there promised a second part to his paper, in which the algebraical investigation of porisms is to be considered. This will no doubt throw considerable light upon the subject, as we may readily judge from that gentleman's known abilities, and from the specimen he has already given us in the first part.

Such as are desirous of knowing more of this subject may consult Dr Simson's treatise *De Porismatibus*, which

is contained in his *Opera Reliqua*, published after his death at the sole expence of the earl of Stanhope. We have already mentioned Dr Stewart's *General Theorems*, which contain many beautiful porisms, but without demonstrations. A considerable number of them, however, have been demonstrated by the late Dr R. Small, of Dundee, in the *Trans. R. S. Edin.* vol. ii. There is also a paper upon the subject of porisms by Mr W. Wallace, now of the Royal Military College, in the fourth volume of the same work, entitled *Some Geometrical Porisms, with examples of their application to the Solution of Problems*.

PORK, the flesh of swine killed for the purposes of food. See Sus.

The hog is the only domestic animal that we know of no use to man when alive, and therefore seems properly designed for food. Besides, as loathsome and ugly to every human eye, it is killed without reluctance. The Pythagoreans, whether to preserve health, or on account of compassion, generally forbade the use of animal food; and yet it is alleged that Pythagoras reserved the use of hog's flesh for himself. The Jews, the Egyptians, &c. and other inhabitants of warm countries, and all the Mahometans at present, reject the use of pork. It is difficult to find a satisfactory reason for this, or for the precept given to the Jews respecting it, though unquestionably there was some good one for it. The Greeks gave great commendations to this food; and Galen, though indeed that is suspected to be from a particular fondness, is everywhere full of it. The Romans considered it as one of their delicacies; and if some of the inhabitants of the northern climates have taken an aversion to it, that probably arose from the uncultivated state of their country not being able to rear it. Pork is of a very tender structure; increased perhaps from a peculiarity in its economy, viz. taking on fat more readily than any other animal. Pork is a white meat even in its adult state, and then gives out a jelly in very great quantity. On account of its little perspirability and tenderness it is very nutritious, and was given for that intention to the *athletæ*. With regard to its alkalency, no proper experiments have yet been made; but as it is of a gelatinous and succulent nature, it is probably less so than many others. Upon the whole, it appears to be a very valuable nutriment; and the reason is not very obvious why it was in some countries forbid. It is said that this animal is apt to be diseased; but why were not inconveniences felt on that account in Greece? Again, it has been alleged, that as Palestine would not rear these animals, and as the Jews had learned the use of them in Egypt, it was necessary they should have a precept to avoid them. But the Egyptians themselves did not use the meat; and this religious precept, indeed, as well as many others, seems to have been borrowed from them. Possibly, as pork is not very perspirable, it might increase the leprosy, which was said to be epidemic in Palestine; though this is far from being certain.

PORLOCK, in the county of Somerset in England, is a small sea-port town six miles west from Minehead. This whole parish, including hamlets, contains about 110 houses, and nearly 600 inhabitants. The situation of the town is very romantic, being nearly surrounded on all sides, except towards the sea, by steep and lofty hills, intersected by deep vales and hollow glens. Some

Porism
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Porphyry.

of the hills are beautifully wooded, and contain numbers of wild deer. The valleys are very deep and picturesque; the sides being steep, scarred with wild rocks, and patched with woods and forest shrubs. Some of them are well cultivated and studded with villages or single farms and cottages, although agriculture here is very imperfectly understood. Most of the roads and fields are so steep, that no carriages of any kind can be used; all the crops are therefore carried in with crooks on horses, and the manure in wooden pots called *dossels*. Many of the poor are employed in spinning yarn for the Dunster manufactory. W. Long. 3. 32. N. Lat. 51. 14.

PORO. See CALAURIA.

PORPESE. See DELPHINUS, CETOLOGY *Index*.

PORPHYRIUS, a famous Platonic philosopher, was born at Tyre in 233, in the reign of Alexander Severus. He was the disciple of Longinus, and became the ornament of his school at Athens; from thence he went to Rome, and attended Plotinus, with whom he lived six years. After Plotinus's death he taught philosophy at Rome with great applause; and became well skilled in polite literature, geography, astronomy, and music. He lived till the end of the third century, and died in the reign of Dioclesian. There are still extant his book on the Categories of Aristotle; a Treatise on Abstinence from Flesh; and several other pieces in Greek. He also composed a large treatise against the Christian religion, which is lost. That work was answered by Methodius bishop of Tyre, and also by Eusebius, Apollinarius, St Augustin, St Jerome, St Cyril, and Theodoret. The emperor Theodosius the Great caused Porphyrius's book to be burned in 338. Those of his works that are still extant were printed at Cambridge in 1655, 8vo, with a Latin version.

"Porphyrius (says Dr Enfield) was, it must be owned, a writer of deep erudition; and had his judgement and integrity been equal to his learning, he would have deserved a distinguished place among the ancients. But neither the splendor of his diction, nor the variety of his reading, can atone for the credulity or the dishonesty which filled the narrative part of his works with so many extravagant tales, or interest the judicious reader in the abstruse subtilties and mystical flights of his philosophical writings."

PORPHYRY, a compound rock, essentially consisting of some base or ground, in which are interspersed crystals of some other substance, as when an argillaceous stone, or a pitchstone, has crystals of feldspar or quartz interspersed in it, and hence is denominated an argillaceous or pitchstone porphyry. See GEOLOGY *Index*. Porphyry is still found in immense strata in Egypt. The hard red-lead coloured porphyry, variegated with black, white, and green, is a most beautiful and valuable substance. It has the hardness and all the other characters of the oriental porphyry; and even greatly excels it in brightness, and in the beauty and variegation of its colours. It is found in great plenty in the island of Minorca; and is well worth importing, being greatly superior to all the Italian marbles. The hard, pale-red porphyry, variegated with black, white, and green, is of a pale flesh-colour; often approaching to white. It is variegated in blotches from half an inch to an inch broad. It takes a high polish, and emulates all the qualities of the oriental porphyry. It is found in immense strata in Arabia Petrea, and in the

Upper Egypt; and in separate nodules in Germany, England, and Ireland. Porphyry.

Ficoroni takes notice of two exquisitely fine columns of black porphyry in a church at Rome. In Egypt there are three celebrated obelisks or pillars of porphyry, one near Cairo and two at Alexandria. The French call them *aguglias*, and in England they are called *Cleopatra's needles*.

The art of cutting porphyry, practised by the ancients, appears now to be lost. Indeed it is difficult to conceive what tools they used for fashioning those huge columns and other porphyry works in some of the ancient buildings in Rome. One of the most considerable of these, still entire, is a tomb of Constantia, the emperor Constantine's daughter. It is in the church of St Agnes, and is commonly called *the tomb of Bacchus*. In the palace of the Thuilleries there is also a bust of Apollo and of twelve emperors, all in porphyry. Some ancient pieces seem to have been wrought with the chisel, others with the saw, others with wheels, and others gradually ground down with emery. Yet modern tools will scarcely touch porphyry. Dr Lister therefore thinks *, that the ancients had the secret of tempering steel better than we; and not, as some imagine, that they had the art of softening the porphyry; though it is probable that time and air have contributed to increase its hardness. Mr Addison says, he saw a workman at

Rome cutting porphyry; but his advances were extremely slow and almost insensible. The Italian sculptors work the pieces of old porphyry columns still remaining (for the porphyry quarries are long since lost) with a brass saw without teeth. With this saw, emery, and water, they rub and wear the stone with infinite patience. Many persons have endeavoured to retrieve the ancient art, and particularly Leon Baptista Alberti; who, searching for the necessary materials for temper, says, he found goats blood the best of any; but even this avails not much; for in working with chisels tempered with it, sparks of fire came much more plentifully than pieces of the stone. The sculptors were thus, however, able to make a flat or oval form; but could never attain to any thing like a figure.

In the year 1555, Cosmo de Medicis is said to have distilled a water from certain herbs, with which his sculptor Francesco Tadda gave his tools such an admirable hardness and so fine a temper, that he performed some very exquisite works with them; particularly our Saviour's head in demi-relievo, and Cosmo's head and his duchess's. The very hair and beard, how difficult soever, are here well conducted; and there is nothing of the kind superior to it in all the works of the ancients; but the secret appears to have died with him. The French have discovered another mode of cutting porphyry, viz. with an iron saw without teeth, and *grec*; a kind of free stone pulverized, and water. The authors of this invention say, that they could form the whole contour of a column hereby if they had matter to work on. Others have proposed to harden tools so as to cut porphyry, by steeping them in the juice of the plant called *bear's-breech* or *brankursine*. See Birch's *Hist. R. S.* vol. i. p. 238. vol. ii. p. 73. &c. Mr Boyle says, that he caused porphyry to be cut by means of emery, steel saws, and water; and observes, that in his time the English workmen were ignorant of the manner of working porphyry, and that none of them would undertake

* *Philosoph. Transact.* N^o 203. or *Lowth's Abrid.* vol. ii. p. 560.

Porphyry undertake to cut or polish it. See his Works abr. vol. i. p. 11.

Da Costa supposes, and perhaps with reason, that the method used by the ancients in cutting and engraving porphyry was extremely simple, and that it was performed without the aid of any scientific means that are now lost. He imagines, that, by unwearied diligence, and with numbers of common tools at great expence, they rudely hewed or broke the stone into the intended figure, and by continued application reduced them into more regular designs; and that they completed the work by polishing it with great labour, by the aid of particular hard sands found in Egypt. And he thinks, that in the porphyry quarries there were layers of grit or loose disunited particles, analogous to the porphyry, which they carefully sought for, and used for this work. See *Hist. Nat. of Fossils*, p. 285.

PORPHYRY-Shell. See MUREX, CONCHOLOGY Index.

PORPITES, the HAIR-BUTTON STONE, in *Natural History*, a name given by some authors to a small species of fossil coral; which is usually of a rounded figure considerably flattened, and striated from the centre to the circumference. These are of different sizes and of different colours, as grayish, whitish, brownish, or bluish, and are usually found immersed in stone.

PORRUM, the LEEK; a species of plants, belonging to the genus of *Allium*. See ALLIUM, BOTANY Index; and for an account of the method of cultivation, see GARDENING.

PORT, a harbour, river, or haven, formed either by nature or art to receive and shelter shipping from the storms and waves of the open sea.

Artificial ports are those which are either formed by throwing a strong mound or rampire across the harbour's mouth to some island or rock, or erecting two long barriers, which stretch from the land on each side like arms or the horns of a crescent, and nearly inclose the haven; the former of these are called *mole-heads* and the latter *piers*.

PORT, is also a name given on some occasions to the larboard or left side of the ship, as in the following instances. Thus it is said, "the ship heels to port," *i. e.* stoops or inclines to the larboard-side. "Top the yard to port!" the order to make the larboard extremity of a yard higher than the other. "Port the helm!" the order to put the helm over to the larboard-side of the vessel. In all these senses this phrase appears intended to prevent any mistakes happening from the similarity of sounds in the words *starboard* and *larboard*, particularly when they relate to the helm, where a misapprehension might be attended with very dangerous consequences.

PORTS, the embrasures or openings in the side of a ship of war, wherein the artillery is ranged in battery upon the decks above and below.

The ports are formed of a sufficient extent to point and fire the cannon, without injuring the ship's side by the recoil; and as it serves no end to enlarge them beyond what is necessary for that purpose, the shipwrights have established certain dimensions, by which they are cut in proportion to the size of the cannon.

The ports are shut in at sea by a sort of hanging-doors called the *port-lids*; which are fastened by hinges to their upper edges, so as to let down when the cannon are drawn into the ship. By this means the water

is prevented from entering the lower decks in a turbulent sea. The lower and upper edges of the ports are always parallel to the deck, so that the guns, when levelled in their carriages, are all equally high above the lower extremity of the ports, which is called the *port-cells*.

PORT, is also a strong wine brought from Port-a-port, and also called *Porto* and *Oporto*.

PORT of the Voice, in *Music*, the faculty or habit of making the shakes, passages, and diminutions, in which the beauty of a song or piece of music consists.

PORT-Crayon, a pencil-case, which is usually four or five inches long, and contrived so as that the pencil may slide up and down. Its inside is round, and its outside is sometimes filed into eight sides or faces, on which are drawn the sector-lines; sometimes it is made round both without-side and within, and has its length divided into inches and parts of inches.

PORT-Fire, a composition for setting fire to powder, &c. Port-fires are frequently used by artillery people in preference to matches; and they are distinguished into wet and dry port fires. The composition of the former is saltpetre four, sulphur one, and mealed powder four. When these materials are thoroughly mixed and sifted, the whole is to be moistened with a little linseed oil, and rubbed between the hands till all the oil is imbibed by the composition. The preparation for dry port-fires is saltpetre four, sulphur one, mealed powder two, and antimony one. These compositions are driven into small paper cases, to be used when necessary.

PORT-aux-Prune, so called by the French, is a country on the coast of Africa, to the north of the island of Madagascar. It is a rich country, and fertile in rice and pastures; it is inhabited only by the negroes, who are an industrious good sort of people, but very superstitious. There are no towns, but several villages, and they have some customs which seem to incline to Judaism.

PORT-Jackson, in New Holland. See *NEW HOLLAND*, N^o 7, &c.

PORT-Royal, a sea-port town in the island of Jamaica. It was once a place of the greatest riches and importance in the West Indies: but in 1692 it was destroyed by an earthquake, in 1702 by fire, in 1722 by an inundation of the sea, and in 1744 it suffered greatly by a hurricane. It is now reduced to three streets, a few lanes, and about 200 houses. It contains the royal navy-yard for heaving down and refitting the king's ships; the navy-hospital, and barracks for a regiment of soldiers. The fortifications, which are very extensive, being in excellent order, and having been lately strengthened with many additional works, it may be said to vie in point of strength with any fortress in the king's dominions. The harbour is one of the best in the world, and 1000 ships may ride therein, secure from every wind that can blow. It is six miles east of Spanish-town, and as much by water south-east of Kingiton. W. Long. 76. 40. N. Lat. 18. 0.

PORT-Royal, an island in North America, on the coast of South Carolina, which, with the neighbouring continent, forms one of the most commodious harbours in the British plantations. It is 15 miles in length; and the town on the north shore is called *Beaufort*. W. Long. 80. 20. N. Lat. 31. 40.

PORT-Royal, the name of two monasteries of Cistercian

Port-Royal nuns in the diocese of Paris; the one near Chevreuse, at the distance of five leagues from Paris, called *Port-Royal of the Fields*; and the other in Paris, in the suburbs of St James.

The nuns of the former of these monasteries proving refractory were dispersed; when many ecclesiastics, and others, who were of the same sentiments as these religious, retired to Port Royal, took apartments there, and printed many books. Hence the name of *Port-Royalists* was given to all their party, and their books were called *books of Port-Royal*: from hence we say the writers of Port-Royal, Messieurs de Port-Royal, and the translations and grammars of Port-Royal.

PORTA, or *Vena PORTA*, in *Anatomy*, a large vein distributed through the liver in the manner of an artery. See ANATOMY, N^o 96.

PORTA-Augusta, in *Ancient Geography*, mentioned only by Ptolemy; a town of the Vaccæi in the Hither Spain; thought by some to be *Torre Quemada*, in Old Castile; by others *Los Valvases*, a village between Burgos and Torre Quemada.

PORTÆ-ROMANÆ, in *Ancient Geography*. According to Pliny, Romulus left but three, or at most four, gates of Rome: afterwards, on enlarging the Pomœria, or compass of the city, they amounted to 37.

PORTAL, in *Architecture*, a little gate where there are two gates of a different bigness; also a little square corner of a room cut off from the rest by the wainscot, and forming a short passage into the room. The same name is also sometimes given to a kind of arch of joiners work before a door.

PORTATE, or a *Cross PORTATE*, in *Heraldry*, a cross which does not stand upright, as crosses generally do; but lies across the escutcheon in bend, as if it were carried on a man's shoulder.

PORTCULLICE, in *Fortification*, is an assemblage of several large pieces of wood, joined across one another like a harrow, and each pointed with iron at the bottom. They are sometimes hung over the gate-way of old fortified towns, ready to let down in case of surprise, when the gates could not be shut.

PORTER, a kind of malt-liquor which differs from ale and pale beer, in its being made with high dried malt. See ALE, BEER, and BREWING.

PORT-GLASGOW. See GLASGOW, N^o 12.

PORTGREVE, or PORTGRAVE, was anciently the principal magistrate in ports and other maritime towns. The word is formed from the Saxon *port*, "a port or other town;" and *geref*, "a governor."—It is sometimes also written *port-reve*.

Camden observes, that the chief magistrate of London was anciently called *port-greve*: instead of whom, Richard I. ordained two bailiffs; and soon afterwards King John granted them a mayor for their yearly magistrature.

PORTICI, a palace of the king of Naples, six miles from that capital. It has a charming situation, on the sea-side, near Mount Vesuvius. It is enriched with a vast number of fine statues, and other remains of antiquity, taken out of the ruins of Herculaneum.

The museum consists of 16 rooms, in which the different articles are arranged with very great taste. The floors are paved with mosaic, taken from the recovered towns, and the walls of the court are lined with inscriptions. Besides busts, statues, medals, intaglios, lamps,

and tripods, there is scarcely an article used by the ancients of which a specimen may not be seen in this museum. "But the most valuable room is the library, from the numerous manuscript rolls which it contains. What a field is here for conjecture! what room for hope! Among this inestimable collection, how many great works are there, of which even the names are now unknown! how many unbroken volumes, whose very fragments, preserved in the writings of the ancient scholiasts, convey to us moral improvement, information, and delight! perhaps all the dramatic pieces of Menander and Philemon; perhaps, nay, certainly, the lost Decades of Livy; for it is impossible to suppose, that among so many rolls, the most admired history of the people who possessed them is not to be found: what private library in Britain is without the best histories of England? But how I tremble for their situation, as Portici is built on the lava that overwhelmed Herculaneum! How I tremble too for the indifference of the king of Naples towards this invaluable treasure, in which all the most enlightened people of Europe are deeply interested! When I first saw them, I had no idea of what they were, as they resemble wooden truncheons burnt almost to charcoal. They are so hard and brittle, that the greatest caution must be used in removing them, lest they crumble to dust; nevertheless, an ingenious friar of Genoa, named *Raggio*, undertook to unroll them; and by a most curious, though tedious process, so far succeeded, as to transcribe three Greek Treatises on Philosophy and Music; but finding (as I hear) no other encouragement than his salary, which was but little more than you pay some of your servants, the work was unhappily discontinued. Were these manuscripts in England, they would not long remain a secret to the world." See POMPEII.

PORTICO, in *Architecture*, a kind of gallery on the ground; or a piazza encompassed with arches supported by columns, where people walk under covert. The roof is usually vaulted, sometimes flat. The ancients called it *lacunar*. Though the word *portico* be derived from *porta*, "gate, door;" yet it is applied to any disposition of columns which form a gallery, without any immediate relation to doors or gates. The most celebrated porticoes of antiquity were, those of Solomon's temple, which formed the atrium or court, and encompassed the sanctuary; that of Athens, built for the people to divert themselves in, and wherein the philosophers held their disputes and conversations, (see PORCH); and that of Pompey at Rome, raised merely for magnificence, consisting of several rows of columns supporting a platform of vast extent; a draught whereof, Serlio gives us in his antique buildings. Among the modern porticoes, the most celebrated is the piazza of St Peter of the Vatican.—That of Covent-Garden, London, the work of Inigo Jones, is also much admired.

PORTII. See POMPEII.

PORTLAND, a peninsula in Dorsetshire, of great strength both by nature and art, being surrounded with inaccessible rocks, except at the landing-place, where there is a strong castle, called *Portland castle*, built by King Henry VIII. There is but one church in the island: and that stands so near the sea, that it is often in danger from it. It is now chiefly noted for the building stone which is found there, and which is greatly employed.

Portici
||
Portland.

Watkin's
Travels
through
Switzerland,
Italy,
&c.

Portland. ployed in London, and other parts of England, for building the finest structures. St Paul's church, in particular, is built of this stone. W. Long. 2. 35. N. Lat. 50. 30.

The following custom at Portland is worthy of notice. "While I was looking over the quarries at Portland (says Mr Smeaton), and attentively considering the operations, observing how soon the quarrymen would cut half a ton of spawls from an unformed block, and what large pieces flew off at every stroke; how speedily their blows followed one another, and how incessantly they pursued this labour with a tool of from 18 to 20 pound weight; I was naturally led to view and consider the figure of the operative agent; and after having observed, that by far the greatest number of the quarrymen were of a very robust hardy form, in whose hands the tool I have mentioned seemed a mere play-thing, I at last broke out with surprise, and inquired of my guide, Mr Roper, where they could possibly pick up such a set of stout fellows to handle the *kevel*, which in their hands seemed nothing? for I observed, that in the space of 15 minutes, they would knock off as much waste matter from a mass of stone, as any of that occupation I had ever seen before would do in an hour. Says Roper, 'we do not go to fetch those men from a distance, they are all born upon the island, and many of them have never been farther upon the main land than to Weymouth.' I told him, I thought the air of that island must be very propitious, to furnish a breed of men so particularly formed for the business they followed. 'The air (he replied), though very sharp from our elevated situation, is certainly very healthy to working men; yet if you knew how these men are produced, you would wonder the less; for all our marriages here are productive of children.' On desiring an explanation how this happened, he proceeded: 'Our people here, as they are bred to hard labour, are very early in a condition to marry and provide for a family; they intermarry with one another, very rarely going to the main-land to seek a wife; and it has been the custom of the island, from time immemorial, that they never marry till the woman is pregnant.' But pray (said I) does not this subject you to a great number of bastards? Have not your Portlanders the same kind of fickleness in their attachments that Englishmen are subject to? and, in consequence, does not this produce many inconveniences? 'None at all (replies Roper), for previous to my arrival here, there was but one child on record of the parish register that had been born a bastard in the compass of 150 years. The mode of courtship here is, that a young woman never admits of the serious addresses of a young man, but on supposition of a thorough probation. When she becomes with child, she tells her mother, the mother tells her father, her father tells his father, and he tells his son, that it is then proper time to be married.' But suppose, Mr Roper, she does not prove to be with child, what happens then? Do they live together without marriage? or, if they separate, is not this such an imputation upon her, as to prevent her getting another suitor? 'The case is thus managed (answered my friend), if the woman does not prove with child after a competent time of courtship, they conclude they are not destined by Providence for each other; they therefore separate; and as it is an established maxim, which the Portland women observe with

great strictness, never to admit a plurality of lovers at one time, their honour is noway tarnished: she just as soon (after the affair is declared to be broke off) gets another suitor, as if she had been left a widow, or that nothing had ever happened, but that she had remained an immaculate virgin.' But pray, Sir, did nothing particular happen upon your men coming down from London? 'Yes (says he) our men were much struck, and mightily pleased with the facility of the Portland ladies, and it was not long before several of the women proved with child; but the men being called upon to marry them, this part of the lesson they were uninstructed in; and on their refusal, the Portland women arose to stone them out of the island; inasmuch, that those few who did not choose to take their sweethearts for *better or for worse*, after so fair a trial, were in reality obliged to decamp; and on this occasion some few bastards were born: but since then matters have gone on according to the ancient custom."

PORTLAND VASE, a celebrated funeral vase which was long in possession of the Baberini family; but which was lately purchased for 1000 guineas by the Duke of Portland, from whom it has derived its present name. Its height is about ten inches, and its diameter where broadest six. There are a variety of figures upon it of most exquisite workmanship, in bas relief of white opaque glass, raised on a ground of deep blue glass, which appears black except when held against the light. It appears to have been the work of many years, and there are antiquarians who date its production several centuries before the Christian era; since, as has been said, sculpture was declining in excellence in the time of Alexander the Great.

Respecting the purpose of this vase, and what the figures on it were meant to represent, there have been a variety of conjectures, which it was not our business to enumerate. We think with Dr Darwin * that it was not made for the ashes of any particular person deceased; and therefore that the subject of its embellishments is not a private history, but of a general nature. But we are not sure that he is right in conjecturing it to represent a part of the Eleusinian mysteries; because that conjecture depends on Warburton's explanation of the sixth book of the *Æneid*, which does not now command that respect which it did when it was first proposed. We shall therefore give a short account of the several figures, without noticing any of the theories or conjectures that been made about them.

In one compartment three exquisite figures are placed on a ruined column, the capital of which is fallen, and lies at their feet among other disjointed stones: they sit under a tree on loose piles of stone. The middle figure is a female in a reclining and dying attitude, with an inverted torch in her left hand, the elbow of which supports her as she sinks, while the right hand is raised and thrown over her drooping head. The figure on her right hand is a man, and that on the left a woman, both supporting themselves on their arms, and apparently thinking intensely. Their backs are to the dying figure, and their faces are turned to her, but without an attempt to assist her. On another compartment of the vase is a figure coming through a portal, and going down with great timidity into a darker region, where he is received by a beautiful female, who stretches forth her hand to help him: between her knees is a large and playful serpent.

Portland
||
Porto."

pent. She sits with her feet towards an aged figure, having one foot sunk into the earth, and the other raised on a column, with his chin resting on his hand. Above the female figure is a Cupid preceding the first figure, and beckoning him to advance. This first figure holds a cloke or garment, which he seems anxious to bring with him, but which adheres to the side of the portal through which he has passed. In this compartment there are two trees, one of which bends over the female figure and the other over the aged one. On the bottom of the vase there is another figure on a larger scale than the one we have already mentioned, but not so well finished nor so elevated. This figure points with its finger to its mouth. The dress appears to be curious and cumbersome, and above there is the foliage of a tree. On the head of the figure there is a Phrygian cap: it is not easy to say whether this figure be male or female. On the handles of the vase are represented two aged heads with the ears of a quadruped, and from the middle of the forehead rises a kind of tree without leaves: these figures are in all probability mere ornaments, and have no connection with the rest of the figures, or the story represented on the vase.

PORTLANDIA, a genus of plants belonging to the pentandria class, and in the natural method ranking with those of which the order is doubtful. See *BOTANY Index*.

PORT-LOUIS, is a strong town of France, in Bretagne, in the diocese of Vannes, with a citadel and a good harbour. It was fortified by Louis XIII. from whom it derived its name. It was a station for part of the royal navy and the East India ships belonging to France. It is seated at the mouth of the river Blavet, 27 miles west of Vannes. W. Long. 3. 18. N. Lat. 47. 40.

PORT-Mahon. See *MINORCA*.

PORTO. See *OPORTO*.

PORTO-Bello, a town of North America, situated in N. Lat. 9. 3. W. Long. 79. 45. close to the sea, on the declivity of a mountain, which surrounds the whole harbour. This harbour is so large, deep, and safe, that Columbus, who first discovered it, gave it the name of *Porto-Bello*, or the "Fine Harbour," which is now commonly used to denote the town. The number of the houses is about 130; most of them of wood, large and spacious, forming one long street along the strand, with other smaller ones crossing it. The governor of the town is always a gentleman of the army, subordinate to the president of Panama; but having under him the commandants of the forts that defend the harbour. At the east end of the town, on the road to Panama, is a place called *Guinea*, where all the negroes of both sexes, whether slaves or free, have their habitations. This place is very much crowded when the galleons are here, most of the inhabitants of the town quitting their houses entirely for the sake of letting them; while others content themselves with a small part, in order to make money of the rest. The Mulattoes and other poor families also remove either to Guinea, or to cottages already erected near it, or built on the occasion. Great numbers of artificers likewise who flock to Porto-Bello from Panama to work at their respective callings during the fair, lodge in Guinea for cheapness. Towards the sea, in a large tract between the town and Gloria castle, barracks are erected, in most of which the ships crews

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keep stalls of sweet-meats, and other kinds of eatables, brought from Spain; but at the conclusion of the fair, when the ships put to sea, all these buildings are taken down, and the town returns to its former tranquillity and emptiness. In 1739, the harbour was defended by a castle and two forts; which were all demolished by Admiral Vernon, who, with six ships only, made himself master of this port. The country about Porto-Bello is overrun with mountains and impenetrable forests, except a few valleys, in which are some scattered farms. Among the mountains that surround the harbour is one distinguished by the name of *Capiro*, and by its superior loftiness is a sort of barometer to the country, by foretelling every change of weather. Its top is always covered with clouds, of a density and darkness seldom seen in those of the atmosphere. When these clouds thicken, increase their blackness, and sink below their usual station, it is a sure sign of a tempest; while, on the other hand, their clearness and ascent as certainly indicate the approach of fair weather. These changes are very sudden and frequent here. The summit of the mountain is scarce ever clear from clouds; and when it happens, it is only, as it were, for an instant. Except in the time of the fair, all the inhabitants of Porto-Bello do not amount to 3000; half of whom are Indians, Mulattoes, or Negroes; the Spaniards of any substance not choosing to reside in a place so extremely unhealthy, and fatal even to the lives of the natives. Ulloa tells us, that the cattle brought down hither from Panama or Carthagena, lose their flesh so fast in the best pastures, as to become scarce eatable: he assures us also, that neither horses nor asses are bred here. The heat, indeed, is excessive; and the torrents of rain are so dreadful, sudden, and impetuous, that one not accustomed to them would imagine a second deluge was coming. These torrents are also accompanied with frightful tempests of thunder and lightning, the awfulness of the scene being heightened by the repercussions from the mountains, and the shrieks and howlings of multitudes of monkeys of all kinds which inhabit the surrounding woods.

Fresh water pours down in streams from the mountains, some running without the town, and others crossing it. These waters are very light and digestive; qualities which in other countries would be very valuable, but are here pernicious, producing dysenteries, which the patient seldom survives. However, these rivulets, formed into reservoirs, serve the purposes of bathing, which is here found to be very conducive to health.

As the forests almost border on the houses of the town, tygers often make incursions into the streets during the night, carrying off fowls, dogs, and other domestic animals, and sometimes even children have fallen a prey to them. Besides the snares usually laid for them, the Negroes and Mulattoes, who fell wood in the forests of the mountains, are very dexterous in encountering them; and some, for a slender reward, even seek them in their retreats.

The town of Porto-Bello, which is thinly inhabited by reason of its noxious air, the scarcity of provisions, and the barrenness of the soil, becomes, after the arrival of the galleons, one of the most populous towns in the world. He who had seen it quite empty, and every place wearing a melancholy aspect, would be filled with astonishment to see the bustling multitudes in the time

E c of

Porto.

Porto.

of the fair, when every house is crowded, the squares and streets encumbered with bales of merchandise and chests of gold and silver, the harbour full of ships and vessels, some loaded with provisions from Carthage, and others with the goods of Peru, as cocoa, Jesuit's bark, Vicuna wool, and bezoar stones; and this town, at all other times detested for its deleterious qualities, becomes the staple of the riches of the Old and New World, and the scene of one of the most considerable branches of trade in the universe. Formerly the fair was limited to no particular time; but as a long stay in such a sickly place extremely affected the health of the traders, his Catholic majesty transmitted an order that the fair should not last above 40 days; and that, if in that time the merchants could not agree on their rates, those of Spain should be allowed to carry their goods up the country to Peru: and accordingly, the commodore of the galleons has orders to re-embark them, and return to Carthage; but otherwise, by virtue of a compact between the merchants of both kingdoms, and ratified by the king, no Spanish trader is to send his goods, on his own account, beyond Porto-Bello. The English were formerly allowed to send a ship annually to this fair, which turned to great account; and, while the assiento contract subsisted, either with the English or the French, one of their principal factories was at Porto-Bello.

PORTO-Farina, a port about 12 miles from Cape Carthage, in the bay of Tunis, where formerly the large vessels belonging to the bey were fitted out, and laid up on their return from a cruise. This harbour is safe from the weather, and opens into a large lake, formed by the Mejerdah, which runs through into the sea.—The north-west wind, which blows right upon the shore, together with the soil brought down by the river, which has the same quality as the Nile of overflowing its banks, has formed a bar, so that only small vessels can now enter. It is still the arsenal where the naval stores are kept. E. Long. 10. 16. N. Lat. 37. 12.

PORTO-Farraio, a handsome town of Italy, in the isle of Elba, with a good citadel. It is very strong, and seated on a long, high, steep point of land, to the west of the bay of the same name, which has two forts. It belongs to the great duke of Tuscany, who always keeps a good garrison there. E. Long. 10. 37. N. Lat. 48. 55.

PORTO-Longone, a small but very strong town of Italy, and in the isle of Elba, with a good harbour, and a fortress upon a rock almost inaccessible. The king of Naples has a right to put a garrison therein, though the place belongs to the prince of Piombino. It is seated on the east end of the island, eight miles south-west of Piombino. E. Long. 10. 10. N. Lat. 42. 52.

PORTO-Santo, an island of the Atlantic ocean, on the coast of Africa, and the least of those called the *Madriras*. It is about 15 miles in circumference; it produces some corn, as well as some oxen and wild logs, with a vast number of rabbits. There are trees which produce the gum or resin called *dragon's blood*; and there is likewise a little honey and wax, which are extremely good. It has no harbour, but good mooring in the road. It belongs to the Portuguese, and is 300 miles west of the coast of Africa. W. Long. 16. 20. N. Lat. 32. 58.

PORTO-Seguro, a government of South America, on

the eastern coast of Brasil; bounded on the north by the government of Rio-dos-Hilios, on the east by the North sea, on the south by the government of Spiritu-Santo, and on the west by the Tupicks. It is a very fertile country, and the capital town is of the same name. It is built on the top of a rock, at the mouth of a river, on the coast of the North sea, and is inhabited by Portuguese. W. Long. 38. 50. S. Lat. 17. 0.

PORTO-Vecchio, is a sea-port town of Corsica, in the Mediterranean sea, seated on a bay on the eastern coast of the island. It is 12 miles from Bonifacio, and 40 north of Sardinia. E. Long. 9. 20. N. Lat. 41. 42.

PORTO Venereo, is a town of Italy, on the coast of Genoa, at the entrance of the gulf of Spetia. It is seated on the side of a hill, at the top of which there is a fort. It has a very good harbour, and is 45 miles south-east of Genoa. E. Long. 9. 38. N. Lat. 44. 5.

PORTRAIT, or **PORTRAITURE**, in painting, the representation of a person, and especially of a face, done from the life. In this sense we use the term *portrait-painting*, in contradistinction to *history-painting*, where a resemblance of persons is usually disregarded. Portraits, when as large as the life, are usually painted in oil-colours; sometimes they are painted in miniature with water-colours, crayons, pastils, &c. See **PAINTING**, p. 641.

PORTREE, is a small village, containing a church and a very few houses, with an excellent bay and a good harbour, in the isle of Skye. "The entrance of the bay (Mr Knox tells us) represents agreeable landscapes on both sides, with excellent pasture." Knox's
Tour.

"The bay of Portree (says Mackenzie), off the houses, is an exceeding good harbour for a few ships of any size; it is well sheltered, the ground good, the depth from five to 14 fathoms, and nothing to fear coming in but a rock, about half a cable's length from Airdrachig Point, on the starboard as you enter the anchorage, part of which is always above water." It is the only port or harbour to a very considerable division of Skye, on the east side. From this opening to the northern extremity, a course of 20 miles, the shore is one continued line of lofty rocks, where no ship can find refuge in the mildest weather, and where inevitable dangers await the mariners in rough weather.

"James V. of Scotland and several of his nobility landed here, when they made the tour of the Hebrides in 1535; from which circumstance, this fine bay has got the honourable name of *Portree*."

Mr Knox tells us, "that the country round this village, though mountainous, is well inhabited; it raises much grain, and many cattle. Here the late Sir James Macdonald had marked out the lines of a town; and government, it is said, promised to assist him in the work with 500l.; but the death of that gentleman put an end to these promising appearances." We have to add, that Lord Macdonald, the present (1809) proprietor, has resumed the undertaking; and, we understand, has made some progress in building a new town, besides introducing various other important improvements in this and other parts of the island.

PORTSMOUTH, a sea-port town in Hampshire, with one of the most secure and capacious harbours in England, being defended by a numerous artillery, both on the sea and land-side, and very good fortifications.

Portsmouth. A great part of the royal navy is built here; and here are some of the finest docks, yards, and magazines of naval stores, in Europe. It is seated in the isle of Portsey, being surrounded by the sea except on the north side, where there is a river which runs from one arm of it to the other. It is much resorted to on account of the royal navy, whose usual rendezvous is at Spithead, which is at the east end of the isle of Wight, and opposite to Portsmouth. There is a draw-bridge over the river, and it has always a good garrison. It is governed by a mayor, 12 aldermen, and burgeses, and sends two members to parliament. It has one church, and two chapels, one in the garrison, and one in the Common, for the use of the dock, and others, besides several meeting-houses of the dissenters. The houses of Portsmouth amount to about 5,310, and the inhabitants to about 32,166. W. Long. 1. 1. N. Lat. 50. 47.

The town is supposed to receive its name from Port, a famous Saxon chieftain, who, A. D. 501, landed here with his two sons. It made a considerable figure in the time of the Saxons; and from the utility of its situation, was highly favoured by all our monarchs of the Norman line. It was incorporated, and became also a parliamentary borough. In the reign of Edward III. it was in a very flourishing state; but A. D. 1338, in the very same reign, was burned by the French, when that monarch, which was afterwards ratified by King Richard II. forgave the inhabitants a debt, and remitted their fee-farm for 10 years; within which space they so recovered themselves, as to equip a squadron, which sailed into the Seine, sunk two ships, and brought away a great booty.

Campbell's
Political
Survey.

The singular excellence of its port, and the convenience of fitting out fleets from thence in the time of a French war, induced Edward IV. to think of fortifying it, as he actually, in some measure, did; which fortifications were farther carried on by Richard III. But King Henry VII. was the first who settled a garrison therein; which was increased, and the place made still stronger, in the reign of Henry VIII. who had a great dock there, wherein was built the Henry Grace de Dieu, which was the largest ship in the navy of his time. The same monarch, remarkably attentive to the security of all maritime places, built what is now called *South-Sea Castle*, for the protection of this.—The improvements made here in the reign of Queen Elizabeth were much superior to all these. King Charles II. after his restoration, directed great alterations, established new docks and yards, raised several forts, and fortified them after the modern manner; which works were augmented under his brother's reign. Notwithstanding this, King William directed likewise fresh alterations and additions; and succeeding princes, following his example, have, at a large expence, extended these fortifications, and taken in a vast deal of ground: so that it is at present, as the importance of the place deserves, the most regular fortrefs in Britain; and, as it cannot be effectually attacked by sea, may be justly esteemed impregnable.

PORTSMOUTH, the largest town in the state of New Hampshire in North America. It stands on the south-east side of Piscataqua river, about two miles from the sea, and contains about 600 houses, and 4400 inhabitants. The town is handsomely built, and pleasantly situated. Its public buildings are, a court-house, two churches for Congregationalists, one for Episcopalians, and one other house for public worship. Its harbour

is one of the finest on the continent, having a sufficient depth of water for vessels of any burthen. It is defended against storms by the adjacent land, in such a manner, as that ships may securely ride there in any season of the year. Besides, the harbour is so well fortified by nature, that very little art will be necessary to render it impregnable. Its vicinity to the sea renders it very convenient for naval trade. A light-house, with a single light, stands at the entrance of the harbour.

Portsmouth
||
Portugal.

PORTSOY, is a handsome sea-port town, situated on a small promontory running into the sea, on the south side of the Murray frith, in Scotland, about six miles from Cullen, and seven west from Banff. It sends out several fishing vessels, particularly for the Hebride white fishery, and exports a considerable quantity of grain. It contains about 1000 inhabitants. A manufacture of stocking and sewing thread is also carried on to a considerable amount for the London and Nottingham markets. In the neighbourhood is a stratum of marble, of a dark greenish colour, in which, it is said, the curious substance called *ASBESTOS*, or earth-flax, has been found. There is also a remarkable mineral production found here, viz. a granite of a flesh colour, and found no where else in Europe. It contains a quantity of feld spar, and shews a brilliancy like the Labrador spar. When viewed in a particular light, it shews a purple and bluish tint; and when polished, the figures upon it assume the appearance of Arabic characters. It is described by Dr Hutton, Edin. Trans. vol. i. From the asbestos a sort of incombustible cloth is made, which is purified by throwing it into the fire. W. Long. 2. 5. N. Lat. 57. 50.

PORTUGAL, the most westerly kingdom of Europe, bounded on the west and south by the Atlantic ocean, and on the east and north by Spain; extending about 310 miles in length, and 150 in breadth.

See Map of
Spain and
Portugal.

By modern writers, we find this country constantly stiled in Latin *Lusitania*; and it is certain, that anciently a country of Spain went by that name; but it does not by any means appear that the country called by the ancients *Lusitania* had the same boundaries with the modern kingdom of Portugal. Before Augustus Cæsar, *Lusitania* seems to have been bounded on the north by the ocean, and on the south by the river Tagus; by which means it comprehended all Galicia, and excluded two of the six provinces of Portugal. But in the more strict and restrained sense of the word, it was bounded on the north by the Durus, now the Douro, and on the south by the river Anas, now the Guadiana; in which sense it was not quite so long as modern Portugal, but considerably broader.

Boundaries.

The commonly received opinion with regard to the etymology of the word *Portugal*, is, that a great number of Gauls landed at Porto, or Oporto, whence it received the name of *Portus Gallorum*, or *the Port of the Gauls*; and in process of time that name gradually extended over the whole country, being softened, or rather shortened, into *Portugal*. But the time when this event happened, the reason why these Gauls came thither, and what became of them afterwards, are all particulars which lie buried in oblivion. It is alleged, however, that, upon an eminence which overlooks the mouth of the river Douro, there stood an ancient town called *Cale*, strong and well peopled, but ill seated for trade; and this occasioned the construction of a lower town or ham-

Etymology
of the
name.

Portugal. let, which was called *Portus Cale*, that is, *the haven of Cale*; and, in process of time, *Portucalia*. At length, becoming so considerable as to merit an episcopal chair, the bishops subscribed themselves, as the records of ancient councils testify, *Portucalenses*, and the name of the city was transferred to the diocese. It is true, that these bishops afterwards changed their title, and subscribed themselves *Portuenses*, that is, *bishops of Porto*. But the facts just mentioned are actually recorded in authentic histories; and as the diocese of Portucalia contained in a great measure that little country in which the sovereignty originally began, the name extended itself, together with the acquisitions of the sovereigns, and has remained to the kingdom, though the diocese itself has changed its name, and possibly on that very account.

³ Originally only a small kingdom. Portugal, though even yet but a small kingdom, was originally much smaller. The Spanish and Portuguese historians agree, that Don Alonso, king of Leon and Castile, and son to Don Ferdinand the Great, bestowed his daughter Donna Theresa in marriage upon an illustrious stranger, Don Henry, and gave him with her the frontier province which he had conquered from the Moors, small indeed in extent, but excellently situated, and so pleasant and fertile, that it has sometimes been styled *Medulla Hispanica*, or *the marrow of Spain*. To this territory was added the title of *Count*; but authors are much divided about the time that this stranger came into Spain, and who he was. However, the authors of the Universal History make it pretty evident, that he was a grandson of Robert the first duke of Burgundy. The manner in which he obtained the principality above mentioned is related as follows:

The king, Don Alonso, apprehensive that his success in taking the city of Toledo would bring upon him the whole force of the Moors, sent to demand assistance from Philip I. of France, and the duke of Burgundy, whose daughter he had married. His request was granted by both princes; and a numerous body of troops was speedily collected for his service, at whose head went Raymond count of Burgundy, Henry younger brother of Hugh duke of Burgundy, Raymond count of Tholouse, and many others. They arrived at the court of Don Alonso in the year 1087, where they were received and treated with all possible marks of esteem; and having in the course of two or three years given great proofs of their courage and conduct, the king resolved to bestow his only daughter named *Urraca*, then a mere child, being at most in her ninth year, upon Raymond count of Burgundy, and assigned them the province of Galicia for the support of their dignity. About four years after, Don Alonso being very desirous to express his gratitude to Henry of Burgundy, gave him in marriage a natural daughter of his, born while he remained in exile at Toledo, whose name was *Donna Theresa*; and upon this marriage, he gave up in full property the country which has been already mentioned.

The new sovereign, with his consort, fixed their residence in the town of Guimaraez, pleasantly situated on the banks of the river Ave. The remains of an ancient palace belonging to their successors are still to be seen; and on account of its having been anciently the capital, the king, Don Denis, granted the inhabitants an immunity from taxes, which they still enjoy.

The Portuguese, now finding themselves independent, immediately began, like other nations, to attempt the

subjection of their neighbours. Henry is said to have performed great exploits against the Moors; but the accounts of them are so indistinct, that they cannot be taken notice of here. He died in 1112; and was succeeded by his son Don Alonso, then an infant in the third year of his age. In his minority, the kingdom was governed by his mother Donna Theresa, assisted by two able ministers. During the first nine years of their administration, nothing remarkable happened; but after that period, some differences took place between the queen regent (for she had assumed the title of queen after her father's death) and Urraca queen of Castile. Theresa insisted, that some part of Galicia belonged to her in virtue of her father's will; and therefore seized on Tuy, an episcopal town, and a place of some consequence. Urraca, having assembled a numerous army, went in person into Galicia; upon which Theresa was obliged to abandon Tuy, and take shelter in one of her own fortresses. The consequence, in all probability, would have been fatal to the new kingdom, had not the archbishop of Compostella, without whose assistance Urraca could do nothing, demanded leave to retire with his vassals. This offended the queen to such a degree, that she threw him into prison; which act of violence excited such a commotion among her own subjects, that the Portuguese were soon delivered from their apprehensions. Queen Theresa fell immediately after into a similar error, by throwing into prison the archbishop of Braga, who had not espoused her cause so warmly as she had expected. The bishop, however, was quickly delivered by a bull from the pope, who also threatened the kingdom with an interdict; and this was the first remarkable offence which Theresa gave her subjects.

Soon after this, Queen Urraca died, and all differences were amicably settled at an interview between Theresa and Don Alonso Raymond, who succeeded to the kingdom of Castile. But, in 1126, the king of Castile being obliged to march with the whole strength of his dominions against his father-in-law the king of Navarre and Arragon, Theresa took the opportunity of again seizing upon Tuy; but the king soon returning with a superior army, she was again obliged to abandon her conquest. But the greatest misfortune which befel this princess, was a quarrel with her own son Don Alonso Enriquez. It does not appear indeed that Theresa had given him any just cause of offence; but it is certain that a civil war ensued, in which the queen's forces were totally defeated, and she herself made prisoner, in which situation she continued during the remainder of her life.

Enriquez having thus attained to the free and full possession of his dominions, made several attempts upon some places in Galicia, but without success; so that he was at last constrained to make peace with Alonso king of Castile and Leon, who had assumed the title of *Emperor of the Spains*; the more especially as his dominions happened to be at that time invaded by the Moors.—The number of infidels was so great, that the count of Portugal had little hopes of subduing them; but a plague breaking out in the Moorish army, they were obliged to retreat; after which he reduced several places belonging to that nation. But, in the mean time, the emperor Don Alonso, breaking into the Portuguese territories, destroyed every thing with fire and sword. The king of Portugal surpris'd and cut off a considerable part of his army; which, however, did not hinder the

Portugal.

⁵ Differences with Castile.

6

Don Alonso's wars with the Moors and king of Castile.

⁴ Henry of Burgundy the first count of Portugal.

Portugal. the emperor from marching directly towards him.— But, at the intercession of the pope's legate, all differences were accommodated, and a peace concluded; all places and prisoners taken on both sides being delivered up.

7
Victory of
Ourique.

In the mean time, the progress of the Christian arms in Spain being reported to Abu-Ali Texefien, the miramamolín or chief monarch of the Moors in Barbary, he directed Ismar, or Ishmael, his lieutenant in Spain, to assemble all the forces in the southern provinces, and drive the Christians beyond the Douro. Ishmael immediately began to prepare for putting these orders in execution; and having added a considerable body of troops brought from Barbary to those whom he had raised in Spain, the whole army was very numerous. He was met by Don Alonso of Portugal, in the plains of Ourique, on the banks of the river Tago; and Ishmael took all possible means to prevent the Christians from passing that river, because his own cavalry, in which the strength of his army chiefly consisted, had thus more room to act. The Portuguese forces were very inconsiderable in number in comparison of the Moors; but Ishmael, being too confident of victory, divided his army into twelve bodies, and disposed them in such a manner as might best prevent the flight, not sustain the attack, of the Christians. The consequence was, that his army was overthrown with incredible slaughter, and a vast number of prisoners taken, among whom were 1000 Christians, of the sect styled *Mozarabians*, whom, at the request of Theotonus, prior of the Holy Cross, Don Alonso set at liberty with their wives and children, and procured them settlements in his own dominions.

8
Don Alonso
assumes
the title of
king.

After this signal victory, gained in the year 1139, Don Alonso was proclaimed king by his soldiers, and ever after retained that title, renouncing all kind of subjection to the crown of Spain. Being very desirous, however, of bringing down the power of the emperor, he entered into a league with Raymond count of Barcelona and regent of the kingdom of Arragon against that prince. In consequence of this treaty, he entered Galicia with a considerable force on one side, while Don Raymond did the same on the other. Neither of these enterprises, however, succeeded. The Portuguese monarch met with a severe check in his expedition into Galicia, where he received a dangerous wound, and had some of the nobility who attended him taken prisoners. At the same time he received intelligence that the Moors had invaded his dominions, so that he was obliged to retire; which, however, was not done in sufficient time to prevent the strong fortrefs of Leyria from falling into their hands. This fortrefs they demolished, and put all the garrison to the sword; but the king caused it to be rebuilt stronger than before, and put a more numerous garrison into it; however, he undertook nothing farther this campaign. The war continued with various successes till the year 1145, when the king projected an enterprise against Santaren, a strong city about 12 miles from Lisbon. In this he luckily succeeded; and by that means gained a considerable tract of country, and a strong barrier to his dominions.

After this success Don Alonso caused himself with much ceremony to be chosen and crowned king of Portugal before an assembly of the states, where he also solemnly renounced all dependence on the crown of Spain, declaring, that if any of his successors should condescend to pay tribute or to do homage to that crown, he was

unworthy of enjoying the kingdom of Portugal. The next year the king undertook the recovery of Lisbon out of the hands of the Moors; and concerning this expedition there are such numbers of fables, that it is almost impossible to come at the truth. What can be gathered from these accounts is, that he undertook the siege with a small army, and was able to make but little progress in it, partly from the strength of the place, and partly from the numerous garrison by which it was defended. At length, fortunately for Don Alonso, a fleet of adventurers, French, English, Germans, and Flemings, that were going to the Holy Land, anchored at the mouth of the river Tagus, whose assistance he demanded, as not altogether foreign to their design of making war on the infidels. His request was readily granted; and, with their assistance, Lisbon was speedily reduced; which conquest so much raised the reputation of this monarch, and brought such numbers to recruit his army, that before the end of the year 1147 he had reduced 12 other considerable cities.

Portugal.
9
Reduces
Lisbon and
12 other
cities.

For many years after this, Don Alonso was successful in all his undertakings. He settled the internal government of his kingdom, procured a bull from Pope Alexander III. confirming his regal dignity, undertook many successful expeditions against the Moors, and became master of four of the six provinces which compose the present kingdom of Portugal. In all his undertakings he was assisted by the counsels of his queen Matilda, who was a woman of great capacity, and sufficient for the government of the kingdom in her husband's absence. By her he had a numerous offspring; particularly three daughters; the eldest of whom Donna Mafalda or Mathilda, was married to the king of Arragon; the second, Urraca, to Don Ferdinand king of Leon; and the third, Therefa, to Philip earl of Flanders. In 1166, however, the king thought proper, from what provocation we know not, to invade the dominions of his son-in-law Don Ferdinand; and possessed himself of Limmia and Turon, two cities of Galicia, in which he put strong garrisons. The next year, elated with his success, he marched with a numerous army towards Badajos, which he invested; on the news of which, Don Ferdinand, who had assembled a large army at Ciudad Rodrigo, marched to its relief. Yet before he could come within sight of it, it had surrendered to the king of Portugal; upon which Don Ferdinand came to a resolution of besieging his antagonist in his newly conquered city; which Don Alonso perceiving, endeavoured to draw out his forces into the field. Though he was at that time upwards of 70 years of age, he was himself on horseback, and pushing forwards at the head of his horse to get out at the gate, he struck his leg against one of the bolts with such violence that the bone was shattered to pieces. This accident occasioned such confusion, that the Portuguese troops were easily beaten, and Don Alonso was taken prisoner. He was exceedingly mortified by this disgrace, especially as he had no great reason to expect very kind treatment from his son-in-law. However, the king of Leon behaved towards him with the greatest respect and affection. He desired him to lay aside all thoughts of business, and attend to his cure; but finding him restless and impatient, he assured him that he expected nothing more than to have things put into the same condition as before the war, and that they might

10
Has his
regal
dignity
confirmed
by the pope.

11
His un-
suc-
cessful
war
with
Don
Ferdinand
of Spain.

Portugal. might live in peace and friendship for the future: to which the king of Portugal most readily assented; but returned to his dominions before his cure was perfected, which was the cause of his being lame all the rest of his life. However, this did not abate his military ardour; for, notwithstanding this inconvenience, his courage transported him into the field whenever he was called by the interest of his subjects. Towards the end of his reign, an opportunity seemed to present itself of obtaining once for all an entire release from the disagreeable pretensions of the king of Leon, who, it seems, had insisted on the king of Portugal's doing homage for his kingdom. The opportunity which now presented itself was a quarrel between the king of Leon and his nephew Don Alonso king of Castile. The latter asked assistance from the king of Portugal, which was readily granted. But Don Ferdinand, having received intelligence that the infant Don Sancho (the king's eldest son) was advancing towards Ciudad Rodrigo, assembled his troops on that frontier with such diligence, that he was enabled to attack him unexpectedly, and entirely defeated him. Understanding, however, that Don Sancho was recruiting his forces with great diligence, he let him know that they might be much better employed against the infidels, who remained careless and unprepared, expecting the issue of the war. Don Sancho made a proper use of this advice; and, after making some motions to amuse the enemy, made a sudden irruption into Andalusia, penetrating as far as Triana, one of the suburbs of Seville. The Moors assembled their forces in order to attack him on his retreat; but Don Sancho having first fatigued them by the celerity of his march, at length chose a strong camp, and, having given his troops time to repose, drew them out and offered the enemy battle. The Moors accepted the challenge, but were entirely defeated; and Don Sancho returned into Portugal with spoils to an immense amount. For some years after the war was continued without any remarkable event; but, in 1184, Joseph king of Morocco, having already transported multitudes of men from Barbary, at length followed in person with a prodigious army, and carried all before him as far as the Tayo. He appeared before the city of Santaren; but having wearied and reduced his army by unsuccessful assaults on that place, he was attacked by the Portuguese forces assisted by Ferdinand of Leon, entirely defeated, and himself killed. By this victory, the Portuguese were left at liberty to improve the interior part of their country, and fortify their frontiers; and during this interval, the king died in the 76th year of his age, in the year 1185.

12
Don Sancho's success against the Moors.

13
His wife's administration when king.

Don Alonso was succeeded by his son Don Sancho I. Of this prince it is remarkable, that, before he ascended the throne, he was of a restless and warlike disposition; but no sooner did he come to the possession of the kingdom, than he became a lover of peace, and began with great assiduity to repair the cities that had suffered most by the war, and to repeople the country around them. By his steady attention to this, he in a very short time quite altered the appearance of his territories, and procured to himself the glorious title of *The restorer of cities, and father of his country*. In the year 1189, a fleet, composed for the most part of English vessels, but having on board a great number of adventurers of other nations bound to the Holy Land, entered the river of

Lisbon. They were very kindly received, and supplied with all kinds of refreshments by Don Sancho, who took this opportunity of soliciting them to assist him in a design he had formed of attacking the city of Silves in Algarve; to which they readily yielded. Having joined a squadron of his own galleys, and marched a body of troops by land, the place was reduced, and the English, according to agreement, rewarded with the plunder. But, in a short time, the Moors from Africa having again invaded Portugal, the town was several times taken and retaken, till at last Don Sancho, being sensible of the difficulties that would attend the keeping of it, caused it to be demolished. His last enterprise was the reduction of Elvas; soon after which he died with the reputation of the best economist that ever sat on the throne of Portugal. With the character of being rather liberal than avaricious, he had amassed a treasure of more than 700,000 crowns in ready money, besides 1400 merks of silver and 100 of gold plate, which he disposed of some time before his death. He was interred by his own command with much less pomp than his father, in the cathedral of Coimbra; and when his body was taken up 400 years after by order of the king Don Emanuel that it might be laid in a new tomb, it was found uncorrupted.

Portugal.

The history of Portugal affords scarce any event of importance till the year 1289; when, in the reign of Don Denis, a difference commenced with Castile, which subsisted for a long time. Frequent reconciliations took place; but these were either of very short duration, or never sincere. A length, in the reign of John I. Don Juan of Castile, who had also pretensions to the crown of Portugal, invaded that kingdom at the head of the whole force of his dominions, and with the flower of the Castilian nobility entered the province of Alentejo. According to the Portuguese historians, he besieged the city of Elvas without effect; which disappointment enraged him to such a degree, that he determined next year to invade Portugal a second time, and ruin all the country before him. Accordingly, having collected an army of 30,000 men, he invaded Portugal, took and ruined several places, while King John lay inactive, with a small army, waiting for some English succours which he expected. At last he ventured an engagement with the forces which he had; and, notwithstanding the great superiority of the enemy, obtained a complete victory; after which he made an irruption into Castile, and had the good fortune to gain another battle, which fixed him firmly on the throne of Portugal. The Castilians were obliged to consent to a truce of three years, which was soon after improved into a lasting peace.

14
Differences with Castile.

15
The Castilians entirely defeated.

In 1414, King John undertook an expedition against the Moors in Barbary, where he commanded in person; but before he set out, his queen (Philippa the daughter of John duke of Lancaster) died of grief at the thoughts of his absence. The expedition, however, proved successful, and the city of Ceuta was taken from the Moors almost at the first assault; but scarcely had the king left that country, when the princes of Barbary formed a league for the recovery of it; and though they were defeated by the young princes of Portugal, whom John again sent into Barbary, yet the trouble of keeping it was so great, that some of the king's council were of opinion that the town should be demolished.

16
The city of Ceuta taken from the Moors.

But

Portugal. But John, having considered the arguments on both sides, determined to keep the city; and therefore enlarged and strengthened the fortifications, augmenting his forces there to 6000 foot and 2500 horse, which he hoped would be sufficient for keeping off the attacks of the Moors.

King John died in 1428, and was succeeded by his eldest son Edward. He undertook an expedition against Tangier in Barbary: but the event proved very unfortunate; the Portuguese being so shut up by the Moors, that they were obliged to offer Ceuta back again, in order to obtain leave to return to Portugal. The king's son, Don Ferdinand, was left as a hostage for the delivery of Ceuta; but was, with the utmost cruelty and injustice, left in the hands of the infidels, by the king and council of Portugal, who constantly refused to deliver up the place. Many preparations indeed were made for recovering the prince by force; but before any thing could be accomplished the king died in 1430, which put an end to all these designs. See PEDRO, *Don*.

17
Passage to
the East In-
dies disco-
vered.

The war with Barbary continued at intervals, but with little success on the part of the Portuguese; and till the year 1497, there is no event of any consequence recorded in the history of Portugal. This year was remarkable for the discovery of the passage to the East Indies by the Cape of Good Hope. The enterprising spirit of the Portuguese had prompted them to undertake voyages along the coast of Africa for a considerable time before; but when they undertook their first voyage of discovery, it is probable that they had nothing farther in view than to explore those parts of the coast of Africa which lay nearest to their own country. But a spirit of enterprise, when roused and put in motion, is always progressive; and that of the Portuguese, though slow and timid in its first operations, gradually acquired vigour, and prompted them to advance along the western shore of the African continent far beyond the utmost boundary of ancient navigation in that direction. Encouraged by success, it became more adventurous, despised dangers which formerly appalled it, and surmounted difficulties which it once deemed insuperable. When the Portuguese found in the torrid zone, which the ancients had pronounced to be uninhabitable, fertile countries, occupied by numerous nations; and perceived that the continent of Africa, instead of extending in breadth towards the west, according to the opinion of Ptolemy, appeared to contract itself, and to bend eastwards, more extensive prospects opened to their view, and inspired them with hopes of reaching India, by continuing to hold the same course which they had so long pursued.

18
Circum-
stances
which faci-
litated the
discovery.

After several unsuccessful attempts to accomplish what they had in view, a small squadron sailed from the Tagus, under the command of Vasco de Gama, an officer of rank, whose abilities and courage fitted him to conduct the most difficult and arduous enterprises. From unacquaintance, however, with the proper season and route of navigation in that vast ocean through which he had to steer his course, his voyage was long and dangerous. At length he doubled that promontory, which, for several years, had been the object of terror and of hope to his countrymen. From that, after a prosperous navigation along the south-east of Africa, he arrived at the city of Melinda, and had the

Portugal. satisfaction of discovering there, as well as at other places where he touched, people of a race very different from the rude inhabitants of the western shore of that continent, which alone the Portuguese had hitherto visited. These he found to be so far advanced in civilization and acquaintance with the various arts of life, that they carried on an active commerce, not only with the nations on their own coast, but with remote countries of Asia. Conducted by their pilots, who held a course with which experience had rendered them well acquainted, he sailed across the Indian ocean, and landed at Calecut, on the coast of Malabar, on the 22d of May 1498, ten months and two days after his departure from the port of Lisbon.

The samorin, or monarch of the country, astonished at this unexpected visit of an unknown people, whose aspect, and arms, and manners, bore no resemblance to any of the nations accustomed to frequent his harbours, and who arrived in his dominions by a route hitherto deemed impracticable, received them at first with that fond admiration which is often excited by novelty; but in a short time, from whatever motives, he formed various schemes to cut off Gama and his followers. The Portuguese admiral, however, was not to be overreached by such politics as his. From every danger to which he was exposed, either by the open attacks or secret machinations of the Indians, he extricated himself with singular prudence and dexterity, and at last sailed from Calecut with his ships, loaded not only with the commodities peculiar to that coast, but with many rich productions of the eastern parts of India. He returned to Portugal in two years after his sailing from the Tagus, but with a great loss of men; for out of 148 persons whom he took out with him, only 55 returned. The king received him with all possible testimonies of respect and kindness; created him count of Videgueira; and not only declared him admiral of the Indies, but made that office hereditary in his family.

On the first intelligence of Gama's successful voyage, the Venetians, with the quick-sighted discernment of merchants, foresaw the immediate consequence of it to be the ruin of that lucrative branch of commerce which had contributed so greatly to enrich and aggrandise their country; and they observed this with more poignant concern, as they were apprehensive that they did not possess any effectual means of preventing, or even retarding, its operation.

The hopes and fears of both were well-founded. The Portuguese entered upon the new career opened to them with activity and ardour, and made exertions, both commercial and military, far beyond what could have been expected from a kingdom of such inconsiderable extent. All these were directed by an intelligent monarch, capable of forming plans of the greatest magnitude with calm systematic wisdom, and of prosecuting them with unremitting perseverance. The prudence and vigour of his measures, however, would have availed little without proper instruments to carry them into execution. Happily for Portugal, the discerning eye of Emanuel selected a succession of officers to take the supreme command in India, who, by their enterprising valour, military skill, and political sagacity, accompanied with disinterested integrity, public spirit, and love of their country, have a title to be ranked with the persons most eminent for virtue and abilities in any age or nation. Greater things

19
The king
of the
country
jealous of
his new vi-
sitors.

20
The Vene-
tians dread
the ruin of
their com-
merce.

21
Account of
the settle-
ment of the
Portuguese
in India.

Portugal. things perhaps were achieved by them than were ever accomplished in so short a time. Within 24 years only after the voyage of Gama, the Portuguese had rendered themselves masters of the city of Malacca, in which the great staple of trade carried on among the inhabitants of all those regions in Asia, which Europeans have distinguished by the general name of the *East Indies*, was then established. The conquest secured to them great influence over the interior commerce of India, while, at the same time, by their settlements at Goa and Diu, they were enabled to engross the trade of the Malabar coast, and to obstruct greatly the long established intercourse of Egypt with India by the Red sea. In every part of the east they were received with respect; in many they had acquired the absolute command. They carried on trade there without rival or controul; they prescribed to the natives the terms of their mutual intercourse; they often set what price they pleased on the goods which they purchased; and were thus enabled to import from Indostan and the regions beyond it, whatever is useful, rare, or agreeable, in greater abundance, and of more various kinds, than had been known formerly in Europe.

Not satisfied with this ascendant which they had acquired in India, the Portuguese early formed a scheme no less bold than interested, of excluding all other nations from participating of the advantages of commerce with the east; and they accomplished one half of what their ambition had planned.

22
Opposition
made by
the Vene-
tians.

In consequence of this, the Venetians soon began to feel that decrease of their own Indian trade which they had foreseen and dreaded. In order to prevent the farther progress of this evil, they incited the sultan of the Mameluks to fit out a fleet in the Red sea, and to attack those unexpected invaders of a gainful monopoly, of which he and his predecessors had long enjoyed undisturbed possession. The Portuguese, however, encountered his formidable squadron with undaunted courage, entirely defeated it, and remained masters of the Indian ocean. They continued their progress in the east almost without obstruction, until they established there a commercial empire; to which, whether we consider its extent, its opulence, the slender power by which it was formed, or the splendor with which the government of it was conducted, there had hitherto been nothing comparable in the history of nations. Emanuel, who laid the foundation of this stupendous fabric, had the satisfaction to see it almost completed. Every part of Europe was supplied by the Portuguese with the productions of the east; and if we except some inconsiderable quantity of them, which the Venetians still continued to receive by the ancient channels of conveyance, our quarter of the globe had no longer any commercial intercourse with India, and the regions of Asia beyond it, but by the Cape of Good Hope.

23
Inquisition
introduced
into Portu-
gal.

In September 1522, King Emanuel died of an epidemical fever, and was succeeded by his son John III. The most remarkable transaction of this prince's reign was the introduction of the inquisition into his dominions. This happened in the year 1525, or, as some say, in 1535. A famine happening to cease in a short time after it was introduced, the priests persuaded the ignorant multitude that it was a blessing from heaven on account of the erecting such an holy tribunal. However, it was not long before the bulk of the nation per-

Portugal. ceived what kind of a blessing the inquisition was: but their discernment was too late; for by that time the inquisitors had acquired such power, that it became equally dangerous and ineffectual to attempt disclosing any of their mysteries.

In the mean time Solyman the Magnificent, the most enlightened monarch of the Ottoman race, observing the power and the opulence of the Portuguese rising, and attributing it to its proper cause, and eager to supplant them, sent orders to the bashaw of Egypt to employ his whole strength against the Christians in the East Indies. The bashaw, in obedience to these orders, sailed out from the Red sea with a greater naval force than ever the Mohammedans had employed before; having 4000 Janizaries, and 16,000 other land troops on board. Yet, by the courage and conduct of the Portuguese officers and soldiers, all this mighty armament was defeated, and their East India possessions saved from the danger which threatened them. In Africa likewise the king of Fez was baffled before the town of Safi, and fresh quarrels breaking out among the princes gave great relief to the Christians, who had long been obliged to carry on a defensive war, and had more than once been on the very brink of ruin. For a long time indeed their safety had been derived only from the quarrels of the Moors among themselves; for such was the envy and jealousy which reigned among the Portuguese, that they could never unite heartily in opposing the common enemy; and therefore, had their enemies united against them, they must certainly have been cut off. But whenever the sheriffs quarrelled with each other, one party was sure to have recourse to the Portuguese; who, by sending them a small supply, secured quiet to themselves, and had the pleasure of seeing their enemies destroy one another. Yet in the end even this had bad consequences; ²⁴ for, on one hand, it kept up a martial spirit among the Moors, and on the other it made them acquainted with the Portuguese discipline; so that after every short interval of repose they not only found them as much enemies as before, but much more formidable than ever. The consequence of all this was, that King John began to apprehend that the conquest of Barbary was impossible, and therefore to limit his desires to the keeping of those few fortresses which he had already; which, though a necessary and prudent measure, displeased the generality of his subjects.

24
Bad state of
affairs in
Barbary.

King John exerted himself much in the settlement of Brazil in South America, which he brought into a very good state, caused several strong towns to be erected there, and took all possible methods to encourage the conversion of the natives to Christianity. He also made many regulations for the welfare and happiness of his subjects. The disputes of the nobility about precedency were frequently attended with very disagreeable consequences, which made the king resolve once for all to settle them by established rules; and the rules established by him on this occasion have subsisted ever since, and in a great measure prevent these altercations. He had other great designs in his mind, particularly with regard to the reformation, which he had pushed very far with respect to religious persons of both sexes; but, on a close examination of his affairs, he found his subjects in general to have been so much injured by his leaving their concerns to the inspection of his council, that he was thrown by the grief of it into a kind of

apoplexy,

Portugal. apoplexy, from which he never recovered. His death happened in June 1557; and he was succeeded by his son Don Sebastian III. an infant of three years of age.

25
Preposi-
tious educa-
tion of the
young king
Sebastian.

After the death of King John, the administration remained in the hands of the queen, grandmother to Sebastian, who behaved with great prudence and circumspection. The Moors, however, supposing that under a minority they might be able to dispossess the Christians of such places as they held in Barbary; laid close siege to Masagan. But the queen-regent sent such speedy succours, and promised such rewards to those who distinguished themselves, that the Moors, though they brought 80,000 men into the field, were obliged to abandon the enterprise. This was at first magnified as a high instance of the queen's capacity and wisdom; but in a short time the natural aversion which the Portuguese had to the government of women, together with the prejudice they had against her country, as being a Castilian, appeared so plainly, and gave her so much uneasiness, that of her own accord she resigned her authority into the hands of Cardinal Don Henry the king's brother. By him Don Alexis de Monefes was appointed the king's governor, and Gonfales de Gomera with two other priests his preceptors. By means of those instructors the king's education was totally marred. His governor assiduously inculcated upon him that the chief virtue of a king was courage; that danger was never to be avoided, but always surmounted, let the occasion be what it would. His other tutors, instead of instructing him in the true religion, only inspired him with an abhorrence of professed infidels; the consequence of all which was, that he became rash, inconsiderate, and obstinate; all which qualities conspired to draw upon him the catastrophe which ruined both him and the kingdom.

26
He under-
takes an ex-
pedition
against
Africa.

After the king was grown up to man's estate, his desire was to distinguish himself against the infidels. He himself chose an expedition to the East Indies; but the prime minister Alcoçova, who did not choose to attend his monarch to such a distance, substituted Africa in its stead. This expedition the king entered into in the most inconsiderate and absurd manner. He first sent over Don Antonio prior of Crato, with some hundreds of soldiers; carried his principal courtiers over with him from a hunting match, and without equipages; he then sent for the duke of Aveyro, with such troops as he could collect on the short warning he had got; and when all these were assembled, the king spent his time in hunting, and slight excursions against the enemy, without doing any thing of consequence, except exposing his person upon all occasions. At length he returned to Portugal in such tempestuous weather, that his subjects had given him up for lost; when they were agreeably surpris'd by his unexpected arrival in the river of Lisbon, which they celebrated with the greatest rejoicings.

The little success which attended the king in this expedition served only to inflame him more with desire for another; so that from the time he returned he seemed to think on nothing else. He was highly delighted also with an accident which at this time furnished him with a pretence for war, though of that he stood in no great need. Muley Hamet, king of Fez and Morocco, had been dispossessed of his dominions by his uncle Muley Moloch. At the beginning of this war Don Sebastian

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Portugal. had offered him his troops in Africa, which offer was rejected with contempt: but now being a fugitive, and having in vain applied for assistance to Philip of Spain, Muley Hamet applied to the king of Portugal; and, that he might the more easily succeed, caused the fortrefs of Arzila, which his father had recovered, to be restored to the Portuguese. The king was in rapture at this event, and fancied that his glory would exceed that of all his predecessors. He was advised against this expedition, however, by all his friends. King Philip of Spain having done every thing to dissuade him from it in a personal conference, sent Francisco Aldana, an old and experienced officer, to Morocco; and at his return ordered him to attend Don Sebastian, in order to give him an account of the state of affairs in that country. This he performed with the greatest fidelity, but without any effect. The queen-dowager and cardinal united in their endeavours to divert him from this unfortunate enterprise; but he treated them both with so little respect, that his grandmother broke her heart; and the cardinal, to show his distaste to the measure, retired to Evora without coming either to court or council; which example was followed by many of the nobles. Many of these, however, sent very free remonstrances to the king on the impropriety of his conduct; and King Philip sent to him the duke de Medina Celi, once more to lay before him the reasons why he thought his scheme impracticable, and to put him in mind that he had no hand in pushing him upon his destruction, or of concealing from him the dangers into which he seemed determined to plunge himself and his subjects. Lastly, he received a letter on the subject from Muley Moloch himself, wherein that prince explained to him his own right to the crown of Fez, and showed that he had only dispossessed a tyrant and a murderer, who had therefore no right to his friendship or assistance. He next assured him that he had no reason to fear either the power or neighbourhood of the Portuguese; as a proof of which, and as a mark of his esteem, he was content to make him a present of ten miles of arable ground round each of the fortresses he possessed in Africa, and which indeed were no more than four, viz. Tangier, Ceuta, Masagan, and Arzila. At the same time he addressed himself to King Philip of Spain, with whom he was on good terms, desiring him to interpose with his nephew Sebastian, that things might be yet adjusted without the effusion of human blood. But the king of Portugal was deaf to all salutary advice; and therefore paid no regard to this letter, nor to the remonstrances of his uncle. On the 24th of June 1577, therefore, he set sail from the bar of Lisbon with a fleet of 50 ships and five galleys, 12 pieces of cannon, and transports and tenders, making near 1000 sail. His troops consisted of 9000 Portuguese foot; 3000 Germans; 700 Italians commanded by Sir Thomas Stukeley, an English exile, but remarkably brave; 2000 Castilians and 300 volunteers, commanded by Don Christopher de Tuvara master of the horse, a man of courage, but without either conduct or experience. He touched first at Lagos bay in the kingdom of Algarve, where he remained for four days: thence he proceeded to Cadiz; where he was magnificently feasted for a week by the duke de Medina Sidonia, who took the opportunity once more, by order of Philip, of dissuading him from proceeding further in person. But this exhortation proved as fruit-

27
Account of
his forces.

Portugal.

less as the rest; and the king having failed with a strong detachment for Tangier, ordered Don Diego de Souza, his commander in chief, to follow with the remaining part of the army.

The troops landed on the coast of Africa without any bad accident, and joined at Arzila. Here the king was met by the cheriff Muley Hamet, on whose account he had undertaken the war, who delivered him his son Muley, a boy of 12 years of age, as a hostage, and brought a reinforcement of 300 Moors. The boy was sent to Masagan under a strong guard; but the father remained in the Portuguese camp. Here it was resolved in a council of war to reduce the town of Larache, but it was disputed whether the troops should proceed thither by land or sea. Don Sebastian, who espoused the former opinion, finding himself opposed by Muley Hamet, gave him such a rude answer, that he left his presence in discontent; after which the king's opinion prevailed, and the army began its march on the 29th of July. As they proceeded, the king received a letter from the duke of Alba, requesting him to attempt nothing beyond the taking of the town of Larache. Along with the latter was sent an helmet which had been worn by Charles V.

28

Movements
and dispositions
of the
armies.

On the other hand Muley Moloch, having intelligence of this formidable invasion, took the field, though at that time so ill of a fever that he could not sit on horseback, with 40,000 foot and 60,000 horse. He conducted every thing, notwithstanding his distressed situation, with the greatest prudence. Finding some reason to suspect that part of his army were desirous of going over to his rival, he proclaimed that such as inclined to join their old master were at liberty to do it. This at once put a stop to the defection, and only a very few made use of the liberty which was granted them. Standing in doubt likewise of the fidelity of a body of 3000 horse, he sent them to reconnoitre the enemy, by which act of confidence he secured them. Still, however, he feared that his officers might be corrupted by the Portuguese gold; for which reason he changed the disposition of his army entirely, so that none of his officers commanded the corps to which they had been accustomed; and therefore, having new men to deal with, had none whom they could trust.

Having taken these precautions, he advanced against the Portuguese army with such celerity, that he came in sight of them on the 3d of August. On this Don Sebastian called a council of war; in which many who out of complaisance had given their opinions for this march, were now for returning. They were separated from the enemy by a river, and the Moors were masters of the ford, so that it was impossible to force them immediately in their posts; neither was it practicable for them to wait for a more favourable opportunity, because they had no provisions. The foreign officers, on the contrary, were of opinion that fighting was now become necessary, and a retreat dangerous. This, however, was violently opposed by the cheriff, who saw plainly that they ran a great risk of being defeated and of losing all, while at the same time they were not certain of gaining any thing of consequence though they should be victorious; whereas, if they drew down towards the sea, they might entrench themselves till they were relieved by their fleet; during which interval if Muley Moloch should die, he looked upon it as certain that a

Portugal.

great part of the army would desert to him, which would render him master not only of the kingdom, but of the fate of the Christians also. When he found that the king was bent on fighting, he only requested that the engagement might be delayed till four o'clock in the afternoon, that, in case of a defeat, they might have some chance of escaping; but even in this he could not prevail; for the king having disposed of every thing for a battle the next day, was impatient to begin the onset as soon as it was light.

In the mean time Muley Moloch was so sensible of the advantages of his situation, that he was inclined to take the whole Portuguese army prisoners; but finding his disease increase, so that he had no hopes of recovery, he came to the resolution to fight, that his antagonist might not avail himself of his death. The disposition of the Christian army was very regular and correct, through the care of some old officers in Don Sebastian's service: the infantry were disposed in three lines; the battalion of volunteers made the vanguard; the Germans commanded by Colonel Amberg, and the Italians by Sir Thomas Stukeley, were on the right; the Castilian battalions on the left; the Portuguese in the centre and rear; the cavalry, consisting of about 1500 men, partly on the right under the command of the duke d'Avegro, to whom the cheriff joined himself with his horse: on the left was the royal standard, with the rest of the cavalry, under the command of the duke of Barcelos, eldest son to the duke of Braganza, Don Antonio prior of Crato, and several other persons of great rank. The king took post at first with the volunteers. Muley Moloch disposed also his troops in three lines: the first consisted of the Andalusian Moors, commanded by three officers who had distinguished themselves in the wars of Granada; the second of renegades; and the third of the natives of Africa. They moved in a half moon, with 10,000 horse on each wing, and the rest in the rear, with orders to extend themselves in such a manner as to encompass the Christian army. Muley Moloch, though extremely weak, was taken out of his litter, and set on horseback, that he might see how his commanders had been obeyed; and being perfectly satisfied with the situation of his troops, he directed the signal of battle to be given. The Christians advanced with the greatest resolution; broke the first line of the Moorish infantry, and disordered the second. On this Muley Moloch drew his sword, and would have advanced to encourage his troops, but that his guards prevented him; on which his emotion of mind was so great, that he fell from his horse. One of his guards caught him in his arms, and conveyed him to his litter; where he immediately expired, having only time to lay his finger on his lips by way of enjoining them to conceal his death. But by this time the Moorish cavalry had wheeled quite round, and attacked the Christian army in the rear; upon which the cavalry in the left wing made such a vigorous effort that they broke the Portuguese on the right; and at this time the cheriff, in passing a rivulet, was drowned. In this emergency, the Germans, Italians, and Castilians, did wonders; but the Portuguese, according to their own historians, behaved indifferently. Attacked on all sides, however, they were unable to resist; and the whole army, except about 50 men, were killed or taken prisoners. The fate of the king is variously related. According to some,

29

The Portuguese
army
entirely de-
feated.

Portugal. some, he had two horses killed under him, and then mounted a third. His bravest officers were killed in his defence; after which the Moors surrounding him, seized his person, stripped him of his sword and arms, and secured him. They immediately began to quarrel about whose prisoner he was; upon which one of the generals rode in among them, crying, "What, you dogs, when God has given you so glorious a victory, would you cut one another's throats about a prisoner?" at the same time discharging a blow at Sebastian, he brought him to the ground, when the rest of the Moors soon dispatched him. Others affirm, that one Lewis de Brito meeting the king with his standard wrapped round him, Sebastian cried out, "Hold it fast, let us die upon it!" upon which charging the Moors, he was seized, rescued by Brito, who was himself taken with the standard, and carried to Fez. He affirmed, that after he was taken, he saw the king at a distance, and unpursued. Don Lewis de Lima met him afterwards making towards the river; and this is the last account we have of his being seen alive.

Muley Hamet, the brother of Muley Moloch, was proclaimed king by the Moors immediately after the battle. Next day, having ordered all the prisoners to be brought before him, the new sovereign gave orders to search for the body of Don Sebastian. The king's valet-de-chambre brought back a body, which he said was that of his master, but so disfigured with wounds, that it could not well be known; so that notwithstanding the most diligent search, this monarch's death could never be properly authenticated. This body, however, was preserved by Muley Hamet, who delivered it up as the body of Don Sebastian to King Philip of Spain. By him it was sent to Ceuta, from whence it was transported to Portugal, and buried among his ancestors in the monastery at Belem, with all possible solemnity.

By this terrible disaster, the kingdom of Portugal, from being the most eminent, sunk at once into the lowest rank of the European states. All the young nobility were cut off, or carried into slavery: the kingdom was exhausted of men, money, and reputation; so that Don Henry, who assumed the government after the death of his brother Don Sebastian, found himself in a very disagreeable situation. The transactions of his reign were quite trifling and unimportant; but after his death a great revolution took place. The crown of Portugal was claimed by three different competitors; viz. the prince of Parma, the dukes of Braganza, and Philip of Spain. Whatever might have been the merits of their respective claims, the power of Philip quickly decided the contest in his favour. He found his schemes facilitated by the treachery of the regents, who took the most scandalous methods of putting the kingdom into his hands. Under pretence of inspecting the magazines, they took out some of the powder, and mixed the rest with sand: they appointed an agent to go to France for succours, from whence they knew that they could not arrive in time; they dissolved the states as soon as they discovered that they were bent on maintaining the freedom of the nation; and, under a show of confidence, sent off to distant places such of the nobility as they suspected.

King Philip, finding every thing in his favour, commanded the duke of Alva to invade Portugal, at

the head of 20,000 men. The people, perceiving that they were betrayed, exclaimed against the governors, and placed on the throne Don Antonio prior of Crato. But his forces being inexperienced, and he himself behaving in a very improper manner, he was quickly defeated by the duke of Alva, and forced to fly out of the kingdom, which he effected with great difficulty. On his flight the whole kingdom submitted, together with the garrisons in Barbary, the settlements on the western coast of Africa, of Brazil, and in the East Indies. All the Madeiras, however, except the isle of St Michael, held out for Don Antonio until they were reduced, and the French navy, who came to their assistance, entirely defeated and destroyed.

Philip made his entry into Lisbon as soon as the kingdom was totally reduced, and endeavoured to conciliate the affections of the people by confirming the terms which he had before offered to the states. These terms were, that he would take a solemn oath to maintain the privileges and liberties of the people: that the states should be assembled within the realm, and nothing proposed in any other states that related to Portugal: that the viceroy or chief governor should be a native, unless the king should give that charge to one of the royal family: that the household should be kept on the same footing: that the post of first president, and of all offices, civil, military, and judicial, should be filled with Portuguese; all dignities in the church and in the orders of knighthood confined to the same; the commerce of Ethiopia, Africa, and the Indies, reserved also to them, and to be carried on only by their merchants and vessels: that he would remit all imposts on ecclesiastical revenues: that he would make no grant of any city, town, or jurisdiction royal, to any but Portuguese: that estates resulting from forfeitures should not be united to the domain, but go to the relations of the last possessor, or be given to other Portuguese for recompense of services: that when the king came to Portugal, where he should reside as much as possible, he should not take the houses of private persons for his officers lodging, but keep to the custom of Portugal: that wherever his majesty resided, he should have an ecclesiastic, a treasurer, a chancellor, two masters of requests, with under officers, all of them Portuguese, who should dispatch every thing relating to the kingdom: that Portugal should ever continue a distinct kingdom, and its revenue be consumed within itself: that all matters of justice should be decided within the realm: that the Portuguese should be admitted to charges in the households of the king and queen of Spain: that all duties on the frontiers should be taken away: and, lastly, that Philip should give 300,000 ducats to redeem prisoners, repair cities, and relieve the miseries which the plague and other calamities had brought upon the people. All these conditions, formerly offered and rejected by the Portuguese, the king now confirmed: but whereas the duke of Ossuna, by way of security for these conditions, had promised them a law, that if the king did not adhere to them, the states should be freed from their obedience, and might defend their right by the sword, without incurring the reproach of perjury, or the guilt of treason; this he absolutely refused to ratify.

All these concessions, however, did not answer the purpose;

Portugal.
32
Cannot
conciliate
their affec-
tions.

purpose; nay, though Philip was to the last degree lavish of honours and employments, the Portuguese were still dissatisfied. This had also an effect which was not foreseen: it weakened the power, and absorbed the revenues, of the crown; and, by putting it out of the power of any of his successors to be liberal in the same proportion, it raised only a short-lived gratitude in a few, and left a number of malcontents, to which time was continually adding.

33
Is disturb-
ed by Don
Antonio

Thus Philip, with all his policy, and endeavours to please, found his new subjects still more and more disgusted with his government, especially when they found their king treating with the utmost severity all those who had supported Don Antonio. The exiled prince, however, still styled himself *king of Portugal*. At first he retired to France, and there demanded succours for the recovery of his dominions. Here he found so much countenance, that with a fleet of near 60 sail, and a good body of troops on board, he made an attempt upon the Terceras, where his fleet was beat by the Spaniards; and a great number of prisoners being taken, all the officers and gentlemen were beheaded, and a great number of meaner people hanged. Don Antonio, notwithstanding, kept possession of some places, coined money, and performed many other acts of regal power; but was at length constrained to retire, and it was with some difficulty that he did so, and returned into France. He passed from thence into England, where he was well received; and many fitted out privateers to cruise against the Spaniards under his commission. But after King Philip had ruined the naval power of Portugal as well as Spain, by equipping the armada, Queen Elizabeth made no difficulty of owning and assisting Don Antonio, and even of sending Sir John Norris and Sir Francis Drake with a strong fleet and a great army to restore him. Upon this occasion Don Antonio sent his son Don Christopher a hostage to Muley Hamet king of Fez and Morocco, who was to lend him 200,000 ducats. But King Philip prevented this by surrendering Arzila: and this disappointment, the unseasonable enterprise upon Corunna, and the disputes that arose between Norris and Drake, rendered that expedition abortive; so that, except carrying the plague into England, it was attended with no consequences worthy of notice. He remained some time after in England: but finding himself little regarded, he withdrew once more into France, where he fell into great poverty and distress; and at length dying in the 64th year of his age, his body was buried in the church of the nuns of Ave Maria, with an inscription on his tomb, in which he is styled *king*. He left several children behind him, who, on account of his being a knight of Malta, and having made a vow of virginity at his entrance into the order, were looked upon as illegitimate. He preserved, even to the day of his death, a great interest in Portugal; and had drawn from thence, in the course of his life, immense sums of money; which had been squandered in many fruitless negotiations and attempts to disturb the possessions of King Philip in almost all parts of his dominions, and particularly in the Indies, where the Portuguese were rather more averse to the Castilian yoke, or at least testified their aversion more openly than in Europe.

But Don Antonio was not the only pretender to the

crown of Portugal: for the people, partly through the love of their prince, and partly from their hatred to the Castilians, were continually feeding themselves with the hopes that Don Sebastian would appear and deliver them; and in this respect such a spirit of credulity reigned, that it was said proverbially, they would have taken a negro for Don Sebastian. This humour put the son of a tiler at Alcobaza, who had led a profligate life, and at length turned hermit, to give himself out for that prince; and having with him two companions, one of them styled himself *Don Christopher de Tavora*, and the other the *bishop of Guarda*, they began to collect money, and were in a fair way of creating much disturbance, if the cardinal arch-duke had not caused them to be apprehended; and after leading them ignominiously through the streets of Lisbon, he who took the name of *Sebastian* was sent to the galleys for life, and the pretended bishop was hanged. Not long after, Gonfalo Alvarez, the son of a mason, gave himself out for the same king; and having promised marriage to the daughter of Pedro Alonso, a rich yeoman whom he created earl of Torres Novas, he assembled a body of about 800 men, and some blood was spilt before he was apprehended: at length, being clearly proved to be an impostor, himself and his intended father-in-law were publicly hanged and quartered at Lisbon; which, instead of extinguishing this humour, farther increased it.

There was, however, a person who appeared, about 20 years after the fatal defeat of Sebastian, at Venice, who created much more trouble. He assumed the name of *Don Sebastian*, and gave a very distinct account of the manner in which he had passed his time from that defeat. He assumed, that he had preserved his life and liberty by hiding himself amongst the slain: that, after wandering in disguise for some time in Africa, he returned with two of his friends into the kingdom of Algarve: that he gave notice of this to the king Don Henry: that finding his life sought, and being unwilling to disturb the peace of the kingdom, he returned again among the Moors, and passed freely from one place to another in Barbary, in the habit of a penitent: that after this he became a hermit in Sicily; but at length resolved to go to Rome, and discover himself to the pope. On the road he was robbed by his domestics, and came almost naked to Venice, where he was known, and acknowledged by some Portuguese. Complaint being made to the senate, he was obliged to retire to Padua. But the governor of that city ordering him also depart, he, not knowing what to do, returned again to Venice; where, at the request of the Spanish ambassador, who charged him not only with being an impostor, but also with many black and atrocious crimes, he was seized, and thrown into prison. He underwent 28 examinations before a committee of noble and impartial persons; in which he not only acquitted himself clearly of all the crimes that had been laid to his charge, but entered also into so minute a detail of the transactions that had passed between himself and the republic, that the commissioners were perfectly astonished, and showed no disposition to declare him an impostor; moved more especially by the firmness of his behaviour, his singular modesty, the sobriety of his life, his exemplary piety, and his admirable patience under his afflictions.

Portugal.
34
Impostors
pretending
to be Don
Sebastian.

35
Account of
a remark-
able one.

Portugal. tions. The noise of this was diffused throughout Europe, and the enemies of Spain endeavoured everywhere to give it credit.

The state, however, refused to discuss the great point, whether he was or was not an impostor, unless they were requested so to do by some prince or state in alliance with them. Upon this the prince of Orange sent Don Christopher, the son of the late Don Antonio, to make that demand; and at his request an examination was made with great solemnity: but no decision followed; only the senate set him at liberty, and ordered him to depart from their dominions in three days. He went therefore, by the advice of his friends, to Padua, but in the disguise of a monk, and from thence to Florence; where he was arrested by the command of the grand duke, who delivered him to the viceroy of Naples. The count de Lemos, then in possession of that dignity, died soon after, before whom he was first brought; this man asserted, he must know him to be Don Sebastian, since he had been twice sent to him from the king of Spain. He remained prisoner several years in the castle Del Ovo, where he endured incredible hardships. At length he was brought out, led with infamy through the streets of the city, and declared to be an impostor, who assumed the name of *Sebastian*: at which words, when proclaimed before him, he said gravely, *And so I am*. In the same proclamation it was affirmed, that he was in truth a Calabrian; which as soon as he heard, he said, *It is false*. He was next shipped on board a galley as a slave; then carried to St Lucar, where he was some time confined; from thence he was transferred to a castle in the heart of Castile, and never heard of more. Some persons were executed at Lisbon for their endeavours to raise an insurrection on his behalf: but it was thought strange policy, or rather a strange want of policy, in the Spaniards, to make this affair so public without proofs; and the attempt to silence this objection, by affirming him to be a magician, was justly looked upon as ridiculous.

36
Bad consequences of the Spanish administration.

The administration of affairs in Portugal, during the reign of Philip, was certainly detrimental to the nation; and yet it does not appear that this flowed so much from any ill intention in that monarch, as from errors in judgment. His prodigious preparations for the invasion of England impoverished all his European dominions; but it absolutely exhausted Portugal. The pretensions of Don Antonio, and the hopes of despoiling their Indian fleets, exposed the Portuguese to the resentment of the English; from which the king, having granted away all his domains, wanted power to defend them. Their clamours were not at all the less loud for their being in some measure without cause. The king, to pacify them, borrowed money from the nobility upon the customs, which were the only sure remedy he had still left; and this was attended with fatal consequences. The branches, thus mortgaged, became, and continue to this hour, fixed and hereditary; so that the merchant was oppressed, and the king received nothing. This expedient failing, a tax of three per cent. was imposed, in the nature of ship-money, for the defence of the coasts and the commerce, which for some years was properly applied; but it then became a part of the ordinary revenue, and went into the king's exchequer without account. This made way for diverting other appropriated branches; as for instance, that for the repair of for-

tifications, the money being strictly levied, and the works suffered to decay and tumble down; and for the maintenance of the conquests in Africa, by which the garrisons mouldered away, and the places were lost. Upon the whole, in the space of 18 years, the nation was visibly impoverished: and yet the government of Philip was incomparably better than that of his successors; so that his death was justly regretted; and the Portuguese were taught by experience to confess, that of bad masters he was the best.

His son Philip, the second of Portugal and the third of Spain, sat 20 years upon the throne before he made a visit to Portugal, where the people put themselves to a most enormous expence to receive him; for which they received little more than the compliment, that before his entry into Lisbon, he knew not how great a king he was. He held an assembly of the states, in which his son was sworn successor. Having done all that he wanted for himself, he acquired a false idea of the riches of the nation from an immoderate and foolish display of them during his short stay at Lisbon; and having shown himself little, and done less, he returned into Spain; where he acted the part of a good king upon his death-bed, in deploring bitterly that he never thought of acting it before. The reign of Philip III. and IV. was a series of worse measures, and worse fortune: all his dominions suffered greatly; Portugal most of all. The loss of Ormus in the East, of Brazil in the West Indies, together with the shipwreck of a fleet sent to escort that from Goa, brought the nation incredibly low, and encouraged the conde duke to hope they might be entirely crushed. These are the heads only of the transactions for 40 years; to enter in any degree into the particulars, is, in other words, to point out the breaches made by the Spanish ministers on the conditions granted by King Philip; which, with respect to them, was the original contract, and unalterable constitution of Portugal while subject to the monarchs of Castile; and which, notwithstanding, they so often and so flagrantly violated, that one would have imagined they had studied to provoke the wrath of heaven, and insult the patience of men, instead of availing themselves, as they might have done, of the riches, power, and martial spirit of the Portuguese people.

Portugal.

37
Great losses in Asia and America.

It was the very basis and foundation of their privileges, that the kingdom should remain separate and independent, and consequently that Lisbon should continue as much its capital as ever, the several supreme councils and courts residing there; so that the natives of this realm might not be obliged to travel in search of justice. So little, or at least so short a time, was this observed, that neither promotion nor justice was to be obtained without journeys, and Madrid was not more the capital of Castile than of Portugal. The general assembly of estates was to be held frequently, and they were held thrice in the space of 60 years; and of these twice within the first three. The king was to reside in this realm, as often and as long as possible; in compliance with which, Philip I. was there but once, Philip II. but four months, and Philip III. was never there at all. The household establishment was suppressed through all their reigns. The viceroy was to be a native of Portugal, or a prince or princess of the blood; yet when any of the royal family bore the title, the power was in reality in the hands of a Spaniard. Thus, when the prin-

38
The Portuguese oppressed by the Spaniards.

cess.

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cess of Mantua was vice-queen, the marquis de la Puebla was to assist in council, and in all dispatches; and she was to do nothing without his advice. The council of Portugal, which was to be composed entirely of natives, was filled with Castilians, as the garrisons also were, though the contrary had been promised. The presidents of provinces, or corregidores, were to be natives; but by keeping those offices in his own hands, the king eluded this article. No city, town, or district, was to be given but to Portuguese; yet the duke of Lerma had Beja, Serpa, and other parts of the demesnes of the crown, which were formerly appendages of the princes of the blood. None but natives were capable of offices of justice, in the revenue, in the fleet, or of any post civil or military; yet these were given promiscuously to foreigners, or sold to the highest bidder; not excepting the governments of castles, cities, and provinces. The natives were so far from having an equal chance in such cases, that no posts in the presidials were ever given to them, and scarce any in garrisons; and whenever it happened, in the case of a person of extraordinary merit, whose pretensions could not be rejected, he was either removed, or not allowed to exercise his charge; as fell out to the marquis of Marialva and others. The forms of proceeding, the jurisdiction, the ministers, the secretaries, were all changed, in the council of Portugal; being reduced from five to three, then two, and at last to a single person.

39
A revolution in favour of the duke of Braganza.

By reason of these and many other grievances too tedious to be mentioned here, the detestation of the Spanish government became universal; and in 1640 a revolution took place, in which John duke of Braganza was declared king, by the title of John IV. This revolution, as being determined by the almost unanimous voice of the nation, was attended with very little effusion of blood; neither were all the efforts of the king of Spain able to regain his authority. Several attempts indeed were made for this purpose. The first battle was fought in the year 1644, between a Portuguese army of 6000 foot and 1100 horse, and a Spanish army of nearly the same number. The latter were entirely defeated; which contributed greatly to establish the affairs of Portugal on a firm basis. The king carried on a defensive war during the remainder of his life; and after his death, which happened in 1655, the war was renewed with great vigour.

40
Perilous state of Portugal on his death.

This was what the Spaniards did not expect; for they expressed a very indecent kind of joy at his death, hoping that it would be followed by a dissolution of the government. It is not indeed easy to conceive a kingdom left in more perilous circumstances than Portugal was at this time:—The king Don Alonzo Enriquez, a child not more than 13 years of age, reputed of no very sound constitution either in body or mind; the regency in a woman, and that woman a Castilian; the nation involved in a war, and this respecting the title to the crown; the nobility, some of them secretly disaffected to the reigning family, and almost all of them embarked in feuds and contentions with each other; so that the queen scarce knew who to trust or how she should be obeyed. She acted, however, with great vigour and prudence. By marrying her only daughter the princess Catharine to Charles II. king of Great Britain, she procured to Portugal the protection of the English fleets, with reinforcements of some thou-

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sands of horse and foot; and at last, in 1665, terminated the war by the glorious victory of Montefclaros. This decisive action broke the power of the Spaniards, and fixed the fate of the kingdom, though not of the king of Portugal. Alonzo was a prince whose education had been neglected in his youth, who was devoted to vulgar amusements and mean company, and whom the queen for these reasons wished to deprive of the crown, that she might place it on the head of his younger brother Don Pedro. To accomplish this purpose, she attempted every method of stern authority and secret artifice; but she attempted them all in vain. The Portuguese would not consent to set aside the rights of primogeniture, and involve the kingdom in all the miseries attending a disputed succession. After the death, however, of the queen-mother, the infant entered into cabals against the king of a much more dangerous nature than any that she had carried on. Alonzo had married the princess of Nemours; but being, as was said, impotent, and likewise less handsome than his brother, that lady transferred her affection to Don Pedro, to whom she lent her assistance to hurl the king from the throne. Alonzo was compelled to sign a resignation of the kingdom; and his brother, after governing a few months without any legal authority, was in a meeting of the states unanimously proclaimed regent, and vested with all the powers of royalty. Soon after this revolution, for such it may be called, the marriage of the king and queen was declared null by the chapter of Lisbon; and the regent, by a papal dispensation, and with the consent of the states, immediately espoused the lady who had been wife to his brother. He governed, under the appellation of *regent*, 15 years, when, upon the death of the king, he mounted the throne by the title of Don Pedro II. and after a long reign, during which he conducted the affairs of the kingdom with great prudence and vigour, he died on the 9th of December 1706.

41
Don Alonzo obliged to resign the throne.

Don John V. succeeded his father; and though he was then little more than 17 years of age, he acted with such wisdom and resolution, adhered so steadily to the grand alliance formed against France and Spain, and showed such resources in his own mind, that though he suffered great losses during the war, he obtained such terms of peace at Utrecht, that Portugal was in all respects a gainer by the treaty. The two crowns of Spain and Portugal were not, however, reconciled thoroughly till the year 1737; and from this period they became every day more united, which gave much satisfaction to some courts, and no umbrage to any. In this situation of things, a treaty was made in 1750 with the court of Madrid, by which Nova Colonia, on the river of Plata, was yielded to his Catholic majesty, to the great regret of the Portuguese, as well on account of the value of that settlement, as because they apprehended their possession of the Brasils would by this action be rendered precarious. On the last of July the same year, this monarch, worn out by infirmities, died in the 61st year of his age, and in the 44th of his reign.

42
Don John V. a wise and reprobate prince.

Don Joseph, prince of Brasil, succeeded him, to the universal satisfaction of his subjects, and with as great expectations as ever any monarch that mounted the throne. It was generally believed that he would make considerable alterations, in which he did not disappoint

43
Don Joseph's excellent administration.

Portugal. the hopes of the public; and yet they were done so slowly, with such moderation, and with so many circumstances of prudence, as hindered all grounds of complaint. Amongst other new regulations, the power of the inquisition suffered some restriction; the king directing, that none of their sentences should be put in execution till reviewed and approved by his privy council. But as in the reign of his father he had consented to the treaty with Spain, he ratified it after his accession, and since carried it into execution upon this noble principle, that no considerations of interest ought ever to induce a monarch to break his word.

44
Dreadful calamities during his reign.

Within the space of the few years of this king's reign, the calamities of Portugal in general, and those of the city of Lisbon in particular, can scarcely be paralleled in history. An earthquake, a fire, a famine, an assassination-plot against their prince, executions upon scaffolds and wheels for torture reeking with the noblest blood; imprisonment after imprisonment of the greatest and most distinguished personages; the expulsion of a chief order of ecclesiastics; the invasion of their kingdom by a powerful, stronger, and exasperated nation; the numerous troops of the enemy laying waste their territory, bringing fire and sword with them, and rolling like distant thunder towards the gates of their capital; their prince ready almost to save himself by flight! The Spanish ministry had already decreed the doom of Portugal, and nothing was to be heard at the Escorial but *Delenda est Carthago*. Carthaginian, perhaps, or Jewish history, may possibly afford a scene something like this, but for the shortness of the period not so big with events, though in their final destruction superior. From that indeed, under the hand of Providence, the national humanity and generosity of Great Britain preserved the Portuguese; and it remains now to be seen, in future treaties, how that people will express their gratitude (see BRITAIN, N^o 450.) Those who are able to search deeper into human affairs, may assign the causes of such a wonderful chain of events; but no wise man will ascribe all this to so singular a cause as that which a Spaniard has done, in a famous pamphlet, printed in the year 1762 at Madrid. It is intitled, *A Spanish Prophecy*; and endeavours to show, that all these calamities have befallen the Portuguese, solely on account of their connection with the heretic English. The great Ruler and Governor of the world undoubtedly acts by universal laws, regarding the whole system, and cannot, without blasphemy, be considered in the light of a partizan. The rest of the pamphlet tends to show, that his Catholic majesty carried his arms into Portugal, solely to give them liberty, and set them free from English tyranny.

45
These calamities foolishly accounted for.

Joseph dying without male issue, the succession devolved to Mary, his daughter, now queen of Portugal. She was married some time before he died, with the pope's dispensation, to his brother Don Pedro. But as the queen has long laboured under mental imbecillity, the executive government of the kingdom is entrusted to her son, who is styled Prince Regent.

Portugal has not been exempted from feeling the effects of Bonaparte's insatiable ambition. From the unrelenting hatred which he bears towards Great Britain, he has meditated the destruction of her commerce by every means in his power, and therefore he demanded of the Portuguese government, that all British vessels

might be excluded from having any share in the trade of that country. Bonaparte demanded, that the Portuguese government should immediately pay to France 4,000,000 of crusades in specie, shut all the ports of Portugal against British commerce, imprison British subjects, and confiscate their property; give up the fleet of Portugal to France, and receive French and Spanish soldiers to protect the garrisons. It appears to have been with extreme reluctance that the prince regent agreed to such iniquitous demands, which naturally filled the British merchants with consternation and dismay, whose persons and property the Portuguese government was anxious to place beyond the reach of danger; and accordingly, the prince regent ordered their property to be shipped, without the payment of accustomed duties, requesting the military and customhouse officers to give them every assistance. On the 17th of October 1807, the *Lively* frigate sailed from Lisbon with a convoy of 50 sail for England, having on board nearly the whole of the English merchants and property.

Portugal.
46
Demands of Bonaparte on Portugal.

But such friendly dispositions towards the British, the prince regent was very soon compelled to relinquish; for, on the 22d of October, he issued the following edict. "It having been my greatest desire to preserve within my dominions the most perfect neutrality during the present war, upon account of the acknowledged good effects that result from it to the subjects of this crown; but it being impossible to preserve it any longer, and reflecting at the same time how beneficial a general peace will be to humanity, I have judged it proper to accede to the cause of the continent, by uniting myself to his majesty the emperor of the French and king of Italy, and to his catholic majesty, in order to contribute, as far as may be in my power, to the acceleration of a maritime peace; wherefore, I am pleased to order, that the ports of this kingdom may be shut against the entry of all ships of war, and merchant vessels, belonging to Great Britain; and thus it is to be understood."

A short time prior to this event, the prince regent intimated the determination of the court to abandon the kingdom and emigrate to the Brasils; but this resolution was very soon followed by the above-mentioned edict. Whether we are to ascribe this change of sentiment to symptoms of domestic inquietude, or whether from the effects of some soothing opiate, administered by those who were in the interest of Bonaparte, it appears that the prince regent had not resolution to execute his project. The agitation of the metropolis was such as must have shaken his resolution; an implacable enemy was on the frontiers, and the government being supposed to be on the eve of emigrating, created uncommon consternation, and the people at large seemed ripe for an insurrection. In this situation of affairs the prince made it publicly known, that he had yet well-founded hopes to expect, that the absence of the Spanish and French ambassadors would be only temporary, and not followed by any acts of hostility on the part of those powers. In justification of the prince's conduct towards Britain on the present occasion, some have put the question, "What means did Portugal possess to resist, with effect, the tyrant of the continent, who had declared, that if the house of Braganza should not break off its connexion with England, it should cease to reign?"

The design first adopted by the prince regent was apparently

Portugal. parently relinquished for some time, but finally carried into execution on the 29th of November, when 15 persons belonging to the house of Braganza embarked at Lisbon for the Brasils, under the escort of a British fleet. In consequence of this measure, the emperor of France declared that the throne was abdicated, and that the kingdom should henceforth be considered as a constituent part of the French dominions. He dissolved the regency formed by the prince, sequestrated all the property belonging to the crown, and that of all the nobles who followed him into exile. General Junot, who soon after this, entered Lisbon at the head of 14,000 men, issued a proclamation to the people of Portugal, in which he promised the due administration of justice, the preservation of tranquillity, and declared that their future happiness should be attended to with the utmost punctuality. These pretensions, however, did not appear to reconcile the subjects of Portugal to their new masters; for when Junot seated himself in the prince's box at the opera, all the Portuguese then present put on their hats, and instantly withdrew. The evils attending this French invasion were such as might have been expected. The lower classes were dying of absolute want; and more than two-thirds of the mercantile houses in Lisbon were plunged into the gulf of bankruptcy.

47
Emigration of the Royal family to the Brasils.

48
The French enter Lisbon.

49
French defeated at the battle of Vimiera.

40
Convention of Cintra.

The army of Sir Arthur Wellesley, sent by Great Britain to act against the French troops under Junot, amounted to about 20,000 men, with an equal number of Portuguese soldiers, which were to be joined by a Spanish force of 10,000 men, under the command of General Jones. The British and French had a desperate action near Vimiera on the 21st of August 1808, which terminated in the total defeat of the French forces, who were to evacuate Portugal on certain conditions, the chief of which was, that they were to be carried home with all their plunder, in vessels belonging to Great Britain. Sir Hew Dalrymple, who succeeded Sir Arthur Wellesley as commander in chief of the British forces, agreed to what is called the convention of Cintra, by which indeed the kingdom of Portugal was freed in the mean time from the ravages of an unfeeling enemy; but it has been supposed that such a convention might have been much more honourable to Britain, and the French troops compelled to an unconditional surrender. Dishonourable as this convention was deemed by some, it had the sanction of Sir Charles Cotton, the admiral of the British fleet; and the freeing the Portuguese from the oppression and tyranny of France by this means became a justification of the measure. This convention was strongly reprobated in Britain; a board of general officers was appointed by his majesty to form a court for the purpose of inquiring into the circumstances which led to it; and the result of the investigation was a decision, by a majority of the court, that the armistice and convention were necessary, and that nothing dishonourable or improper attached to any of the officers concerned in it.

Every thing at the Brasils proceeded in a tranquil and prosperous manner under the auspices of the new government. The highest veneration was shown by the colonists of all descriptions for the prince regent, and prompt obedience paid to his ordinances and commercial regulations. The most enthusiastic attachment prevailed in Rio Janeiro and Bahia towards the English settlers; and the happiest consequences were expected to result from the enterprises of their new friends in South Ame-

rica. The consequences resulting to the Portuguese, from the convention of Cintra, were of the most beneficial nature. The whole country was not only in a state of subordination, but the effects of the energy displayed by the government began to be felt all over the kingdom. The disaffected and suspected were everywhere taken into custody; and the people were making the most active exertions for their own defence, and for the common cause.

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The Portuguese government issued a proclamation calling upon the whole nation, from 15 to 60, to rise *en masse* for the defence of their country, and to oppose an insurmountable barrier against the French. The whole people were required to arm themselves in every manner in their power, particularly with pikes of six or seven feet long,—an order which met with more prompt obedience than a similar command experienced when issued by the emperor of Germany.

But since the unfortunate issue of the campaign of the British army under Sir John Moore in Spain (for an account of which, see SPAIN), the affairs of Portugal have experienced another sad reverse. The armies of France have again entered that devoted kingdom, and are now (Feb. 1809) probably in possession of the greatest part of it, going on as formerly with their work of plunder.

51
The French re-enter Portugal.

The air of Portugal, in the southern provinces, would be excessively hot, if it were not refreshed by the sea-breezes; but in the northern, it is much cooler, and the weather more subject to rains. The spring is extremely delightful here; and the air, in general, more temperate than in Spain. Lisbon has been much resorted to of late by valetudinarians and consumptive persons from Great Britain, on account of its air. The soil is very fruitful in wine, oil, lemons, oranges, pomegranates, figs, raisins, almonds, chestnuts, and other fine fruits; but there is a want of corn, owing, it is said, in a great measure to the neglect of agriculture. There is plenty of excellent honey here; and also of sea and river fish, and sea salt. The horses in Portugal are brisk lively animals, as they are in Spain, but of a slight make: but mules being surer-footed, are more used for carriage and draught. By reason of the scarcity of pasture, there are not many herds of cattle or flocks of sheep; and what they have are small and lean, though the flesh is tolerably good: their best meat is said to be that of hogs and kids. The country in many parts is mountainous: but the mountains contain all kinds of ores; particularly of silver, copper, tin, and iron, with a variety of gems, beautifully variegated marble, millstones, and many curious fossils. Not far from Lisbon is a mine of saltpetre; but none of the metal mines are here worked, the inhabitants being supplied with metals of all kinds from their foreign settlements. The principal rivers are the Minho, in Latin *Minus*; the Limia, anciently the famed Lethe; the Cavado; the Douro; the Guadiana, anciently Anas; and the Tajo, or Tagus, which is the largest river in the kingdom, carrying some gold in its sands, and falling into the sea a little below Lisbon. There are several mineral springs in the kingdom, both hot and cold, which are much frequented.

52
Air, climate, &c.

The only religion tolerated in Portugal is that of the church of Rome; yet there are many concealed Jews, and those too even among the nobility, bishops, prebends,

53
Religion.

Portugal. bends, monks, and nuns, and the very inquisitors themselves. If a Jew pretends to be a Christian and a Roman Catholic, while he is really a Jew, by going to mass, confession, &c. or if after being converted, or pretending to be converted and pardoned, he relapses into Judaism and is discovered, the inquisition lays hold of him. In the first case, if he renounce Judaism, he is only condemned to some corporal punishment or public shame, and then ordered to be instructed in the Christian religion. In the second, he is condemned to the flames without mercy. Besides Jews and heretics, who broach or maintain any doctrines contrary to the religion of the country, the inquisition punishes all sodomites, pretenders to sorcery and the black art, apostates, blasphemers, perjured persons, impostors, and hypocrites. The burning of those condemned by the inquisition, is called an *auto da fe*, or "act of faith." There are several tribunals of the inquisition, one of which is at Goa in the East Indies; but there are none in Brasil. The number of convents in Portugal is said to be 900. The order of Jesuits hath been suppressed in this country, as they have been in others. Here is a patriarch, several archbishops and bishops: the patriarch is always a cardinal, and of the royal family. The archbishops rank with marquises, and the bishops with counts. The Portuguese have archbishops and bishops in the other quarters of the world as well as in Europe. The sums raised by the popes here, by virtue of their prerogatives, are thought to exceed the revenues of the crown, and the nuncios never fail of acquiring vast fortunes in a short time. Though there are two universities and several academies, yet while the papal power, and that of the ecclesiastics, continues at such a height, true learning is like to make but a small progress. The language of the Portuguese does not differ much from that of Spain: Latin is the ground-work of both; but the former is more remote from it, and harsher to the ear, than the latter. The Portuguese tongue is spoken on all the coast of Africa and Asia as far as China, but mixed with the languages of the several nations in those distant regions.

48
Manufactures.

With regard to manufactures, there are very few in Portugal, and those chiefly coarse silks, woollen cloths, and some linen; but their foreign trade is very considerable, especially with England, which takes a great deal of their wine, salt, foreign commodities, and fruits, in return for its woollen manufactures, with which the Portuguese furnish their colonies and subjects in Asia, Africa, and America. Their plantations in Brasil are very valuable, yielding gold, diamonds, indigo, copper, tobacco, sugar, ginger, cotton, hides, gums, drugs, dyeing woods, &c. From their plantations in Africa, they bring gold and ivory, and slaves to cultivate their sugar and tobacco plantations in Brasil. They have still several settlements in the East Indies, but far less considerable than formerly. The Azores or Western Isles, Madeira, and the Cape de Verde islands, also belong to them; but a great part of the riches and merchandise brought from these distant countries becomes the property of foreigners, for the goods they furnish the Portuguese with to carry thither. The king's fifth of the gold brought from Brasil amounts commonly to about 300,000l. sterling; so that the whole annual produce of gold in Brasil may be estimated at near 2,000,000l. sterling.

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Portugal. Lisbon is the greatest port in Europe next to London and Amsterdam.

As to the constitution of Portugal, it is an absolute hereditary monarchy. Both here and in Spain there were anciently cortes, states, or parliaments; but they have long since entirely lost their share in the legislature. For the administration of the civil government, there is a council of state, and several secretaries; for military affairs, a council of war; for the finances, a treasury-court; and for the distribution of justice several high tribunals, with others subordinate to them, in the several districts into which the kingdom is divided. The cities have their particular magistracy. The proceedings of the courts are regulated by the Roman law, the royal edicts, the canon law, and the pope's mandates. Like the Spaniards, they transact most of their business in the mornings and evenings, and sleep at noon. The nobility are very numerous, and many of them are descended from natural sons of the royal family. They are divided into high and low. The high consists of the dukes, marquises, counts, viscounts, and barons, who are also grandees, but of different classes, being suffered to be covered in the king's presence, and having the title of *Dons*, with a pension from the royal treasury, to enable them the better to support their dignity: the king styles them *Illustrious* in his letters, and treats them as princes. A duke's sons are also grandees, and his daughters rank as marchionesses. The inferior nobility or gentry are termed *Hidalgos*, i. e. gentlemen: they cannot assume the title of *Don* without the king's license.

49
Constitution and government.

The revenues of the crown, since the discovery of the Brasil mines, are very considerable; but the real amount of the king's revenues can only be guessed at. Some have said that it amounts, &c. clear of all salaries and pensions, to upwards of 3,000,000 sterling; others make it a great deal less. Thus much is certain, that the customs and other taxes run excessively high. Besides the royal demesnes, the hereditary estates of the house of Braganza, the monopoly of Brasil snuff, the coinage, the money arising from the sale of indulgences granted by the pope, the fifth of the gold brought from Brasil, the farm of the Brasil diamonds, the masterships of the orders of knighthood, and other sources, yield very large sums. The forces, notwithstanding, of this nation, both by sea and land, are very inconsiderable; their land forces being the worst militia in Europe, and their navy of little importance.

50
Revenues of the king, &c.

There are several orders of knighthood here, viz. the order of Christ, the badge of which is a red cross within a white one, and the number of the commanderies 454. 2. The order of St James, the badge of which is a red sword in the shape of a cross. A great number of towns and commanderies belong to this order. 3. The order of Aviz, whose badge is a green cross in form of a lily, and the number of its commanderies 49. Though these three orders are religious, yet the knights are at liberty to marry. 4. The order of St John, which has also several commanderies.

51
Orders of knighthood.

The king's titles are, *King of Portugal and the Algarves, on this side and the other side the sea of Africa; Lord of Guinea, and of the navigation, conquests, and commerce, in Ethiopia, Arabia, Persia, India, &c.* The king's eldest son is styled *Prince of Brasil*. In the year

Portugal
||
Positive.
52
Character
of the
people.

1749, Pope Benedict XIV. dignified the king with the title of *His most faithful majesty*.

The Portuguese are represented as inferior to the Spaniards both in person and genius: as extremely haughty, treacherous, and crafty in their dealings; much given to avarice and usury; and vindictive, malicious, and cruel. The meaner sort are said to be extremely addicted to thieving: notwithstanding, it must be owned, that they have shewn themselves on many occasions a brave and warlike people. They are justly famed for their skill in navigation; and for the many discoveries they have made both in the East and West Indies. The women here, and in other countries of the same degree of heat, are not so prolific as in the colder climates; but they are said to be very beautiful whilst young, though their complexion is somewhat upon the olive. Their eyes are very black and sparkling, and retain their brilliancy after all their other charms are gone. It is the fashion here, at present, as in most other countries, for the ladies to spoil and disfigure their skins and complexions with paints and washes: but, though lively and witty, they are said to have a nice sense of female honour. Both men and women make great use of spectacles; often not so much to aid their sight, as to denote their wisdom and gravity. Their dress, like that of the Spaniards, never used to vary, especially among the men; but of late years, both men and women have given much into the French modes. The women, when they go abroad on foot, are wont to use long veils, which cover their heads, but leave their faces bare.

PORTUGALLICA TERRA, earth of Portugal; the name of a fine astringent bole, dug in great plenty in the northern part of Portugal.

PORTULACA, PURSLANE; a genus of plants belonging to the dodecandria class; and in the natural method ranking under the 13th order, *Succulentæ*. See *BOTANY Index*.

PORTUMNA, a town of Ireland, in the county of Galway and province of Connaught, is 74 miles from Dublin. The castle of Portumna, the seat of the earl of Clanricarde, is at this place, and near it are the ruins of an ancient castle. There is also a garrison for a troop of horse and two companies of foot. The town is seated on the river Shannon, where it falls into Lough Derg. The monks of the Cisterian abbey of Dunbrody, in the county of Wexford, had for a long time a chapel here, dedicated to St Peter and St Paul; but having at length forsaken it, O'Madden, dynast of the country, gave it to the Dominican friars, who, with the approbation of the monks of Dunbrody, erected a friary here and a church, which they dedicated to the blessed Virgin and the original patron saints; at the same time they built a steeple, and all other necessary offices. Pope Martin V. granted a bull to confirm their possessions, dated 8th October 1426; and on the 23d of November following he granted indulgencies to all who had contributed to the building. The walls are still nearly entire, and show that the monastery of Portumna was by no means an ignoble structure. The ancient choir is now the parish-church.

POSE, in *Heraldry*, denotes a lion, horse, or other beast, standing still, with all his four feet on the ground. See *Hollinghead's Description of Britain*, chap. xvi.

POSITIVE, a term of relation opposed to negative. It is also used in opposition to relative or arbitrary: thus

we say, Beauty is no positive thing, but depends on the different tastes of people.

POSITIVE Degree, in *Grammar*, is the adjective in its simple signification, without any comparison.

POSITIVE Electricity. In the Franklinian system all bodies supposed to contain more than their natural quantity of electric matter are said to be *positively* electrified; and those from whom some part of their electricity is supposed to be taken away are said to be electrified *negatively*. These two electricities being first produced, one from glass, the other from amber or rosin, the former was called *vitreous*, the other *resinous*, electricity.

POSOLITE, in the former military establishment of Poland, is the name given to a kind of militia. It was the most numerous and the most useless of the Polish armies, consisting of the gentry at large, who, in case of invasion, were assembled by a regular summons from the king, with consent of the diet. Every palatinate was divided into districts, over each of which proper officers were appointed; and every person possessing free and noble tenures was bound to military service, either singly or at the head of a certain number of his retainers, according to the extent and nature of his possessions. The troops thus assembled were obliged only to serve for a limited time, and were not under the necessity of marching beyond the limits of their country. They submitted to no discipline but such as they liked themselves; and were very apt to mutiny if detained more than a fortnight in the place appointed for their meeting without marching. The mode of levying and maintaining this army was exactly similar to that practised under the feudal system. Although unfit for the purposes of repelling a foreign enemy, it was considered a powerful instrument in the hands of domestic faction: for the expedition with which it was raised under the feudal regulations facilitated the formation of those dangerous confederacies which suddenly started up on the contested election of a sovereign, or whenever the nobles were at variance with each other.

POSSE COMITATUS, in *Law*, signifies the power of the county, or the aid and assistance of all the knights, gentlemen, yeomen, labourers, servants, apprentices, &c. and all others within the county that are above the age of 15, except women, ecclesiastical persons, and such as are decrepit and infirm.

This posse comitatus is to be raised where a riot is committed, a possession kept upon a forcible entry, or any force of rescue used contrary to the king's writ, or in opposition to the execution of justice; and it is the duty of all sheriffs to assist justices of the peace in the suppression of riots, &c. and to raise the posse comitatus, or to charge any number of men for that purpose.

POSSESSION, in *Law*, is either actual, where a person actually enters into lands or tenements descended or conveyed to him; or where lands are descended to a person, and he has not yet entered into them. A long possession is much favoured by the law as an argument of right, even though no deed can be shown, and it is more regarded than an ancient deed without possession.

If he that is out of possession of land brings an action, he must prove an undeniable title to it; and when a person would recover any thing of another, it is not sufficient to destroy the title of the person in possession without

Positive
Degree
||
Possession.

Coxe's Tra-
vels.

Possession. without he can prove that his own right is better than his.

In order to make possession lawful upon an entry, the former possessor and his servants are to be removed from off the premises entered on: but a person by lease and release is in possession without making any entry upon the lands.

POSSESSION, in *Scots Law*. See LAW, Part III. N^o clxii. 11. &c.

Dæmoniackal POSSESSION. (See DEMON and DEMONIACS). In the third volume of the *Manchester Transactions*, there is a paper on *popular illusions*, or medical demonology, by Dr Ferriar. He informs us in a note, that, on the 13th of June 1788, George Lukins of Yatton in Somersetshire was exorcised in the Temple church at Bristol, and delivered from the possession of seven devils by the efforts of seven clergymen. An account of his deliverance was published in several of the public papers, authenticated by the Rev. Mr Easterbrook, vicar of the Temple church in Bristol.—Dr Ferriar gives us the following particulars, extracted from this account, which we shall here insert.

“Lukins was first attacked by a kind of epileptic fit, when he was going about acting Christmas plays, or mummeries: this he ascribed to a blow given by an invisible hand. He was afterwards seized by fits; during which he declared, with a roaring voice, that he was the devil, and sung different songs in a variety of keys. The fits always began and ended with a strong agitation of the right hand. He frequently uttered dreadful execrations during the fits. The whole duration of his disorder was 18 years.

“At length, viz. in June 1788, he declared that he was possessed by seven devils, and could only be freed by the prayers (*in faith*) of seven clergymen. Accordingly the requisite force was summoned, and the patient sung, swore, laughed, and barked, and treated the company with a ludicrous parody on the *Te Deum*. These astonishing symptoms resisted both hymns and prayers, till a *small, faint voice* admonished the ministers to adjure. The spirits, after some murmuring, yielded to the adjuration, and the happy patient returned thanks for his wonderful cure. It is remarkable, that during this solemn mockery, the fiend swore ‘by his infernal den,’ that he would not quit his patient; an oath, I believe, nowhere to be found but in the *Pilgrim’s Progress*, from which Lukins probably got it.

“Very soon after the first relation of this story was published, a person, well acquainted with Lukins, took the trouble of undeceiving the public with regard to his pretended disorder, in a plain, sensible narrative of his conduct. He asserts, that Lukins’s first seizure was nothing else than a fit of drunkenness: that he always foretold his fits, and remained sensible during their continuance; that he frequently saw Lukins in his fits, ‘in every one of which, except in singing, he performed not more than most active young people can easily do;’ that he was detected in an imposture with respect to the clenching of his hands; that after money had been collected for him, he got very suddenly well; that he never had any fits while he was at St George’s Hospital in London; nor when visitors were excluded from his lodgings, by desire of the author of the Narrative; and that he was particularly careful never to hurt himself by his exertions during the paroxysm.

“Is it for the credit of this philosophical age, that so bungling an imposture should deceive seven clergymen into a public act of exorcism? This would not have passed even on the authors of the *Malleus Malificarum*; for they required signs of supernatural agency, such as the suspension of the possessed in the air, without any visible support, or the use of different languages, unknown to the demoniac in his natural state.”

POSSESSIVE, in *Grammar*, a term applied to pronouns, which denote the enjoyment or possession of any thing either in particular or in common: as *meus*, “mine;” and *tuus*, “thine.”

POSSESSORY ACTION, in *Scots Law*. See LAW, N^o clxxxiii. 18.

POSSIBILITY, in *Law*, is defined to be any thing that is altogether uncertain, or what may or may not be.

POSSIBILITY, also denotes a non-repugnance to existing, in any thing that does not any way exist.

POSSIBLE, is sometimes opposed to real existence, and is understood of a thing, which, though it actually does not exist, yet may exist; as a new star.

POSSIDONIA, in *Ancient Geography*. See PŒSTUM.

POST, a word derived from the Latin *positus*, “set or placed.” It is used in several different meanings, but all of them referring either immediately or remotely to this primitive sense of *position*. Thus the word Post signifies, 1. A stake or piece of timber set upright; 2. A station, particularly a military station; 3. An office or employment; 4. An operation in book-keeping; 5. A conveyance for letters or dispatches; 6. A particular mode of travelling.

POST, a stake or piece of timber set upright. Posts are used both in building and in fencing ground. In brick-buildings much of the strength of the fabric depends on the nature of the posts; as it is through them that the several parts are sustained and held together. The *corner posts* are called the *principal posts*; those formed into bressummers between principal posts for strengthening the carcase of the house are called the *prick-posts*. Posts which are to be set in the ground ought to be well seasoned and coated to preserve them from rotting; burning the downward end has been recommended as an excellent preservative, but a coating of pitch or tar, particularly the late invented coal-tar, can be most safely relied upon. For the various uses to which posts may be applied, and the form and species of them fittest to be employed in each case, see the articles ARCHITECTURE, JOINING, GARDENING, HOUSE, FENCE, &c. In architecture and sculpture POSTS are a term used to denote certain ornaments formed after the manner of rolls or wreathings.

POST, a station, particularly a military station.—Any place where persons are set or placed upon particular occasions may be termed a *post*; but the word in this view is now chiefly restricted to military operations, and means any place or situation where soldiers are stationed. Thus the detachments established in front of the army are termed the *out-posts*, the stations on the wings of the army are said to be the *posts of honour*, as being the most conspicuous and most exposed. But in the operations of a campaign, a post properly signifies any spot of ground capable of lodging soldiers, or any situation, whether fortified or not, where a body of men may make a

Post.

stand and engage the enemy to advantage. The great advantages of good posts, in carrying on war, as well as the mode of securing them, are only learned by experience. Barbarous nations disdain the choice of posts, or at least are contented with such as immediately fall in their way; they trust solely or chiefly to strength and courage: and hence the fate of a kingdom may be decided by the event of a battle. But enlightened and experienced officers make the choice of posts a principal object of attention. The use of them is chiefly felt in a defensive war against an invading enemy; as by carrying on a war of posts in a country where this can be done to advantage, the most formidable army may be harassed and reduced, that all its enterprises may be rendered abortive. Indeed in modern times this is so well understood, that pitched battles have become much more rare than formerly, manœuvring and securing of posts being considered as the most essential objects in the conduct of a campaign; a change in the art of war much to the advantage of humanity; skill, conduct, and prudence, having thus obtained the ascendancy over brutal courage and mere bodily strength. In the choice of a post, the general rules to be attended to are, that it be convenient for sending out parties to reconnoitre, surprise, or intercept the enemy; that if possible it have some natural defence, as a wood, a river, or a morass, in front or flank, or at least that it be difficult of access and susceptible of speedy fortification; that it be so situated as to preserve a communication with the main army, and have covered places in the rear to favour a retreat; that it command a view of all the approaches to it, so that the enemy cannot advance unperceived and rest concealed, while the detachment stationed in the post are forced to remain under arms; that it be not commanded by any neighbouring heights; and that it be proportioned in extent to the number of men who are to occupy and defend it. It is not to be expected that all these advantages will often be found united; but those posts ought to be selected which offer the greatest number of them. See WAR.

POST, an office or employment. This use of the word is probably derived immediately from the idea of a military station; a post being used to express such offices or employments as are supposed either to expose the holder to attack and opposition, or to require abilities and exertion to fill them. Hence the term is used only for *public* offices, and employments under the government; and were strict propriety of speech always attended to, *posts* would denote those stations only in which duty must be performed. In common language, however, every *public* office or appointment, even though nominal and sinecure, goes under the name of a *post*.

POST, an operation in book-keeping. Posting in book-keeping means simply the transferring an article to the place in which it should be put, and arranging each under its proper head. It is upon this that the whole theory of book-keeping is founded. The Waste-book, which is the ground-work of all subsequent operations, records every transaction exactly in the order in which it occurs. From this the several articles are posted, or transferred into the Journal, which in fact is but a kind of supplementary book to the Waste-book. From the Journal they are posted anew into the Ledger; in which a separate place is appropriated for each person with

whom transactions are carried on, and frequently for every separate article about which the business is concerned. The particular mode according to which such transferences are made, may vary according to the nature of the trade carried on; the object is the same in all, to place every article so as that its operations on the general state of the business may be certainly known and distinctly traced. For a full account of the way in which this is done, see *BOOK-Keeping*.

POST, a conveyance for letters or dispatches.

In the early periods of society, communication between the different parts of a country is rare and difficult, individuals at a distance having little inclination or opportunity for mutual intercourse: when such communication is at any time found necessary, a special messenger must be employed. As order and civilization advance, occasions of correspondence multiply. In particular, the sovereign finds it requisite frequently to transmit orders and laws to every part of the kingdom; and for doing so he makes use of couriers or messengers, to whom he commits the charge of forwarding his dispatches. But without stations in the way, where these couriers can be certain of finding refreshment for themselves and supplies of what may be necessary for carrying them forward, the journey, however urgent and important, must always be retarded, and in many cases altogether stopped. Experience, therefore, soon pointed out the necessity of ensuring such accommodations, by erecting upon all the great roads houses or stations at convenient intervals, where the messengers might stop, as occasion required, and where too, for the greater convenience, relays of fresh horses should always be in readiness, to enable them to pursue their journey with uninterrupted dispatch. These houses or stations were with great propriety termed *posts*, and the messenger who made use of them a *post*. Though at first, it is probable, the institution was intended solely for the sovereign and the necessities of the state; yet by degrees individuals, seeing the benefit resulting from it, made use of the opportunity to carry on their own correspondence; for which they were willing to pay an allowance to the sovereign. Thus a post-office, of some kind or other, gradually came to be established in every civilized country. Without taking notice of the different means of carrying on correspondence said to have been attempted by pigeons, dogs, and other animals, we can at least trace with certainty the invention of something like regular posts as far back as the ancient Persians. Xenophon assures us, that they were invented by Cyrus on his Scythian expedition, about 500 years before Christ; that the houses at the several stations were sumptuously built, and large enough to contain a number of men and horses; and that every courier on his arrival was obliged to communicate his dispatches to the postmaster, by whom they were immediately forwarded. From the shore of the Egean sea to Susa the capital, there were, according to Herodotus, 111 stages for posts, each a day's journey distant from the preceding.

In what manner posts were established and conducted among the Greeks does not clearly appear; but from the extended commerce carried on, and the frequent communications enjoyed among the different states, there can be no doubt that a regular conveyance, in some form or other, was established.

Though posts were well known among the Romans, yet

Post.

Post.

yet it is difficult to trace with certainty the period of their introduction. Some writers carry it back to the times of the republic; posts and post-offices, under the names of *statores* and *stationes*, having been then, it is said, established by the senate. Whether this was the case or not, Suetonius assures us that Augustus instituted posts along all the great roads of the empire. At first the dispatches were conveyed from post to post by young men who run on foot, and delivered the dispatch to others at the next stage. By and by Augustus substituted, in room of these, horses and chariots, both for the conveyance of dispatches and the convenience of travelling. His successors continued the same establishment; to the maintenance of which every subject of the empire was obliged to contribute. Post-horses are mentioned in the Theodorian code *de cursu publico*; but these were only the public horses appointed to be kept there for the use of the public messengers, who before this institution seized any that came in their way. At each post-station, according to Procopius, 10 horses and as many postilions were kept, and the usual rate of their travelling was from five to eight stations a-day.

It is to be observed, however, that all these establishments of posts in ancient times were formed as much, if not more, for travelling stations, than for the mere conveyance of letters and dispatches. This latter object, it is true, was thereby secured; but the epistolary correspondence of antiquity was probably at no time so extensive as to require or maintain post-offices on the footing of modern posts, for the mere conveyance of letters. It is in later times only, when the extension of commerce and diffusion of literature give occasion to frequent communication, that these establishments are to be looked for.

The earliest institution of *posts* that occurs in modern history is about the year 807 by the emperor *Charlemagne*; who, having reduced under his dominion Italy, Germany, and a part of Spain, established three public posts at the public expence, to carry on the communication with these three provinces. The institution of posts, however, like many other institutions of that emperor, dropped at his death, and for a considerable time afterwards no traces of any such establishment are to be found. We cannot indeed discover them with certainty sooner than 1464, when that restless and suspicious prince Louis XI. established posts in France, that he might be the sooner advertised of all that passed in his own or the neighbouring kingdoms. He employed in this service 230 couriers, who delivered the letters at the different stations, and in the various towns through which they passed in their course. Succeeding monarchs created at different times certain offices for the express purpose of superintending the posts; but the frequent changes to which these offices were exposed, prevented for a long time the establishment of any regular system of posts in that kingdom; inasmuch that in 1619 the author of the life of the duke d'Epemion says the packet or letter-office was not yet set up in France. Former establishments, it is probable, were solely for the use of the court, not for the general good of the nation. From France, the institution gradually spread through several other parts of Europe. In Germany, Lewis Hornig assures us they were first introduced by Count Taxis, who settled them at his own expence; in acknowledgement for which the emperor

Matthias in 1616 gave as a fief the office of postmaster to him and his descendants.

Post.

In England, the establishment of posts in some form or other appears as early as the reign of Edward III. but the notices concerning them are so vague, that no account can be given of them. In the reign of Edward VI. however, some species of posts must have been set up, as an act of parliament passed in 1548, fixing the rate of post-horses at one penny per mile: The post-horses here referred to were, it is probable, chiefly for travelling, and the carriage of letters or packets only an occasional service. In 1581, we find in Camden's Annals mention made of a chief postmaster for England being appointed.—How his office was managed, does not clearly appear; the limited state of the correspondence of the country probably rendered it of trifling consequence. King James I. originally erected a post-office, under the controul of one Matthew de Quester or de l'Equester, for the conveyance of letters to and from foreign parts; which office was afterwards claimed by Lord Stanhope; but was confirmed and continued to William Frizel and Tho. Witherings, by King Charles I. in 1632. Previous to this time, it would appear that private persons were in use to convey letters to and from foreign parts; all such interference with the postmaster's office is therefore expressly prohibited. King Charles, in 1635, erected a letter-office for England and Scotland, under the direction of the above Thomas Witherings. The rates of postage then established were, two-pence for every single letter for a distance under 80 miles; four-pence from 80 to 140 miles; six-pence above 140 miles. The allowance to the postmasters on the road for horses employed in these posts was fixed at two-pence halfpenny per mile for every single horse. All private inland posts were discharged at this time; and in 1637 all private foreign posts were in like manner prohibited. The posts thus established, however, extended only to a few of the principal roads; and the times of transmission were not in every case so certain as they ought to have been.

Witherings was superseded for abuses in the execution of his offices in 1640, and they were sequestrated into the hands of Philip Burlamachy, to be exercised under the care and oversight of the king's principal secretary of state. On the breaking out of the civil war, great confusions and interruptions were necessarily occasioned in the conduct of the letter-office; but it was about that time that the outline of the present more extended and regular plan seems to have been conceived by Mr Edmond Prideaux, who was afterwards appointed attorney-general to the commonwealth. He was chairman of a committee in 1642 for considering the rate of postage to be set upon inland letters; and some time after was appointed postmaster by an ordinance of both houses of parliament; in the execution of which office he first established a *weekly* conveyance of letters into *all* parts of the nation. In 1653, this revenue was farmed for 10,000l. for England, Scotland, and Ireland; and after the charge of maintaining postmasters, to the amount of 7000l. per annum was saved to the public. Prideaux's emoluments being considerable, the common council of London endeavoured to erect another post-office in opposition to his; but they were checked by a resolution of the house of commons, declaring that the office of postmaster is, and ought to be, in the sole power and

Post. and disposal of the parliament. This office was farmed by one Maubey in 1654. In 1656 a new and regular general post-office was erected by the authority of the protector and his parliament, upon nearly the same model that has been ever since adopted, with the following rates of postage: For 80 miles distance, a single letter two pence; for a greater distance, not out of England, three pence; to Scotland, four pence. By an act of parliament passed soon after the restoration in 1660, the regulations settled in 1656 were re-established, and a general post-office similar to the former, but with some improvements, erected. In 1663 the revenue of the post-office was found to produce 21,500*l.* annually. In 1685 it was made over to the king as a branch of his private income, and was then estimated at 65,000*l.* per annum. The year after the revolution the amount of the post-office revenue was 90,504*l.* 10*s.* 6*d.* At the union the produce of the English post-office was stated to be 101,101*l.* In 1711 the former establishments of separate post-offices for England and Scotland were abolished; and by the stat. 9 Anne, c. 10. one general post-office, and one postmaster-general, was established for the whole united kingdom; and this postmaster was empowered to erect chief letter-offices at *Edinburgh*, at *Dublin*, at *New York*, and other proper places in America and the West Indies. The rates of postage were also increased at this time as follows.—In England, for all distances under 80 miles 3*d.*; above 80 miles 4*d.* From London to *Edinburgh* 6*d.* In Scotland, under 50 miles 2*d.*; from 50 to 80 miles 3*d.*; above 80 miles 4*d.* In Ireland, under 40 miles 2*d.*; above 40 miles 4*d.*—By the above act all persons, except those employed by the postmaster, were strictly prohibited from conveying letters. That year the gross amount of the post-office was 111,461*l.* 17*s.* 10*d.* The nett amount, on a medium, of the three preceding years, was, in the printed report of the commissioners, for the equivalent stated to be for England, 62,000*l.* and for Scotland 2000*l.* In 1754 the gross revenue of the post-office for Great Britain amounted to 210,663*l.* in 1764 to 281,535*l.* and in 1774 to 345,421*l.*—The privilege of franking letters had been enjoyed by members of parliament from the first erection of the post-office; the original design of this exemption was, that they might correspond freely with their constituents on the business of the nation. By degrees the privilege came to be shamefully abused, and was carried so far, that it was not uncommon for the servants of members of parliament to procure a number of franks for the purpose of selling them; an abuse which was easily practised, as nothing more was required for a letter's passing free than the subscription of a member on the cover. To restrain these frauds, it was enacted, in 1764, that no letter should pass free unless the whole direction was of the member's writing, and his subscription annexed. Even this was found too great a latitude; and by a new regulation in 1784, no letter was permitted to go free unless the date was marked on the cover in the member's own hand-writing, and the letter put into the post-office the same day. That year the rates of postage were raised in the following proportions: an addition of 1*d.* for a single stage; 1*d.* from London to *Edinburgh*; 1*d.* for any distance under, and 2*d.* for any distance above, 150 miles. An addition to the revenue of 120,000*l.* was estimated to arise from these regulations and additional rates. The rates now mentioned are those upon single letters: double letters pay double,

Post. treble letters treble, an ounce weight quadruple postage; all above are charged by the weight in the same proportion. The rates of postage have since that time been again increased.

About the year 1784, a great improvement was made in the mode of conveying the mails, upon a plan first suggested in 1782 by Mr John Palmer. Diligences and stage-coaches, he observed, were established to every town of note in the kingdom; and he proposed that government, instead of sending the mails in the old mode, by a boy on horseback, should contract with the masters of these diligences to carry the mail, along with a guard for its protection. This plan, he showed, could not fail to ensure much more expeditious conveyance, the rate of travelling in diligences being far quicker than the rate of the post; and it was easy to carry it into execution with little additional expence, as the coach owners would have a strong inducement to contract at a cheap rate for conveying the mail, on account of the additional recommendation to passengers their carriages would thereby acquire in point of security, regularity, and dispatch.

Though government heartily approved of this plan, and the public at large were satisfied of its utility; yet, like all new schemes, however beneficial, it met with a strong opposition: it was represented by a number of the oldest and ablest officers in the post-office, not only as impracticable, but dangerous to commerce and the revenue. Notwithstanding of this opposition, however, it was at last established, and gradually extended to many different parts of the kingdom; and, upon a fair comparison, it appeared that the revenue was improved, and the plan itself executed for 20,000*l.* per annum less than the sum first estimated by Mr Palmer.

The present establishment of the general post-office for Great Britain, consists of two postmasters-general, a secretary, surveyor, comptroller-general, and upwards of 150 assistants and clerks for the head letter office in London; the number of deputy postmasters and other officers through the kingdom is very considerable, but not easy to ascertain with accuracy, as it must frequently vary with the changes made in the establishment of country posts. The total expence of this branch of the revenue in 1788 was 149,029*l.* 17*s.* 2*d.*; the gross produce may be reckoned at 650,000*l.*

The first accounts we have of the establishment of a post-office in Scotland reach no farther back than 1635, when Charles I. erected one both for Scotland and England. The post to Scotland by that appointment was to run night and day, to go from London to *Edinburgh* and to return in *six* days, taking with it all letters intended for any post-town in or near the road; the rate of postage from London to *Edinburgh* was 8*d.* for a single letter. The expedition with which the post went from London to *Edinburgh* at this time, is indeed surprising, considering the nature of the roads; perhaps, however, though the king made the regulation that it should go and return in six days, the journey was not always performed in the specified time. During the government of Cromwell, the public post conveyed letters to Scotland as well as England; the postage from London to Scotland was only 4*d.* After the Restoration, when the post-office was erected for England, mention is made in the act of parliament of the conveyance of letters to Scotland; and the postage to Berwick

Post.

Berwick is fixed at 3d. For some time after, however, we find no establishment by act of parliament of an internal post in Scotland. In 1662, a post between Ireland and Scotland was first established; and the privy council gave Robert Main, who was then postmaster-general for Scotland, an allowance of 200l. Sterling to build a packet-boat for conveying the mail between Portpatrick and Donaghadee: the postage to Ireland was 6d. In 1669, a post was established to go between Edinburgh and Aberdeen twice a-week, and between Edinburgh and Inverness once a-week: the rate of postage was fixed, for 40 Scots miles 2d. and for every 20 miles farther an additional penny. These appear to have been the only *public* posts in Scotland at that time; but as they could not suffice for the correspondence of the country, there must have been more, either under the direction of the postmaster, or in the hands of private persons; probably there might be of both kinds. In 1690, an act for the security of the common post was passed, subjecting robbers of the mail to capital punishment. It was not till 1695 that the establishment of the post-office in Scotland received the sanction of parliament: posts were then appointed for all parts of Scotland; the rates of postage were fixed, for any place within 50 miles of Edinburgh 2d. between 50 and 100 miles 3d. all places above 100 miles 4d. By the same act, a weekly packet to Ireland was established, and 60l. Sterling annually allowed for that service. Though posts were established in consequence of this act, yet such was their mode of travelling, that they hardly deserved the name. Thus, for instance, the person who set out to carry the mail from Edinburgh to Aberdeen, in place of stopping at the first intermediate stage from Edinburgh, and delivering over the mail to another to be carried forward, went on with it himself the whole journey, resting two nights by the way, first at Dundee, and next at Montrose.

In this manner the mail was conveyed thrice a-week from Edinburgh to Aberdeen; but between most parts of Scotland the post went only twice, and between some only once a-week. The post-boy generally travelled on foot. Horses were but little used in the service of the post-office.

At the Union, the Scots post-office was farmed for 1194l.: in 1710, the nett amount for Scotland was reckoned to be 2000l. The epistolary correspondence of Scotland must have been small indeed, when even the rates of postage then established proved so very unproductive. This may perhaps, however, be in part accounted for, by conjecturing, that as private posts had probably prevailed pretty much before 1695, it was long before these were entirely suppressed, the people still adhering to their old conveyances, and difficulties occurring in strictly enforcing the law; the amount of the post-office revenue, therefore, at the two periods above-mentioned probably exhibits a view of only a part of the correspondence of Scotland.

In 1711, it has been already mentioned, one general post-office was established for the whole united kingdom; but the postmaster-general was authorised to erect at Edinburgh a chief letter-office for Scotland.— This was accordingly done, and a postmaster-general for North Britain, with other necessary officers, appointed. All the deputy postmasters in Scotland are under his immediate direction, but he himself is under the con-

troul of the postmaster-general for Great Britain. From this head letter office posts were established to the different parts of Scotland.

For many years the post-boys generally travelled on foot, or, if on horseback, without a change of horses. It was not till about 1750 that the mail began to be conveyed from stage to stage by different post-boys and fresh horses to the principal places in Scotland, and by foot runners to the rest. The communication between London and Edinburgh was at first but thrice a-week, and so slow, that the mail from London to Edinburgh was upon the road 85 hours, and from Edinburgh to London 131 hours. In 1757, upon a representation from the royal boroughs, regulations were fallen upon, by which the time was shortened to 82 hours in the one case, and 85 in the other. By the extension of Mr Palmer's plan to Scotland, the time has been still farther shortened to about 60 hours in each case.

The establishment of the Scots post-office consists at present of a postmaster-general, secretary, solicitor, and accountant, with a number of other clerks and assistants for the head office at Edinburgh; under its management are about 180 deputy-postmasters for the different post-towns through Scotland.

The nett produce of the post-office for Scotland in 1733 was 5399l. in 1757 10,623l. in 1776 31,103l. In 1788 the gross produce was 55,836l. the expence 22,636l.; in 1793 the gross amount was about 64,000l. the nett produce about 40,000l.; in 1803 the gross produce was above 120,000l. the nett revenue about 97,000l.; in 1807 the gross produce was above 145,000l. the nett revenue towards 120,000l.

Penny-Post, a post established for the benefit of London and other parts adjacent, whereby any letter or packet under four ounces weight, is speedily and safely conveyed to and from all places within the bills of mortality, or within 10 miles of the city. It is managed by particular officers, and receiving houses are established in most of the principal streets, for the more convenient transmission of the letters. Some other large towns have instituted similar establishments.

About the year 1776, a penny-post was set up in Edinburgh by Mr Williamson, unconnected with the general post-office. It met with but indifferent encouragement for some years, doubts being entertained as to its punctuality in delivering the letters; by degrees, however, it seemed to be advancing in estimation, and was more frequently employed. Twenty years after, the general post-office, in virtue of the act of parliament prohibiting the conveyance of letters by any but those employed under the postmaster-general, took the penny-post entirely into its own hands; and Mr Williamson was allowed an annuity during life equal to what his private establishment yielded. Letters are now transmitted to the different quarters of Edinburgh, and the suburbs, three times a-day.

Post, a particular mode of travelling. A person is said to *travel post* in contradistinction to common journey travelling, when, in place of going on during his whole journey in the same vehicle, and with the same horses, he stops at different stages, to provide fresh horses or carriages for the sake of greater convenience and expedition. As he thus uses the same mode of travelling that is employed for the common post, he is said to travel post, or in post, i. e. in the manner of a post.

Post.

Post.

In tracing the origin of posts, it has already been remarked, that the more ancient establishments of this kind were fully as much for *travelling stations* as the conveyance of letters. The relays of horses provided at these public stations for the messengers of the prince, were occasionally, by special licence, allowed to be used by other travellers who had sufficient interest at court. Frequent demands of this nature would suggest the expedient of having in readiness supplies of fresh horses or carriages over and above what the *public* service required, to be hired out to other travellers on payment of an adequate price. We find, therefore, that in former times the postmasters alone were in use to let out horses for riding post, the rates of which were fixed in 1548 by a statute of Edward VI. at one penny per mile. In what situation the state of the kingdom was with regard to travelling post for more than a century after this period, we cannot now certainly discover; but in the statute re-establishing the post-office in 1660, it is enacted, that none but the postmaster, his deputies, or assigns, shall furnish post-horses for travellers; with a proviso, however, that if he has them not ready in half an hour after being demanded, the traveller shall be at liberty to provide himself elsewhere.

The same prohibition is contained in the act establishing the Scots post-office in 1695, as well as in the subsequent act of Queen Anne, erecting the general office for the united kingdom. It is doubtful, however, whether it was ever strictly enforced. By an explanatory act of 26 Geo. II. the prohibition is confined to post *horses* only, and every person declared to be at liberty to furnish *carriages* of every kind for riding post. This regulation has, in fact, done away the prohibition, as hardly any person now thinks of travelling post except in a carriage.

The rate fixed by the act 1695, in Scotland, for a horse riding post, was threepence per Scotch mile. By the act 9 Anne, c. 10. threepence a-mile without, and four-pence a mile with, a guide, was the sum fixed for each horse riding post. The increase of commerce, and necessity for a speedy communication between different parts of the kingdom, have brought the mode of travelling post so much into use, that upon every great road in the kingdom post-chaises are now in readiness at proper distances; and the convenience of posting is enjoyed in Britain to a degree far superior to what is to be met with in any other country whatever.

Posting at last appeared to the legislature a proper object of taxation. In 1779 the first act was passed, imposing duties on horses hired either by themselves or to run in carriages travelling post; the duties were, one penny per mile on each horse if hired by the mile or stage, and one shilling per day if hired by the day. Every person letting out such horses was also obliged to take out a licence at five shillings per annum. These duties were next year repealed, and new duties imposed, of one penny per mile on each horse hired by the mile or stage, and 1s. 6d. on each if hired by the day. A number of additional regulations were at the same time enacted for securing these duties. An addition of one halfpenny per mile, or three-pence per day, for each horse riding post, was imposed in 1785, by Stat. 25 Geo. III. c. 51. The duty is secured, by obliging every letter of horses to deliver to the person hiring them a ticket, expressing the number of horses hired,

Post.

and either the distance in miles to be travelled, or that the horses are hired by the day, as the case happens to be. These tickets must be delivered to the bar-keeper at the first turnpike through which the traveller passes; and the turnpike-keeper gives, if demanded, what is termed an *exchange* ticket, to be produced at the next turnpike. The stamp-office issues to the person licensed to let post-horses such a number of these tickets as is required, and these must be regularly accounted for by the person to whom they are issued. As an effectual check upon his account, the turnpike keeper is obliged to return back to the stamp-office all the tickets he takes up from travellers. Evasions are by these means rendered difficult to be practised without running a great risk of detection. In 1787, for the more effectually levying the post-horse duties, a law was passed, authorising the commissioners of the stamp-office to let them to farm by public auction, for a sum not less than the produce in the year ending first August 1786.

In the advertisement published by the commissioners in consequence of this law, previous to the receiving proposals for farming them, the total amount of the duty for Great Britain is stated to have been, at the period above referred to, L.117,873. The sum for which that duty was farmed in 1794 amounted in all to 140,030l. of which the district of North Britain was 6000l.

Soon after the tax was imposed, considerable difficulties were raised about the meaning of the term *posting*, and what mode of journeying should subject travellers to duty. The old law, Stat. 9 Anne, c. 10. explained posting to be "travelling several stages, and changing horses;" but the acts imposing the posting duties expressly declare, that "every horse hired by the mile or stage shall be deemed to be hired to travel post, although the person hiring the same doth not go several stages upon a post-road, or change horses;" and that "every horse hired for a day or less period of time, is chargeable with the duty of three halfpence per mile, if the distance be then ascertained; and if the distance be not then ascertained, with 1s. 6d. each horse." Horses hired for any less time than two days are by these acts to be deemed to be hired for a day. An action was brought in 1788, in the court of exchequer at Edinburgh, to determine whether several disputed cases fell under the meaning of the act, and were liable to duty, when the following decisions were given:

Saddle-horses both hired and paid by the mile, and saddle-horses hired originally for an excursion, but afterwards paid by the mile, were found liable to duty according to the number of miles paid for; carriage-horses, where the carriage is hired and paid for only at the usual rate of *outgoing* carriages, and no more, whether the person hiring it does or does not return in it, were found liable to duty only for the number of miles *out*; but if the carriage be hired and paid for, or actually paid for though not originally hired, at the usual rate of carriages employed both to carry out and bring back the same company, the duty was found to be exigible according to the number of miles both out and home taken together. Hackney-coaches in Edinburgh, hired and paid for less than two miles, were found liable to duty for one mile.

No duty was found to be exigible on saddle-horses hired

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Postulate.

hired for a mere excursion, and paid for accordingly, where the distance neither is nor can be ascertained; on hackney-coaches employed in the streets for less than a mile, or for an excursion or round of visits merely; and on horses or carriages hired for a journey of three days or more, and paid for accordingly, or paid for at the rate of three days, though the journey should actually be performed in two full travelling days. The general rule of these decisions was, that in every case, except unascertainable distance, or journeys exceeding two days, the mode of travelling fell under the legal definition of posting. The only point that may seem doubtful in the judgments here stated, is that where the duty is found chargeable by the number of miles both going and returning. Yet as the law expressly declares, that horses hired by the mile or stage are to be deemed *posting*, and as the number of miles for which they are hired can only be ascertained by the number paid for, it is clear, that where an addition to the outgoing charge is made on account of bringing back the person hiring the carriage, the carriage in that case is actually hired and paid for according to the number of miles both out and home, and the duty must fall to be rated accordingly. The doubtful points being now settled by the above decisions, the mode of levying the duty in Scotland has been regulated agreeably to them ever since the matter was thus determined.

POSTERIOR, a term of relation, implying something behind, or that comes after, another. In which sense it is used in opposition to *prior* and *anterior*.

The back and hips are the posterior parts of man. Aristotle has given prior and posterior analytics. A date is posterior to another when it is later or fresher.

POSTERN, in fortification, a small gate, usually made in the angle of the flank of a bastion, or in that of the curtain, or near the orillon, descending into the ditch; whereby the garrison can march in and out, unperceived by the enemy, either to relieve the works, or to make private sallies, &c.

The word is also used in general for any private or back door.

POSTHUMOUS, a child born after the death of his father, or taken out of the body of a dead mother; from whence it is frequently applied to the works of an author not published till after his decease.

POSTIL, a name anciently given to a note in the margin of the Bible, and afterwards to one in any other book posterior to the text.

POSTING, among merchants, the putting an account forward from one book to another, particularly from the journal or waste-book to the ledger. See POST and BOOK-KEEPING.

POSTLIMINIUM, among the Romans, the return of one who had gone to sojourn elsewhere, or had been banished, or taken by an enemy, to his own country or state.

POSTPONING, putting any thing after or behind another, with regard to time.

POSTSCRIPT, an article added to a letter or memoir, containing something learnt or recollected after the piece was written.

POSTULATE, in mathematics, &c. is described to be such an easy and self-evident supposition, as needs no explication or illustration to render it intelligible;

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as that a right line may be drawn from one point to another.

POSTURE, in painting and sculpture, the situation of a figure with regard to the eye, and of the several principal members thereof with regard to one another, whereby its action is expressed. A considerable part of the art of a painter consists in adjusting the postures, or in giving the most agreeable ones to his figures, in accommodating them to the characters of the respective figures, and the part each has in the action, and in conducting and in pursuing them throughout.

Postures are either natural or artificial.

Natural postures are such as nature seems to have had a view to in the mechanism of the body, or rather such as the ordinary actions and occasions of life lead us to exhibit while young, and while the joints, muscles, ligaments, &c. are flexible.

Artificial postures, are those which some extraordinary views or studies occasion us to learn; as those of dancing, fencing, &c. Such also are those of our balance and posture masters.

A painter would be strangely puzzled with the figure of Clark (a late famous posture-master in London) in a history-piece. This man, we are told in the Phil. Transf. had such an absolute command of his muscles, &c. that he could disjoint almost his whole body; so that he imposed on the great surgeon Mullens, who looked upon him as in such a miserable condition, he would not undertake his cure. Though a well-made man, he would appear with all the deformities imaginable; hunch-backed, pot-bellied, sharp-breasted, &c. He disjointed his arms, shoulders, legs, and thighs; and rendered himself such an object of pity, that he has frequently extorted money, in quality of a cripple, from the same company in which he had the minute before been in quality of a comrade. He would make his hips stand a considerable way out from his loins, and so high as to invade the place of his back. Yet his face was the most changeable part about him, and showed more postures than all the rest. Of himself he could exhibit all the uncouth odd faces of a quaker's meeting.

POTAMOGETON, POND-WEED; a genus of plants belonging to the tetrandria class; and in the natural method ranking under the 15th order, *Inundate*. See BOTANY Index.

POTAMON, or POTAMO, was a philosopher of Alexandria. He kept a middle course between the scepticism of the Pyrrhonians and the presumption of the dogmatists; but attached himself to none of the schools of philosophy of his time. He was the first projector of the Eclectic sect; for though the mode of philosophising had been pretty common before, he was the first that attempted to institute a new sect on this principle. "Diogenes Laertius relates, that not long before he wrote his Lives of the Philosophers, an Eclectic sect, *ἐκλεκτικὴ τῆς αἰρέσεως*, has been introduced by Potamo of Alexandria, who selected tenets from every former sect. He then proceeds to quote a few particulars of his system from his Eclectic institutes, respecting the principles of reasoning, and certain general topics of philosophical inquiry; from which nothing further can be learned, than that Potamo endeavoured to reconcile the precepts of Plato with those of other masters.

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Potamon.

Enfield's
History of
Philosophy.

Potamon.
Potash.

As nothing remains concerning this philosopher besides the brief account just referred to in Laertius, an obscure passage in Suidas, and another still more obscure in Porphyry; it is probable that his attempt to institute a school upon the Eclectic plan proved unsuccessful. The time when Potamo flourished is uncertain. Suidas places him under Augustus; but it is more probable, from the account of Laertius, that he began his undertaking about the close of the second century.

POTASH, the lixivious ashes of certain vegetables, used in making glass, soap, &c. See GLASS, SOAP, &c. For an account of the properties and combinations of potash. See CHEMISTRY. Potash was till lately considered as a simple substance; but it appears from the unexpected discoveries of Mr Davy in galvanism to be a compound of a peculiar metallic substance and oxygen. Soda is also a compound of a similar nature. For an account of Mr Davy's discoveries see SODA. Here we treat only of the manufacture of potash.

I
Dr Shaw's
method of
making
potash.

The method of making potash is directed by Dr Shaw as follows. Burn a quantity of billet-wood to gray ashes; and taking several pounds of these ashes, boil them in water, so as to make a very strong lixivium, or ley. Let this ley be strained through a coarse linen cloth, to keep out any black parts of the half-burnt wood that might happen to remain in the ashes; then evaporate this strained ley in an iron-pan over a quick fire almost to dryness: then taking out the matter remaining at the bottom, and putting it into an iron crucible, set it in a strong fire till the matter is melted, and then immediately pour it out upon an iron plate, where it soon cools, and appears in the form of a solid lump of potash*. Much after this manner is potash made in the large way, for the service of the soap-boiler, glass-maker, fuller, &c. but according to the difference of the wood, or combustible matter employed, with the manner of turning it, and conducting the process, different kinds of potash are prepared. There are certain saline plants that yield this potash to great advantage, as particularly the plant kali; there are others that afford it in less plenty, and of an inferior quality, as bean-stalks, &c. but in general, all vegetable subjects afford it of one kind or other, and may most of them be made to yield it tolerably perfect after the manner of the process already laid down, even the loppings, roots, and refuse parts of ordinary trees, vine clippings, &c. The fixed salts of all vegetables excepting the kali and marine plants, when reduced to absolute purity, or entirely separated from the other principles, appear to be one and the same thing: whence it should seem, says Dr Shaw, that by a suitable management good saleable potash might be made in all places

* See
PEARL-
Ash, and
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actions of
the Royal
Irish Aca-
demy, 1789.
art. i. Class
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where vegetable matters abound. For if by examining Russia (A) potash, for example, we find that its superior excellence depends upon its being clear of earth, or upon its containing a large proportion of oil, or refined salt, these advantages may, by properly regulating the operation, be given to English potashes, so as perhaps to render the latter as good as the former: but where the potash of any remarkable saline vegetable is to be imitated, that of the kali, for example, the doctor recommends a prudent sprinkling of the subject with salt, or sea-water, in the burning; and by these ways, properly diversified, any principle that is naturally wanting might be artificially introduced so as to perfect the art of potash.

Above half a century ago, Mr Stephens, encouraged by the Society of Arts, &c. and by a parliamentary grant of 3000l. established a manufacture of potash in North America, which produced such as was so perfectly good as to answer in bleaching and other uses the purposes of *pearl-ash*; and which at the same time afforded a very large produce. But the very great heat which his process required, occasioned the destruction of a very extensive apparatus; and other circumstances concurred to disappoint the hopes and check the spirit of the proprietors. The manufacture was, however, afterwards undertaken and prosecuted by others. Mr Stephens's apparatus was as follows: Fig. 1. A is the bed of the kiln, which lies off about four feet by two from the grate, more or less according to the size; C is the ash-hole, $2\frac{1}{2}$ or 3 feet deep. Fig. 2. B represents quadrangular bars of iron, with their opposite angles placed upwards and downwards, not above an inch asunder. Fig. 3. A, B, and C, are three steepers five feet deep, and of any width from four to eight feet square, of the best white pine or cypress plank, with square joints and strong oak frames, placed each over a receiver, with a cock to let off the ley, and a vent just beneath the surface of the grating. E represents three receivers, standing each under, and projecting out, from its steeper. They must be made of the best stuff, carefully put together, and laid in tough clay well rammed within the ground, their tops being level with the surface: they need not be so large as the steepers by six, eight, or twelve inches. Fig. 4. E represents a false bottom or lattice of boards, eight inches deep and five square, with a hole in the under edge of every partition for the ley to pass into the steeper. Fig. 5. A is the vessel over the furnace in which the ley and ashes are mixed; B is a hole or funnel a few inches from the back of the furnace, with an iron socket to let the pipe through the hinder part of the arch, to reach down within two inches of the floor of the furnace. C is a

Potash.

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Account of
Mr Ste-
phens's ma-
nufacture.Platè
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Fig. 1.

Fig. 2.

3
Of his ap-
paratus.

Fig. 3.

Fig. 4.

Fig. 5.

(A) According to Sir Peter Warren, the best woods for making Russian potash are, oak, ash, poplar, hickory, elm, hazel, and beech. They must be cut in November, December, January, and February, split and stacked to dry. After 12 months, in warm open weather, it must be burnt on a brick hearth by a slow fire in a kiln, or close place; the ashes must be sifted through two sieves, one finer than the other, and then put up in brick troughs or wooden backs, covered with rain or river water, and must remain well marshed and incorporated five months. Brick furnaces shaped like bakers ovens must be heated with a strong fire of oak or ash, burning night and day; the prepared ashes must be gradually thrown on the fire, when they will run into metal like lead: the fire must not go out till the furnace is nigh filled with potashes. The ashes must then be broken to be taken out, but the larger the pieces the better; they must be preserved from the air in tight casks, the large pieces by themselves, and the dust by itself.

cast iron cauldron for boiling the ley to dryness when pearl-ash is made. D is a vessel whence the liquor is let into the cauldron as it evaporates. The mortar for building the furnace should be made of loam; the arch should be 18 inches thick, and the floor should be laid with tiles on a layer of sand an inch thick, with neat joints.

4
Process
without
using a
kiln,

Mr Stephens's process, both with and without the kiln, was as follows. Cut timber, felled at any season, into lengths of about eight feet: lay from three to ten of them lengthwise in a heap upon dry ground, and fill the vacancies between with smaller wood: the sooner it is burnt after felling, the better. Set fire to it by laying embers on the bottom logs at each end; and for burning the brush and lappings, with other smaller woods, lay them lengthwise on the ground, top to top, lapping over a little, with the butt ends outwards, and as close as a faggot; laying the larger woods on top till the heap is full four feet high; the length of the brush set against each other making the breadth of the heap. As to the choice of the timber, old hollow trees, if not dead, are best: pine, cypress, and cedar, are to be totally rejected.

As soon as the pile is burnt down, rake such ashes as lie round the outside a little in towards the middle; add no fresh fuel, nor throw on any brands. Let the ashes lie without stirring till you can just bear your hand in them; then carry them to a house, or under a shed, on a plank floor raised a little from the earth and well jointed; there wet them till brought nearly to the consistence of mortar in the first mixture of lime and sand, and ram them in a heap, in which they must lie full 20 days, or some months if you please; observing to be more sparing of water in winter, and ramming them closer, and sometimes wetting the top that it may never grow quite dry.

5
And with
it.

Wood may also be burnt in a kiln, as fig. 1. and 2.; and then it must be cut into such lengths as may be most convenient for carriage, and best suit the size of the kiln. The mouth of the ash-hole must be close stopped by daubing the joints of the lid with loam, or throwing a bank of sand or earth against it: keep the bed of the kiln filled with wood up to the surface, but not above it, and let it burn incessantly till the ashes rise within six or eight inches of the grate. Draw them out whilst red-hot, and in that state sprinkle them with ley, from four to six carats weight; weigh a small phial which holds about four ounces very exactly; then fill it with water and weigh that also: divide the weight of water into equal parts till you come to $\frac{1}{12}$ of the whole, which is called a *carat*, $\frac{1}{6}$ two carats, &c. until you have a weight equal to $\frac{1}{4}$ of the whole water, which is called 32 carats: all which small weights, together with one equal to the phial filled with water, are to be kept for weighing the ley in the said phial till they are made damp; then ram them as before in a heap, but separate from the ashes made as above. N. B. By kiln-burning a stronger ley may be more certainly procured than by the other way, where rain may chance to fall on the ashes before they can be removed.

The ashes thus prepared are to be put in vats or steepers, fig. 3. with a false latticed bottom as fig. 4.; first putting coarse wheat or rye straw about a foot thick on the lattice or grating; on which put ashes to within four or five inches of the top, ramming them all the

way up, especially at the sides, with a small light rammer, as tight as you can, without bursting the vat. Form on the top of the steeper a hollow basin in the ashes four or five inches deep, leaving the ashes four or five inches thick on the sides, by raising a small bank round the sides, so that the liquor may not overflow the edges of the ashes at top: keep this basin constantly filled with soft water in the steeper A, until the ashes will imbibe no more, which will be in 24 hours or more, according as it is rammed; then turn the cock, and let off what shall be soaked through into the receiver or lower chamber of the steeper, and no more; for if the several runnings are not kept separate, the ley will not be brought to its due strength. Follow that steeper with fresh water on the same ashes for several other runnings, which will each come off in a few days, till the liquor has neither smell nor taste; then heave out the ashes, and charge the steeper afresh.

Upon drawing off the first running from the steeper A, fig. 3. fill the steeper B with ashes as before, and put into its hollow at the top the ley so first run off, and the smaller or half leys also, till full, and draw off as directed for the steeper A: if this weighs 18 carats or more, pump it into the cistern F as fit for use; if it be short of that, pass it off as half ley to the steeper C, and through fresh ashes till strong enough. With kiln-ashes only, from water passing through the first steeper, it will be strong enough for the cistern, if the ashes are well prepared. If your water be hard, let it stand two or three days exposed to the air and sun in a shallow back, and it will be soft. When you use kiln-ashes with others, lay them at bottom.

The ley must be conveyed from the cistern F, as it is wanted to the vessel A fig. 5.; where with every gallon of proof ley mix three ounces of fine, light, wood ashes; and to the ley that is one-fourth over-proof put six ounces of ashes; and if two-fifths over-proof 12 ounces, increasing or lessening according to the strength of the ley.

For evaporating the ley and melting the salt, heat a furnace till you bring it very near a white heat, of which the side-doors being red-hot is a mark. This will take 48 hours or more, if the furnace be quite cold; when thorough hot, a little fuel keeps it so. Then, through the cock of the vessel A, pass the mixture by the funnel B into the furnace, not so as to reach much beyond the middle of the floor, before it changes from dark to bright red, letting the heat prevail towards front or back as you see necessary. When the mass begins to gather about the flues or in heaps, run in no more till the furnace is cleared by driving the fire backward. You must have two funnels, one soon choaking; in an hour or less will issue out a red-hot stream of melted salt, which is potash, to be broken to pieces as soon as cold, and packed in tight close casks, being in no respect inferior to the best foreign ash whatever.

The best potash is made from barilla, and comes from Spain. The plants from which it is procured are found in great plenty about Carthage, where they are indigenous, and may be collected in a swamp called *Almojar* east of that place; the *Sayones* barilla is the best. They are found, besides all along that coast, on the borders of the Mediterranean for 60 leagues in length and 8 in breadth. About 150,000 quintals of it are annually exported from Spain. It produces a revenue of 25,500l.

6
Spanish
potash the
best.

Potash. a-year; each quintal paying a duty of 17 reals; yet Don Bernardo de Ulloa, A. D. 1740, says it was farmed at 1822l. 4s. 3d. M. Macdonnell has brought the manufacture of potash to its present perfection in Spain; but its exportation is materially injured by the heavy tax on it. See Townshend's *Travels*, vol. iii. p. 131. See also BARILLA, KELP.

7
Dr Percival's account of making potash.

In the 70th volume of the Philosophical Transactions we have an account of a method of procuring this salt from the putrid water which runs from dunghills. The process is very easy, consisting only in simple evaporation of the fluid, and calcining the impure salt till most of the foulness is burnt out. From 24 wine-pipes full of this muck-water were obtained 9 cwt. 1 q. 12 lb. of saleable potash, valued at 42s. per cwt: the expence of manufacturing them being only valued at 4l. 9s.

The potash thus made is of a grayish white appearance; deliquesces a little in moist air; but if kept in a dry room, near the fire, acquires a powdery surface. It is hard and of a spongy texture when broken, with many small crystals in its substance. The colour of its internal parts is dusky and variegated. To the taste it is acrid, saline, and sulphureous. It emits no smell of volatile alkali, either in a solid form, dissolved, or when added to lime-water; neither does it communicate the sapphire-colour to a solution of blue vitriol. Silver is quickly tinged black by it; a proof that it contains much phlogiston. Ten grains of this potash required 11 drops of the weak spirit of vitriol to separate it. The like quantity of salt of tartar required 24 drops: a strong effervescence occurred in both mixtures; and a sulphureous vapour exhaled from the former. A tea spoonful of the syrup of violets diluted with an ounce of water was changed into a bright green colour by five grains of the salt of tartar; but ten grains of this potash were necessary to produce the same hue in a similar mixture. Half an ounce of the salt dissolved entirely in half a pint of hot water; but when the liquor was cold, a large purple sediment subsided to the bottom; and it was found that this sediment amounted to about two-thirds of the whole quantity of ashes used.

Dr Percival, the author of this paper, concludes with observing, that this potash is a true fixed vegetable alkali, produced by putrefaction; that the quantity of alkali contained in it may be estimated at one-third of its weight, whereas the white Muscovy ashes are said to yield only one-eighth part; that no quicklime appears to be contained in this potash, for a solution of it poured from its sediment remained clear though long exposed to the air: that it would be worth trying, whether the large purple sediment, which subsides when this potash is lixiviated, might not be applied to the manufacture of Prussian blue, or used in the manner recommended by Macquer for dyeing wool and silks; and that this manufacture will furnish the farmer for top-dressing for his garden and land, of great fertilizing powers. See *Phil. Transf.* vol. lxx. p. 345.

8
Other attempts.

These are the processes most essentially different from one another which have appeared concerning the manufacture of this useful salt. Some indeed have attempted to compose it on the supposition that alkali consisted of an earth combined in a peculiar manner with a certain acid. But the little success of all these attempts show that they have been built on a false principle. The only method of producing alkaline salts originally is from

the ashes of vegetables; and the vegetable substances which yield the largest quantity of them are tartar and marine plants. From the former the purest and strongest vegetable alkali is obtained, and from the latter the mineral alkali. From other vegetables, as fern, broom, bean-stalks, &c. an alkaline salt is produced, but so impure, and in such small quantity, that no manufacture of it can be established in this country with any reasonable expectation of profit.

Potash.

Dr Watson (the present bishop of Landaff) suggests, that the investigation of a method of extracting its alkaline part from rock salt would be a most serviceable discovery. We have inexhaustible mines of rock-salt in this country, which (he observes) the proprietors can afford at ten shillings a ton. A ton of rock-salt contains about half a ton of mineral alkali, which is for most purposes far preferable to potash. To those who have leisure to attempt such a discovery, he gives the following hint: whether the alkaline part of rock-salt may not be obtained by calcining it in conjunction with charcoal in open fires? His reason for this conjecture is founded upon the following experiment: upon burning sea-wreck to a black coal and stopping the process at that point, he has obtained great plenty of common salt, but no mineral alkali from the black ashes; though we are certain, that when the black ashes are thoroughly calcined, or reduced to white ashes, mineral alkali may be obtained from them. This makes it probable, that the common salt contained in the black ashes of sea-wreck is decomposed, and changed into a mineral alkali, during the burning of the black ashes. There are reasons to suppose, that the cinder of pit-coal would answer the purpose better than charcoal. *Chem. Eff.* vol. i. p. 136, &c.

9
On extracting its alkaline part from rock-salt.

The potashes of different countries vary much in quality; and the experiments of Dr Home, in his treatise on Bleaching, seem to set forth their different properties in the clearest point of view. The different kinds tried by him were,

10
Dr Home's experiments on the potashes of different countries.

1. *Blue pearl-ashes.* These appear to be a pure alkaline salt, mixed with a small quantity of vitriolated tartar and earth. Half a pound of this, filtered and evaporated, yielded 5½ ounces of pure salt.—Here, however, we must observe, that though the quantity was so far diminished by this operation, yet we are not to imagine that the whole of this diminution was owing to impurities; for all salts are destroyed in some measure by solution in water and exsiccation.

2. *White pearl-ashes* are nearly of the same quality with the former; half a pound of them giving five ounces and seven drams of pure salt, with some vitriolated tartar and earth.

3. *Russia or Muscovy ashes* have very much the appearance of slaked lime, and are, like it, friable betwixt the fingers. They adhere to the tongue; and their alkaline taste soon goes away, leaving in the mouth a strong taste of lime. Some small bits of charcoal are observable in their composition, and they never turn moist in the air. Half a pound of the salt lixiviated with water and evaporated, gave only 10 drams 15 grains of very caustic salt. These consist therefore of a small quantity of alkaline salt united with a large quantity of lime.

4. *Casbah-ashes* are of the colour of iron-stone, and extremely hard, with many shining particles of charcoal

in

Potash

in them. They have a saline taste, with a considerable degree of pungency; feel gritty in the mouth when broke in pieces by the teeth; and will dissolve in water. To extract the pure salt, half a pound of the ashes were boiled in a pint of water; then that water poured off, and half a pint put on the ashes again; and so on, till the ashes tasted no more salt. This boiling took 24 hours, and the last water that came off had a strong taste of sulphur, and was blackish. A piece of silver put in the decoction was in a few minutes turned almost black; but though the decoction was evaporated considerably, it did not turn silver black more speedily than before. The whole, when totally evaporated, yielded only 10 drams of a brown salt having a strong caustic alkaline taste. Some Cashub-ashes powdered, and often washed in water, so that the salts were all carried off, were infused in water. After standing some time, there was a weak lime-water, with something of a saline taste, but no pellicle. Some of this residuum was put into a reverberatory furnace for two hours; after which it afforded good lime-water. Cashub-ashes then appear to contain an earth half vitrified, some lime, alkaline salts, and a quantity of sulphur.

5. *Marcost ashes* are of a paler colour than the former, with some small pieces of charcoal in their composition. They have a strong saline taste; and so great pungency, that they cannot be held long in the mouth. Half a pound dissolved in water, filtered and evaporated, yielded 11 drams one scruple and two grains of alkaline residuum. The decoction blackened silver, but not so strongly as the former; and by evaporation it quickly lost that quality.

11
On manu-
facturing
them in
this coun-
try.

Our author next proceeds to consider the probability of manufacturing these ashes in this country. On which subject he has the following observations.—“The blue and white pearl-ashes we have discovered to be pure alkaline salts, without any considerable mixture of heterogeneous bodies. Their purity shows the lixive to have been strained through some close substance, such as linen or flannel. The blue ashes show by their colour that they have sustained the most fire. But both of them are so much alike, that the one may be substituted for the other; and therefore we shall consider them in one view.

“Every one knows that alkaline salts, such as these, are got from all plants except the alkalescent, and from all trees except the most resinous, which afford them in very small quantity. These plants or trees, when found, are pulled or felled in the spring, dried, and burnt to ashes. By the affusion of warm water the salts are dissolved, and, by straining, separated from the earth along with the water. This saline liquor, which is called a *lixive*, is evaporated over a fire; and what remains is an alkaline salt of the same kind with the pearl-ashes.

“I was informed by a skilful bleacher in Ireland, that he practised a more expeditious way of extracting the salts. He bought the ashes of different vegetables from the commonalty for 9s. a bushel. From these a

very strong ley was made, into which dry straw was dipped until it sucked up all the ley. This straw was afterwards dried and burnt, and gave him salts which he showed me, almost as good and pure as the pearl-ashes. This method I have several times tried; but could never burn the straw to white ashes, the salts diminishing the inflammability of the straw. It is a very expeditious method if it can be practised. But I can see no occasion for bringing the ley into a solid form, as the salts must again be dissolved in water before they can be used. The strength of the ley can easily be determined by the hydrostatical balance.

“Though I make no question, that the quantity of salt, in plants of the same species, will vary in different soils and climates; yet it would be of advantage to have the proportion ascertained in general. Some trials of this kind I have made.

“Two pounds of fern which had been pulled August 16. were dried, and burnt to white ashes. These weighed 7 dr. and tasted very salt. When lixiviated, strained, and evaporated, they gave me 49 gr. of salt, about the eighth part of the ashes. If the fern had been pulled in April, it would have afforded more salt. Why then should we not prepare salts from this vegetable? There is more of it growing on our hills than would serve all our bleachfields. The Irish make great use of it.

“From 11 oz. of tobacco-ashes I had 1 oz. of salt. Two ounces of peat-ashes afforded half a drachm of salt. Nettles, I am informed, afford much salt. Furze and broom, natives of this country, are very fit for this purpose.

“But the kelp as it grows in such plenty along our shore, and contains more salt than any other vegetable I know, would be the most proper, were it not for a mixture of some substance that renders it unfit for bleaching, at least of fine cloths, after they have obtained a tolerable degree of whiteness. It is observed by bleachers, that in these circumstances, it leaves a great yellowness in the linen. As these ashes are much used in Ireland, and as it is not uncommon to bleach coarse cloths with them in Scotland, a disquisition into their nature, and some attempts to purify them, may not be improper. There are no ashes sold so cheap as these; for the best gives but 2l. the 2000 weight (B). They may, therefore, allow of more labour to be expended on them, and come cheaper at long-run than the foreign salts.

“I dried some sea-ware, and burnt it, though I found that last operation very difficult. When I had kept it fused in the fire for two hours, it weighed 3½ oz. I poured on the ashes an English pint and a half of cold water, that I might have as little of the sulphur as possible. This ley, after it had stood for some hours, was poured off clear, and had but a slight tendency to a green colour. I made a second infusion with milk-warm water, and poured it off from the sediment. This had a darker colour than the former; was kept separated from it, and evaporated by itself. There was a third infusion made;

(B) “Since this treatise was written, however, the price of kelp has been advanced to 7l. or upwards the 2000 weight; so that those who would now attempt any thing of this kind, must also manufacture the kelp themselves.”

Potash.

made; but having no salt taste, it was thrown away. The second infusion seemed to contain more sulphur than the first; and a piece of white linen kept in it half an hour, while it was boiling, was tinged yellow, and could not be washed white again. The earthy part remaining, weighed, when well dried, 1 oz. 2 dr. The saline decoction evaporated by degrees, and set at different times in a cellar to crystallize, afforded me 5 dr. 46 gr. The liquor, when entirely evaporated, left $4\frac{1}{2}$ dr. of a yellow salt, which appeared to be a strong alkaline. The salts which crystallized seemed to be mostly sea-salt, with a considerable quantity of sulphur, and some alkaline salt. There appeared no signs of the bitter in these salts, as their solution did not turn turbid with the oil of tartar. Nor is any of the bitter to be expected in kelp ashes, although it probably is to be found in the recent vegetable; because the alkaline salts formed by the fire must have changed it into a neutral. The ley made warm with water, being evaporated, left 4 dr. of a black bitter salt, which, from its quantity of sulphur, appeared unfit for bleaching. These ashes, then, seem to be a composition of somewhat less than the fourth of sulphur, the same quantity of sea-salt, about a fourth of alkaline salt, and somewhat more than a fourth of earth. The alkaline salt contained in kelp ashes amounts to one penny a pound. This cheapness makes it worth our pains to bestow some labour on them.

“ If the bad effects in bleaching with kelp-ashes arise from the sea-salt, as some of the most knowing bleachers think, they can be freed from it in an easy manner. Let a lixiv of kelp-ashes be made with cold water, for that does not extract so much of the sulphur; it must stand but for a short time, for these salts dissolve easily; decant it, and evaporate the ley. As the boiling continues, the sea-salt will crystallize. When that is all separated, the remaining ley will contain alkaline salt with some sulphur. This operation every master of a bleachfield may learn and oversee, without taking up much of his time. A similar process is carried on by common servants in the alum-works, who have by practice learned it from others.

“ I had some hopes that the sulphur might be carried off by long roasting, such as these salts undergo before they are fused in order to be turned into glass; because I had observed, that the longer time they were kept in the fire, the freer were they from this sulphureous part.

“ I ordered a quantity of kelp ashes to be kept in the furnace of a glasshouse, where the heat was just below the vitrifying point, for 24 hours. During this time they had lost almost four-fifths of their weight. They were now much freer from their sulphur, and were of a light colour; but much of the alkaline salt had been driven off with the oils. If a ley is much impregnated with this sulphureous matter, it appears to be carried off in a great measure by long boiling.

“ We come now to explain the method of manufacturing the white Muscovy ashes. We have shown, by undoubted experiments, that the greatest part of these ashes consists of lime; and yet we have several acts of parliament which forbid the use of that material under severe penalties. The parliament were in the right to discharge its use, upon the disadvantageous reports which were made to them. We shall immediately see how dangerous a material it is when used improperly, or with-

out the mixture of alkaline salts, which render it safe, and more soluble in water. But I will venture to say, that experiment will not support the prejudice entertained with regard to it, if carried any further.

“ Since bleaching, then, cannot be carried on without it (for those ashes which contain it are quite necessary in that operation), and since we import them from foreign countries, let these prejudices against it cease, and let us only consider how we may render our own lime as safe as the foreign. If we can do that, the wisdom of the legislature will be as ready to abrogate these acts as they were to make them.

“ By my experiments on the white Muscovy ashes, I got about the eighth part of alkaline salts from them. This made me expect, that, by mixing in the same proportion quicklime and alkaline salts, I should be able to produce Muscovy ashes.

“ To an ounce of quicklime and a dram of white pearl-ashes, I added about a gill of water, and boiled them together till the water was all evaporated. The taste of this substance was little different from lime. To recover the salts again from the lime, I dissolved it in water, strained off the liquor, and evaporated it. Instead of the dram of salts, I had but two grains of a substance which was more earthy than saline.

“ To 3 drams of quicklime, and as much potashes, I added a mutchkin of water, and kept it boiling for two hours till it was evaporated. I dissolved it again in water, which being filtered and evaporated, gave me $1\frac{1}{2}$ dram of a caustic salt, that liquified in the air when it had been but four minutes from the fire. It appears, then, that the alkaline salts are destroyed by lime, and that a great part of them can never be again recovered. From the remaining lime, after the salts were extracted, I got strong lime-water, but without a pellicle. This shows, that a quantity of alkaline salts, equal to the lime, boiled with it for two hours, are not able to fix all the soluble part of the lime.

“ From these experiments we may draw some corollaries with regard to the present subject. 1st, That evaporating the water from the lime and salts by boiling, is a most unfrugal way of preparing these white ashes. 2dly, That these ashes ought to be kept close shut up in casks; for if exposed to the open air, though in a room, the alternate moisture and drought must fix their most useful parts. This I have found to be fact: for the salts that I made became less pungent by keeping; and I have observed, that the surface of the Muscovy ashes lost all pungency by being exposed to the air, while their internal parts still retained it. 3dly, That all boiling is prejudicial to these Muscovy ashes, as it fixes, and that quickly, their most subtle and probably their most serviceable parts.

“ Let us now proceed to another method of making these white ashes. I imagined, that if the salts were dissolved in water, and the quicklime flaked with that, the mass would soon dry without the assistance of fire. In this way I added equal parts of both; but the composition was so strong, that it blistered my tongue if it but touched it. When the fourth part was alkaline salt, it blistered my tongue when kept to it a few seconds. I could taste the salts plainly in the composition, when they made but the thirty-second part of the whole.

“ I thought, when composed with the eighteenth part

Potash.

Potash.

Potash.

part of salt, it had, when fresh made, just the taste and look of the Muscovy ashes; nor could any person have distinguished them. This I once imagined was the proportion; but when I found that the saline pungency soon turned weaker by keeping, and that this composition would not afford the same quantity of salts that the Muscovy ashes did, I saw that a much greater quantity of salts was necessary. The proportion appears to be one of salts to four of lime, prepared in this last way. Three drams of ashes prepared in this way, and kept for a fortnight, gave me but 15 grains of salt; which is but the half of what the Muscovy would have afforded. I find, if the quicklime is first quenched, it does not fix the salts so much; and therefore is better and cheaper. One dram of potashes dissolved in a little water, and added to three drams of quenched lime, gave me 44 grains of a very caustic salt. I prefer this method as the best.

“The manufacturers of this salt probably pour the lixive upon the lime, as they can know by its specific gravity what quantity of salts is in the water, and so save themselves the expence of procuring the salts in a dry form.

“The manufacture of the Marcoft and Cashub ashes remains yet to be explained. We have discovered that both of them contained sulphur, earth, alkaline salts, and lime; and differ in nothing but in the Cashub's having more sulphur than the Marcoft ashes. We shall therefore consider them together.

“Whether these two species of ashes are of any use in bleaching, may be, and has already been, disputed. I find they contain no other principles, the sulphureous part excepted, than the former ashes combined together. Why then should we expect any other effects from the same ingredients in the Marcoft and Cashub ashes, than what we have from either of the pearl and Muscovy ashes mixed together? The sulphureous principle in the former must have very bad effects; as I find by experiment, that it leaves a yellowness on cloth that is very hard to be washed out. It is owing to this sulphureous principle that linen, after it has been washed with soap, and is pretty well advanced in whiteness, is apt to be discoloured by ley which is brought to boil: for, by boiling, the sulphureous part is extracted from the ashes, and the ley becomes of a deep brown colour. Daily practice, then, shows the disadvantage of this sulphureous principle. Besides, as sulphur unites itself quickly and firmly with alkaline salts, it must weaken or altogether destroy a great quantity of these in the Marcoft and Cashub ashes, and so render them of no effect in bleaching. These two reasons seem to me sufficient to exclude them from the bleachfield; especially as, by increasing the other materials, we can attain perhaps more speedily the same end.

“However, as custom has introduced them into general practice, we shall consider how they are to be manufactured. Dr Mitchell has, in a very ingenious and useful paper, contained in the Philosophical Transactions for the year 1748, delivered an account transmitted to him by Linnæus of the method of making potashes in Sweden. This account was contained in an academical dissertation of one Lundmark upon this subject at Aboe in Sweden. The substance of this account is, ‘That birch or alder is burnt by a slow fire to ashes, and made into a paste with water. This paste is plas-

tered over a row of green pine or fir logs. Above that is laid transversely another row of the same; and that likewise is plastered over. In this way they continue building and plastering till the pile be of a considerable height. This pile is set on fire; and whenever the ashes begin to run, it is overturned, and the melted ashes are beat with flexible sticks, so that the ashes incrust the logs of wood, and become as hard as stone.’ This, in the Doctor's opinion, is the method of making the potashes that come from Sweden, Ruffia, and Dantzic: and that there is no other difference betwixt the ashes made in those different countries, but that the Ruffian, containing more salt, must be made into a paste with a strong ley.

“There would appear, by my experiments, a greater difference than this betwixt the Swedish ashes, if that is the true process, and those I have examined. I had discovered the greatest part of the Muscovy ashes to be lime. I suspected it might enter into the composition of the Marcoft and Cashub; and have accordingly discovered it there. Without the same grounds, none would ever have searched for it. Whence then comes this lime? It must either enter into its composition, or arise from the materials managed according as the processes direct.

“I have tried the birch ashes made into a paste with water. I have tried common charcoal made into a paste with a third part of potashes, and kept them in a strong reverberatory heat for some hours, and yet no such caustic substance appeared. I have kept earth and salts of kelp-ashes fused together for 24 hours in the furnace of a glasshouse, where the heat was just below the degree of vitrification; and yet no remarkable causticity appeared afterwards in the concreted mass. But supposing that there did, will ever this account for the generation of lime? These chemists do not assert that it is a calcareous causticity. The earth of vegetables kept in fusion with their salts, is so far from turning into a quicklime, that the mass takes the opposite course, and becomes glass. Bodies that, by the laws of nature, are vitrescible, can never, so far as we know, become calcareous. In one or other of these two substances all bodies terminate that are changeable by fire; and vegetables are of the former kind. Here it may be asked, Why then, since they endure such a fire, are they not vitrified? the objection would be just, did they contain nothing else but what was found in vegetables. But if we once allow that lime is one of the materials, the difficulty is easily solved: for lime, we know, in proportion as it is mixed, hinders the vitrification of all bodies. In effect, the earthy part in these ashes is almost vitrified: and I think that I have carried the vitrification yet farther in that part; but I never was able, with the utmost heat of a reverberatory furnace, continued for six hours, to produce any thing like a thorough vitrification in these ashes. The heat of the fire used in the process would seem to be very great; and must, if it were not very difficult, reduce them to glass. The invitrifiable nature of these salts, so far from being an objection, becomes a strong proof of my opinion.

“These salts have a remarkable pungency. This we have already seen is the natural effect of quicklime on salts.

“These salts are found to be the fittest for making soap, and to incorporate soonest and best with oils.

Salts,

Potash,
Potato.

Salts, we know, of themselves do not readily unite with oil; but when once mixed with quicklime, they have a greater tendency to union.

“Again, I find that these ashes are more easily fluxed than charcoal made into a paste with the third part salt; which is much more than the ashes contain. Now, it is observed that quicklime increases the fluxing power of alkaline salts; for the common caustic made of quicklime and alkaline salts is sooner fused than the latter alone.

“From these reasons, and the experiments that discover lime in these ashes, I am led to think, that it is not generated by the process, but mixed with the ashes when they are made into a paste. The following experiment is a convincing proof of what I have been endeavouring to make out.

“I boiled some pease straw in a strong ley of pearl-ashes burnt into a black coal, and made it into a paste with water. Another quantity of straw was boiled in a ley made of one part of quicklime and four parts of pearl salts, the ley being poured off turbid from the lime. This straw was likewise burnt when dry, and made into a paste. These two substances were put into separate crucibles, and fluxed in a reverberatory furnace. The latter appeared to resemble the Marcott and Cassub ashes more than the former, which seemed to want their pungency.”

12
Potashes
and pearl-
ashes ob-
tained from
neutral
salts.

Though the only method of preparing the alkaline salt originally is by the combustion of vegetables, yet there are some neutral salts from which if it were possible to expel the acid, we should have it in our power to procure the finest pearl-ashes in vast quantity. These are vitriolated tartar, nitre, &c. But there are objections to all those. The vitriolated tartar, or any other salt in which the vitriolic acid enters, cannot be decomposed without converting the acid into sulphur by charcoal dust; in which case it is as difficult to get free of the sulphur as of the acid. With respect to nitre, though its acid may be expelled by fire, yet it is too high-priced, and too much used in other manufactures, to be thought of for this purpose.

POTATO. See SOLANUM, BOTANY *Index*.

Potatoes, it is generally thought, came originally from North America, where they were not reckoned good for food. They were first (we are told) introduced into Ireland in the year 1565, and from thence into England by a vessel wrecked on the western coast, called *North Meols*, in Lancashire, a place and soil even now famous for producing this vegetable in great perfection. It was 40 years after their introduction, however, before they were much cultivated about London; and then they were considered as rarities, without any conception of the utility that might arise from bringing them into common use. At this time they were distinguished from the Spanish by the name of *Virginia potatoes* or *battatas*, which is the Indian name of the Spanish sort. At a meeting of the Royal Society, March 18. 1662-3, a letter was read from Mr Buckland, a Somerset gentleman, recommending the planting of potatoes in all parts of the kingdom to prevent famine. This was referred to a committee; and, in consequence of their report, Mr Buckland had the thanks of the society, such members as had lands were intreated to plant them, and Mr Evelyn was desired to mention the proposals at the close of his *Sylva*.

2

Potato.

In Sweden, notwithstanding the indefatigable industry of Linnæus, the culture of potatoes was only introduced in 1764, when a royal edict was published to encourage their general cultivation. They were known there, however, at an earlier period; for in the Memoirs of the Royal Academy of Sciences in Sweden, 1747, M. Charles Skytfe proposed to distil brandy from them, in order to save corn, which in that country is very dear. He found by experience, that an acre of land set with potatoes will yield a much greater quantity of brandy than when sown with barley. For a full account of the methods of cultivating and preserving this valuable root, see *AGRICULTURE Index*.

We have already mentioned a cheap preparation by means of potatoes for the poor, see *AGRICULTURE*, N^o 288.; we shall here introduce a receipt to make a potato harrico, which may be equally useful to those whose circumstances are not such as to make them regardless of economy. We take it from the Gentleman's Magazine, and give it in the words of a person who had made the experiment.

“Scrape the skin clean off four pounds of good raw potatoes, then wash them clean in fair water: take two pounds of beef, one of mutton, and one of pork; or, as you like best, four pounds of any of these meats; cut them into pieces of three or four ounces each, season them very well with pepper and salt and a good onion chopped very small: have ready a strong wide-mouthed stone-jar, such as hares are usually jugged in; slice thin a layer of the potatoes into the jar, then a layer of the seasoned meat over them, and so alternately layers of potatoes and meat; let your uppermost layer be potatoes, so that your jar be about three quarters full, but put no water into your jar; then close or stop the mouth of it with a large well-fitted piece of cork, covering the same with a strong piece of canvas, and tying it down with packthread, so as only a little of the steam may escape in the stewing; for a little should constantly evaporate from the side of the cork to save the jar from burbling. Then place your jar upright in a kettle of cold water on the fire, so as the mouth of the jar may be always two inches above the water in the kettle when boiling. The harrico in the jar will begin to boil some minutes sooner than the water in the kettle, and that for obvious reasons. In about an hour after the water in the kettle begins to boil, your harrico will be fully stewed. Then take out and open the jar, pour out the harrico into a deep dish, and serve it up.

“This excellent, wholesome, and economical dish supplies an agreeable dinner twice a week to a family consisting of three grown people, and three children under 14 years of age, where neither health nor good stomachs are wanting, thanks to God: and, in point of economy we must observe, that here is the whole article of butter saved, as also the whole article of bread, or nearly so; nor does there require so large or so continued a fire, nor so much time or trouble as is necessary for the dressing of many other dishes that by no means deserve the preference to this excellent harrico.

“We have also (by way of change) made it with powdered beef, sometimes with powdered pork, sometimes with half fresh beef or mutton and half pickled pork, and found it good in all these ways, particularly with three pounds of fresh beef and one of pickled pork. We have left off sending pies and stews to the bakers. We sometimes

sometimes

Potato
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Potoffi.

sometimes (in a larger kettle) boil a small piece of powdered beef along-side of the jar, by continuing the boiling an hour and a half longer, and this serves us to eat cold the next day, with hot garden-stuff or a pudding."

POTATO-Bread. See *BREAD of Potatoes.*

Spanish POTATO. See *CONVOLVULUS, BOTANY Index.*

POTENT, or POTENCE, in *Heraldry*, a term for a kind of cross, whose ends all terminate like the head of a crutch. It is otherwise called the *Jerusalem cross*. See *HERALDRY*.

POTENTIA (POWER), that whereby a thing is capable either of acting or being acted upon.

POTENTIAL, in the schools, is used to denote and distinguish a kind of qualities, which are supposed to exist in the body in *potentia* only; by which they are capable in some measure of affecting and impressing on us the ideas of such qualities, though not actually inherent in themselves; in which sense we say, potential heat, potential cold, &c.

POTENTIAL Cautey, in *Medicine*, denotes the consuming, or reducing to an eschar, any part of the human body by a caustic alkaline or metallic salt, &c. instead of a red-hot iron, which last is called the *actual cautey*.

POTENTIAL, in *Grammar*, an epithet applied to one of the moods of verbs. The potential is the same in form with the subjunctive, and is, according to Ruddiman, implied in that mood, for which reason that grammarian rejects it; but others will have it to differ from the subjunctive in this, that it always implies in it either *possium, volo, or debeo*. It is sometimes called the *permissive mood*, because it often implies a permission or concession to do a thing. See *GRAMMAR*.

POTENTILLA, SILVER-WEED, wild tansy, or cinquefoil; a genus of plants belonging to the icofandria class; and in the natural method ranking under the 35th order, *Senticose*. See *BOTANY Index*.

POTERIUM, GARDEN BURNET; a genus of plants belonging to the monœcia class; and in the natural method ranking under the 54th order, *Miscellaneæ*. See *BOTANY Index*.

POTHOS, a genus of plants belonging to the gynandria class. See *BOTANY Index*.

POTION, a liquid medicine, consisting of as much as can be drunk at one draught.

POTIPHAR, or PUTIPHAR, an officer of the court of Pharaoh king of Egypt, and general of his troops, according to our translation, Le Clerc, and the version of the vulgate; but according to the Hebrew and Septuagint, the chief of his butchers or cooks. The Hebrew text, the Septuagint, and vulgate, call him Eunucho. But it is probable it in this place means only an officer of the king's court, for he was certainly married and had children. We have no other accounts of him but what appear in scripture; and that account is too generally known to require to be enlarged on in this place. See *Genesis xxxviii. xxxix. &c.*

POTOSI, a city of Peru in South America, situated at the bottom of a mountain of that name, in which is the richest silver mine ever discovered. To give an idea of its richness, we shall mention its produce at different times. Exclusive of what was not registered, says Abbé Raynal, and was smuggled away, the fifth part belonging to the government from 1545 to 1564, amounted

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to 36,450,000 livres * per annum. But this abundance of metals soon decreased. From 1564 to 1585, the annual fifth part amounted to no more than 15,187,489 livres four sols †. From 1585 to 1624, * 151,875l. it amounted to 12,149,994 livres 12 sols ‡. From 1624 † 632,812l. to 1633, to 6,074,997 livres six sols ||. From this last ^{1s.} period, the produce of these mines hath so evidently de- † 506,249l. creased, that in 1763 the fifth part, belonging to the || 253,124l. king, did not exceed 1,364,682 livres 12 sols §. Situ- § 46,861l. ated in W. Long. 67. S. Lat. 22. See *PERU*. ^{15s. 9d.}

POTSDAM, or POSTDAM, a town of Germany, in the circle of Upper Saxony, with a palace, belonging to the king of Prussia. It is seated in an island 10 miles in circumference, formed by the rivers Sprae and Havel. The palace is finely built, delightfully situated on a spot 12 miles west of Berlin. E. Long. 13. 42. N. Lat. 52. 34. Reisbeck in his Travels informs us, that the houses in Potsdam are still finer than those of Berlin; but like them they are inhabited only by persons of the lower and middling ranks. The population of Potsdam is stated at 26,000.

POTT, PERCIVAL, was born in London in 1713. He received the first rudiments of his education at a private school at Darne in Kent; and became an apprentice to Mr Nourse, one of the surgeons of St Bartholomew's hospital; of which hospital, in 1744-5, he was elected an assistant surgeon, and in 1749 appointed one of the principal surgeons. In 1746, he married the daughter of Robert Cruttenden, Esq. His first publication is said to have been planned in 1756, during his confinement in consequence of a compound fracture of the leg: from that time, his pen was seldom long unemployed. His practice and his reputation were now rapidly increasing: in 1764, he was elected a fellow of the Royal Society; and afterward was complimented with honorary diplomas from the Royal Colleges of Surgeons at Edinburgh and in Ireland. In 1787, he resigned the office of surgeon to St Bartholomew's hospital, "after having served it (as he used to say), man and boy, half a century;" and on the 22d of December 1788, after an illness of eight days, he expired.

"The labours of the greatest part of his life (says Mr Earle, who published his Chirurgical works), were without relaxation; an increasing family required his utmost exertion: of late years he had a villa at Neafden; and in the autumn usually passed a month at Bath, or at the sea-side. Thus, though he gathered, as he expressed it, some of the fruit of the garden which he had planted as he went along, and always lived in a generous and hospitable manner, at the same time bestowing on four sons and four daughters a liberal and necessarily expensive education, and applying large sums to their establishment during his lifetime, he left an ample provision for them at his decease. Among his papers was found, what he had often mentioned, a small box, containing a few pieces of money, being the whole which he ever received from the wreck of his father's fortune. With this was deposited an exact account of every individual fee which a long life of business had produced—abundant evidence of well spent time, and the industrious application of abilities, to which the *res angusta domi*, at the commencement, probably acted more powerfully as an incentive than as an obstacle."

POTTER, CHRISTOPHER, a learned English divine, was born in 1591, and bred at Oxford. In 1633, he published

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Poverty.

published his "Anfwer to a late Popliff Plot," entitled *Charity miftaken*, which he wrote by fpecial order of King Charles I. whoſe chaplain he was. In 1634, he was promoted to the deanery of Worcefter; and, in 1640, was conſtituted vice-chancellor of the univerſity of Oxford, in the execution of which office he met with ſome trouble from the members of the long parliament. Upon the breaking out of the civil wars, he ſent all his plate to the king, declaring, "that he would rather, like Diogenes, drink in the hollow of his hand, than that his majeſty ſhould want;" and he afterwards ſuffered much for the royal cauſe. In conſideration of this he was nominated to the deanery of Durham in 1646, but was prevented from being inſtalled by his death, which happened about two months after. He was a perſon learned and religious, exemplary in his converſation, courteous in his carriage, of a ſweet and obliging nature, and of a comely preſence. He was remarkable in his charity to the poor.

POTTER, *Dr John*, archbiſhop of Canterbury, was the ſon of a linen-draper at Wakefield in Yorkſhire, where he was born about the year 1674. He ſtudied at Univerſity college, Oxford; and at 19 published *Variantes leſſiones et notæ ad Plutarchi librum de audien- diſ poetis; et ad Baſilii magni orationem ad juvenes, quomodo cum fructu legere poſſint Græcorum libros*, 8vo, 1693. In 1697, came out his edition of *Lycophron*, in folio; which is reckoned the beſt of that obſcure writer: ſoon after, he published his *Antiquities of Greece*, 2 vols 8vo. Theſe works eſtabliſhed his literary reputation, and engaged him in a correſpondence with Grævius and other learned foreigners. In 1706, he was made chaplain to the queen; in 1715, biſhop of Oxford; and in 1737, he ſucceeded Archbiſhop Wake in the ſee of Canterbury; which high ſtation he ſupported with much dignity until his death in 1747. He was a learned and exemplary churchman; but not of an amiable diſpoſition, being but too ſtrongly tinctured with the pride of office; nor is it to his credit that he diſinherited his eldeſt ſon for marrying below his rank in life. His "Theological works, containing ſermons, charges, diſcourſes on church-government, and divinity lectures," were printed at Oxford, in 3 vols 8vo, 1753.

POTTERY, the manufacture of earthen-ware, or the art of making earthen veſſels. See *DELFT-Ware*, and *PORCELAIN*.

POTTLE, an Engliſh meafure containing two quarts.

POVERTY ſignifies indigence or want of riches, and has been the lot of a large portion of men in every age. Whether, on the whole, it has been productive of good or bad conſequences, has been diſputed. In a moral view, perhaps it has been, on the whole, uſeful, as adverſity is in general more conducive to virtue than proſperity, which too often leads to luxury and vice.— Sometimes, however, poverty has had a baneful effect upon the mind, and has prompted men to commit very inhuman actions; but this in civilized communities very ſeldom occurs. In a political view, poverty is thought by ſome to be hurtful: Raynal thinks it is a check to population (ſee his *Hiſtory*, vol. vi. p. 471.); and Dr Smith ſo far agrees with him; for though he aſſerts, and indeed proves, that poverty is no check to the production of children, he allows it to be very unfavourable to raiſing them. See *POLITICAL ECONOMY*; and

alſo Smith's *Wealth of Nations*, vol. i. p. 119, &c. See *Pouladuff* || *Poultry*.

POULADUFF, two large and remarkable cavities, about a mile weſt of Roſs, in the county of Cork, and province of Munſter, in Ireland, 80 yards deep, in which the ſea flows by ſubterraneous paſſages. They are called Eaſt and Weſt *Pouladuff*.

POULES, or FŒULQUES, one of the chief nations on the banks of the Senegal. Their country extends more than 180 miles along the river, and they demand exorbitant cuſtoms from the Senegal traders with the interior of the country. They are of a copper colour, ſomewhat inclining to red, although their children, who reſide for ſome years at Senegal, become much blacker. Their females are handſome, and many of them are procured by the white people of Senegal. They are, however, incapable of attachment, and their diſpoſitions are bad, requiring to be narrowly watched to prevent their infidelity: The dread of the baſtinado will often effect what attention and compliance can never bring about.

Although the Poules inhabit one of the fineſt ſpots in Africa, they are nevertheleſs a wretched people; they are baſe, cruel, thieviſh, and fanatic in the extreme. They are commanded by a chief of their religion, which is a contemptible mixture of Mahometaniſm and idolatry. This chief is called the *Almamy*; he is always choſen from among the tamperſirs, who are 12 in number. The tamperſirs are the interpreters of the law, and are the moſt learned, or rather the moſt fanatical among them. The almamy has the power of life and death over his ſubjects; yet he may be depoſed by an aſſembly of tamperſirs: it is therefore his intereſt to keep on good terms with them. The payment of cuſtoms is made to the almamy, and is afterwards diſtributed among the tamperſirs; and although a part belongs to the former, he nevertheleſs requires a ſeparate preſent for himſelf.

POULTICE, a ſort of medicine, called alſo a *cata-plaſm*. See *CATAPLASMA*.

POULTRY, all kinds of domeſtic birds brought up in yards, as cocks, hens, capons, ducks, turkeys, &c.

Almoſt, if not all the domeſtic birds of the poultry kind that we maintain in our yards are of foreign extraction: but there are others to be ranked in this claſs that are as yet in a ſtate of nature, and perhaps only wait till they become ſufficiently ſcarce to be taken under the care of man to multiply their propagation. It will appear remarkable enough, if we conſider how much the tame poultry which we have imported from diſtant climates has increaſed, and how much thoſe wild birds of the poultry kind that have never yet been taken into keeping have been diminished and deſtroyed. They are all thinned; and many of the ſpecies, eſpecially in the more cultivated and populous parts of the kingdom, are utterly unſeen.

Under birds of the poultry kind may be ranked all thoſe that have white fleſh, and, comparatively to their heads and limbs, have bulky bodies. They are furniſhed with ſhort ſtrong bills for picking up grain, which is their chief and often their only ſuſtenance. Their wings are ſhort and concave; for which reaſon they are not able to fly far. They lay a great many eggs; and as they lead their young abroad, the very day they are hatched, in queſt of food, which they are ſhown by the mother, and which they pick up for themſelves, they

Poultry.

they generally make their nests on the ground. The toes of all these are united by a membrane as far as the first articulation, and are then divided.

Under this class we may therefore render the common cock, the peacock, the turkey, the pintada or Guinea hen, the pheasant, the bustard, the grouse, the partridge, and the quail. They all bear a strong similitude to each other, being equally granivorous, fleshy, and delicate to the palate. They are among birds what beasts of pasture are among quadrupeds, peaceable tenants of the field, and shunning the thicker parts of the forest, that abound with numerous animals who carry on unceasing hostilities against them.

As nature has formed the rapacious class for war, so she seems equally to have fitted these for peace, rest, and society. Their wings are but short, so that they are ill formed for wandering from one region to another: their bills are also short, and incapable of annoying their opposers: their legs are strong indeed; but their toes are made for scratching up their food, and not for holding or tearing it. These are sufficient indications of their harmless nature; while their bodies, which are fat and fleshy, render them unwieldy travellers, and incapable of straying far from each other.

Accordingly, we find them chiefly in society: they live together: and though they may have their disputes, like all other animals, upon some occasions; yet, when kept in the same district, or fed in the same yard, they learn the arts of subordination; and, in proportion as each knows his strength, he seldom tries a second time the combat where he has once been worsted.

In this manner, all of this kind seem to lead an indolent voluptuous life. As they are furnished internally with a very strong stomach, commonly called a *gizzard*, so their voraciousness scarce knows any bounds. If kept in close captivity, and separated from all their former companions, they have still the pleasure of eating left; and they soon grow fat and unwieldy in their prison. To say this more simply, many of the wilder species of birds, when cooped or caged, pine away, grow gloomy, and some refuse all sustenance whatever; none except those of the poultry kind grow fat, who seem to lose all remembrance of their former liberty, satisfied with indolence and plenty.

The following method of raising poultry has been successfully practised by Mrs d'Oyley of Sion Hill near Northallerton, and seems worthy of being noticed. We shall extract the account of it, as it was given to the Society for the Encouragement of Arts, &c. in her own words "I keep", says she, "a large stock of poultry, which are regularly fed in a morning upon steamed potatoes chopped small, and at noon they have barley; they are in high condition, tractable, and lay a very great quantity of eggs. In the poultry-yard is a small building, similar to a pigeon cote, for the hens to lay in, with frames covered with net to slide before each nest: the house is dry, light, and well ventilated, kept free from dirt by having the nests and walls white-washed two or three times a-year, and the floor covered once a-week with fresh ashes. When I wish to procure chickens, I take the opportunity of setting many hens together, confining each to her respective nest; a boy attends morning and evening to let any off that appear restless, and to see that they return to their proper

places: when they hatch, the chickens are taken away, and a second lot of eggs allowed them to set again, by which means they produce as numerous a brood as before. I put the chickens into long wicker cages, placed against a hot wall at the back of the kitchen fire, and within them have artificial mothers for the chickens to run under; they are made similar to those described by M. Reaumur, in his *Art de faire éclore et d'élever en toutes Saisons des Oiseaux domestiques de toutes Espèces*, &c. in two volumes, printed at Paris, 1751: they are made of boards about 10 inches broad, and 15 inches long, supported by two feet in the front four inches in height, and by a board at the back two inches in height. The roof and back are lined with lambs skins dressed with the wool upon them. The roof is thickly perforated with holes for the heated air to escape; they are formed without bottoms, and have a flannel curtain in front and at the ends for the chickens to run under, which they do apparently by instinct. The cages are kept perfectly dry and clean with sand or moss. The above is a proper size for 50 or 60 new-hatched chickens, but as they increase in size they of course require a larger mother. When they are a week old, and the weather fine, the boy carries them and their artificial mother to the grass-plot, nourishes and keeps them warm, by placing a long narrow tin vessel filled with hot water at the back of the mother, which will retain its heat for three hours, and is then renewed fresh from the steamer. In the evening they are driven into their cages, and resume their station at the hot wall, till they are nearly three weeks old, and able to go into a small room appropriated to that purpose. The room is furnished with frames similar to the artificial mothers, placed round the floor, and with perches conveniently arranged for them to roost upon.

"When I first attempted to bring up poultry in the above way, I lost immense numbers by too great heat and suffocation, owing to the roofs of the mothers not being sufficiently ventilated; and when that evil was remedied, I had another serious one to encounter: I found chickens brought up in this way did not thrive upon the food I gave them, and many of them died, till I thought of getting coarse barley-meal, and steaming it till quite soft: the boy feeds them with this and minced potatoes alternately; he is also employed rolling up pellets of dough, made of coarse wheat flour, which he throws to excite them to eat, thereby causing them to grow surprisingly.

"I was making the above experiments in the summer for about two months; and during that time my hens produced me upwards of 500 chickens, 400 of which I reared fit for the table or market. I used a great many made into pies for the family, and found them cheaper than butcher's meat. Were I situated in the neighbourhood of London, or any very populous place, I am confident I could make an immense profit, by rearing different kinds of poultry in the above method for the markets, and selling them on an average at the price of butchers meat.

"A young person of 12 or 14 years of age might, bring up in a season some thousands, and by adopting a fence similar to the improved sheep-fold, almost any number might be cheaply reared, and with little trouble. Hens kept as mine are, and having the same conveniences, will readily set four times a season, and by setting

Poultry.

Poultry
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Poundage.

twice each time, they would produce at the lowest calculation eighty chickens each, which would soon make them very plentiful.

"The most convenient size of an artificial mother," continues the author, "for 40 or 50 young chickens, is about 15 inches long, 10 deep, four high in front, and two at the back; it is placed in a long wicker cage against a warm wall, the heat at about 80 degrees of Fahrenheit's thermometer, till the chickens are a few days old, and used to the comfort of it, after which time they run under when they want rest, and acquire warmth by crowding together. I find it advisable to have two or three chickens among them of about a week old to teach them to peck and eat. The meat and water is given them in small troughs fixed to the outside of the cage, and a little is strewed along from the artificial mother, as a train to the main deposit. It would have given me great pleasure to have been able to send a specimen of my superior feed and management, if the season had been rather more advanced, for I think it is not possible for turkeys and chickens to weigh heavier, be whiter, or altogether better fed than mine are.

"After a certain age, they are allowed their liberty, living chiefly on steamed potatoes; and being situated tolerably secure from the depredations of men and foxes, are permitted to roost in trees near the house.

"To prevent trouble and prejudice in the first outset, I think it necessary to remark, that if the chickens do not readily run under the artificial mother for want of some educated ones to teach them, it will be proper to have the curtain in front made of rabbit or hare skin, with the fur side outwards, for the warmth and comfort to attract them; afterwards they run under the flannel ones, similar to the one I sent, which are preferable for common use, on account of cleanliness, and not being liable to get into the mouths of the chickens. *"

* *Transf. of
the Society,
&c. for
1807.*

POUNCE, gum sandarach powdered and sifted very fine, to rub on paper, in order to preserve it from sinking, and to make it more fit to write upon.

POUNCE, is also a little heap of charcoal dust, inclosed in a piece of muslin or some other open stuff, to be passed over holes pricked in a work, in order to mark the lines or designs thereof on paper, silk, &c. placed underneath; which are to be afterwards finished with a pen and ink, a needle, or the like. This kind of pounce is much used by embroiderers, to transfer their patterns upon stuffs; by lace-makers, and sometimes also by engravers.

POUNCES, in falconry, the talons or claws of a bird of prey.

POUND, a standard-weight; for the proportion and subdivisions of which, see the article **WEIGHT**.

POUND also denotes a money of account; so called, because the ancient pound of silver weighed a pound troy.

POUND, among lawyers, denotes a place of strength, in which to keep cattle that are distrained or put in for trespass, until they are replevied or redeemed.

POUNDAGE, a subsidy of 12d. in the pound, granted to the crown on all goods and merchandises exported or imported; and if by aliens, one penny more.

POURPRESTURE, in *Law*, is a wrongful inclosure, or incroachment upon another person's property.

POURSUIVANT, or **PURSUIVANT**, in *Heraldry*, the lowest order of officers at arms.—They are properly attendants on the heralds when they marshal public ceremonies. Of these in England there were formerly many; but at present there are only four, viz. blue-mantle, rouge-crofs, rouge-dragon, and port-cullice. In Scotland there is only one king at arms, who is styled *Lyon*; and has under him no less than six heralds, as many pursuivants, and a great many messengers at arms. See **LYON**.

POURVEYANCE, or **PURVEYANCE**, in *Law*, the providing corn, fuel, victuals, &c. for the king's household; and hence the officer who did so was termed *pourveyor*. As several offences were committed by these officers, it was enacted by stat. 12. Car. II. that no person, under colour of *pourveyance*, shall take any timber, cattle, corn, &c. from any subject without his free consent, or without a just appraisement and paying for the same.

POUSSIN, **NICHOLAS**, an eminent French painter, born in 1594, at Andel, a little city in Normandy, where his father was of noble extraction, but born to a small estate. He was instructed for a few months by one Ferdinand Elle, a portrait-painter, and afterwards spent a month with L'Allemand; but finding these artists not likely to improve him suitably to his desires, he first studied the paintings of the best masters, and then hastened to finish a few pieces he was engaged in, and travelled to Italy. Here he devoted almost his whole attention to the study of antique statues and bas-reliefs; which was probably the cause of his want of knowledge in, and taste for, the art of colouring. Being invited back to Paris by Louis XIII. who assigned him a pension with lodgings in the Thuilleries, he painted for Prince Justiniani an historical picture representing Herod's cruelty; an admirable composition, in which he gave such expression to every character, as could not fail to strike the beholder with terror and pity: he then laboured for several years on the celebrated pictures of the seven sacraments of the Romish church. But none of Poussin's designs have been more generally admired than that of the death of Germanicus; which would have gained him immortal honour if he had never painted another picture. He began the labours of Hercules in the gallery of the Louvre; but the faction of Vouet's school railing at him and his performances, put him so out of humour with his own country, that he returned to Rome, where he died in 1665. He never went beyond easel-pieces, for which he had a perpetual demand; and his method was to fix the price he expected on the back of the canvas, which was readily paid.

POUSSIN, *Gaspar*. This painter, whose real name was *Dughet*, was born at Paris in 1600; and was induced to travel to Rome, not only from a love to the art of painting, but also to visit his sister, who was married to Nicholas Poussin. Sandrart says that Gaspar was employed at first only to prepare the pallet, pencils, and colours, for Nicholas; but by the precepts and example of that excellent master, gradually rose to the highest reputation, and is undoubtedly one of the best landscape-painters that ever appeared. It is generally thought that

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no painter ever studied nature to better purpose, or represented the effects of land-storms more happily, than Gaspar; all his trees show a natural degree of agitation, every leaf being in motion; his scenes are beautifully chosen, as are the sites of his buildings. He designed human figures but very indifferently; for which reason he frequently prevailed on Nicholas to paint them for him; and they were always introduced with the utmost propriety. While he continued at Rome he dropped his own name, and assumed that of his brother-in-law and benefactor, by which only he is now known. He died in 1662.

POWDER, in *Pharmacy*, a dry medicine well broken, either in a mortar by grinding or by some chemical operation.

Gun-POWDER. See **GUNPOWDER**. See also Observations on Gunpowder in the Irish Transactions 1788, p. 97. class *Science*, by Mr Napier.

POWDER-Chests, certain small boxes charged with powder and a quantity of old nails or splinters of iron, and fastened occasionally on the deck and sides of a ship, in order to be discharged on an enemy who attempts to seize her by boarding. These cases are usually from 12 to 18 inches in length, and about eight or ten in breadth, having their outer or upper part terminating in an edge. They are nailed to several places of the quarter-deck and bulk-head of the waist, having a train of powder, which communicates with the inner apartments of the ship, so as to be fired at pleasure to annoy the enemy. They are particularly used in merchant-ships which are furnished with close-quarters to oppose the boarders.

POWDER-Magazine, a bomb-proof arched building, to contain powder in fortified places.

POWDER for the Hair. The best sort is starch well pounded and sifted, and generally prepared with some perfume.

James's POWDER. See *JAMES's Powder*. In the Philosophical Transactions for 1791, p. 317. there is a paper by Dr Pearson, containing experiments and observations on James's powder. Dr Pearson says, it was originally a patent medicine; but it is well known that it cannot be prepared by following the directions of the specification in the court of chancery. His observations and experiments, therefore, he thinks, may explain the nature and manner of preparing this medicine, and perhaps may extend the history of antimony. The result of the whole, in Dr Pearson's own words, is as follows:

1. James's powder consists of phosphoric acid, lime, and antimonial calx; with a minute quantity of calx of iron, which is considered to be an accidental substance.
2. Either these three essential ingredients are united with each other, forming a triple compound, or phosphorated lime is combined with the antimonial calx, composing a double compound in the proportion of about 57 parts of calx and 43 parts of phosphorated lime.
3. This antimonial calx is different from any other known calx of antimony in several of its chemical qualities. About three-fourths of it are soluble in marine acid, and afford Algaroth powder, and the remainder is not soluble in this menstruum, and is apparently vitrified. It also appears, that by calcining together bone-ashes, that is, phosphorated lime and antimony in a certain proportion, and afterwards exposing the mixture to a white heat, a compound was formed, consisting of antimonial

calx, and phosphorated lime in the same proportion, and possessing the same kind of chemical properties as James's powder.

POWDIKE, in the fens of Norfolk and Ely. By stat. 22 Hen. VIII. c. 11. perversely to cut down and destroy the powdike in the fens of Norfolk and Ely is felony. See *Blackstone's Commentaries*, vol. iv. p. 243.

POWER, has been defined the faculty of doing or suffering any thing. Power, therefore, is two-fold, viz. considered as able to make, or able to receive, any change; the former whereof may be called *active*, and the latter *passive, power*: but this distinction is improper. See **METAPHYSICS**, N^o 116.

POWER, in *Mechanics*, denotes any force, whether of a man, a horse, a spring, the wind, water, &c. which, being applied to a machine, tends to produce motion.

POWER, in *Law*, signifies in general a particular authority granted by any person to another to represent him, or to act in his stead.

POWERS, in *Arithmetic* and *Algebra*, are nothing but the products arising from the continual multiplications of a number or quantity into itself. See **ALGEBRA** and **ARITHMETIC**.

POX, *French-POX*, or *Lues Venerea*. See **MEDICINE**, N^o 350.

Small-POX. See **INOCULATION**, and **MEDICINE**, N^o 222—226.

POYNING's LAW, an act of Parliament made in Ireland under Henry VII. whereby all the statutes of force in England were made of force in Ireland; which before that time they were not.—Nor are any now in force there made in England since that time.

The **law** took its name from Sir Edward Poyning, lord-lieutenant of that kingdom at the time of its making. See **IRELAND**, N^o 46.

POZZOLANA. See **PUZZOLANA**.

PRACTICE, in *Arithmetic*. See there, N^o 16. &c.

Gun-PRACTICE, in military education. In the spring, as soon as the weather permits, the exercise of the great guns begins, with an intention to show the gentlemen cadets at the royal military academy at Woolwich, and private men, the manner of laying, loading, pointing, and firing the guns. Sometimes instruments are used to find the centre line, or two points, one at the breech, the other at the muzzle, which are marked with chalk, and whereby the piece is directed to the target: then a quadrant is put into the mouth to give the gun the required elevation, which at first is guessed at, according to the distance the target is from the piece. When the piece has been fired, it is sponged to clear it from any dust or sparks of fire that might remain in the bore, and loaded: then the centre line is found as before; and if the shot went too high or too low, to the right or to the left, the elevation and trail are altered accordingly. This practice continues morning and evening for about six weeks, more or less according as there are a greater or less number of recruits. In the mean time others are shown the motions of quick-firing with field-pieces.

Mortar-PRACTICE, generally thus. A line of 1500 or 2000 yards is measured in an open spot of ground from the place where the mortars stand, and a flag fixed at about 300 or 500 yards: this being done, the ground where the mortars are to be placed is prepared

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Practice.

and

Practice,
Præmunire.

and levelled with sand, so that they may lie at an elevation of 45 degrees; then they are loaded with a small quantity of powder at first, which is increased afterwards by an ounce every time, till they are loaded with a full charge; the times of the flights of the shells are observed, to determine the length of the fuzes. The intention of this practice is, when a mortar battery is raised in a siege, to know what quantity of powder is required to throw the shells into the works at a given distance, and to cut the fuzes of a just length, that the shell may burst as soon as it touches the ground.

PRÆMUNIRE, in law, is taken either for a writ so called, or for the offence whereon the writ is granted; the one may be understood by the other.—The church of Rome, under pretence of her supremacy and the dignity of St Peter's chair, took on her to bestow most of the ecclesiastical livings of any worth in England, by mandates, before they were void; pretending therein great care to see the church provided of a successor before it needed. Whence these mandates or bulls were called *gratiæ expectatiue*, or *provisiones*; whereof see a learned discourse in *Duarenus de beneficiis*, lib. iii. cap. 1. These provisions were so common, that at last Edward I. not digesting so intolerable an encroachment, in the 35th year of his reign made a statute against papal provisions, which, according to Sir Edward Coke, is the foundation of all the subsequent statutes of præmunire: which is ranked as an offence immediately against the king, because every encouragement of the papal power is a diminution of the authority of the crown.

In the weak reign of Edward II. the pope again endeavoured to encroach, but the parliament manfully withstood him; and it was one of the articles charged against that unhappy prince, that he had given allowance to the bulls of the see of Rome. But Edw. III. was of a temper extremely different; and, to remedy these inconveniences, first by gentle means, he and his nobility wrote an expostulation to the pope: but receiving a menacing and contemptuous answer, withal acquainting him, that the emperor (who a few years before at the diet of Nuremberg, A. D. 1323, had established a law against provisions), and also the king of France, had lately submitted to the holy see; the king replied, that if both the emperor and the French king should take the pope's part, he was ready to give battle to them both, in defence of the liberties of the crown. Hereupon more sharp and penal laws were devised against provisors, which enact severally, that the court of Rome shall present or collate to no bishopric or living in England; and that whoever disturbs any patron in the presentation to a living by virtue of a papal provision, such provisor shall pay fine and ransom to the king at his will, and be imprisoned till he renounces such provision; and the same punishment is inflicted on such as cite the king, or any of his subjects, to answer in the court of Rome. And when the holy see resented these proceedings, and Pope Urban V. attempted to revive the vassalage and annualrent to which King John had subjected his kingdom, it was unanimously agreed by all the estates of the realm in parliament assembled, 40 Edw. III. that King John's donation was null and void, being without the concurrence of parliament, and contrary to his coronation-oath;

and all the temporal nobility and commons engaged, that if the pope should endeavour by process or otherwise to maintain these usurpations, they would resist and withstand him with all their power.

In the reign of Richard II. it was found necessary to sharpen and strengthen these laws, and therefore it was enacted by statutes 3 Ric. II. c. 3. and 7 Ric. II. c. 12. first, that no alien shall be capable of letting his benefice to farm; in order to compel such as had crept in, at least to reside on their preferments: and afterwards, that no alien should be capable to be presented to any ecclesiastical preferment, under the penalty of the statutes of provisors. By the statute 12 Rich. II. c. 15. all liegemen of the king accepting of a living by any foreign provision, are put out of the king's protection, and the benefice made void. To which the statute 13 Rich. II. st. 2. c. 2. adds banishment and forfeiture of lands and goods: and by c. 3. of the same statute, any person bringing over any citation or excommunication from beyond sea, on account of the execution of the foregoing statutes of provisors, shall be imprisoned; forfeit his goods and lands, and moreover suffer pain of life and member.

In the writ for the execution of all these statutes, the words *præmunire facias* being used to command a citation of the party, have denominated in common speech, not only the writ, but the offence itself of maintaining the papal power, by the name of *præmunire*. And, accordingly, the next statute we shall mention, which is generally referred to by all subsequent statutes, is usually called the *statute of præmunire*. It is the statute 16 Richard II. c. 5. which enacts, that whoever procures at Rome, or elsewhere, any translations, processes, excommunications, bulls, instruments, or other things which touch the king, against him, his crown, and realm, and all persons aiding and assisting therein, shall be put out of the king's protection, their lands and goods forfeited to the king's use, and they shall be attached by their bodies to answer to the king and his council; or process of *præmunire facias* shall be made out against them as in other cases of provisors.

By the statute 2 Henry IV. c. 3. all persons who accept any provision from the pope, to be exempt from canonical obedience to their proper ordinary, are also subjected to the penalties of præmunire. And this is the last of our ancient statutes touching this offence; the usurped civil power of the bishop of Rome being pretty well broken down by these statutes, as his usurped religious power was in about a century afterwards: the spirit of the nation being so much raised against foreigners, that about this time, in the reign of Hen. V. the alien priories, or abbeys for foreign monks, were suppressed, and their lands given to the crown. And no farther attempts were afterwards made in support of these foreign jurisdictions.

This, then, is the original meaning of the offence which we call *præmunire*; viz. introducing a foreign power into this land, and creating *imperium in imperio*, by paying that obedience to papal process which constitutionally belonged to the king alone, long before the Reformation in the reign of Henry VIII. at which time the penalties of præmunire were indeed extended to more papal abuses than before; as the kingdom then entirely renounced the authority of the see of Rome, though not at all the corrupted doctrines of the Roman church.

Præmunire. church. And therefore, by the several statutes of 24 Hen. VIII. c. 12. and 25 Hen. VIII. c. 19. & 21. to appeal to Rome from any of the king's courts, which (though illegal before) had at times been connived at; to sue to Rome for any licence or dispensation, or to obey any process from thence, are made liable to the pains of præmunire. And, in order to restore to the king in effect the nomination of vacant bishoprics, and yet keep up the established forms, it is enacted by statute 25 Hen. VIII. c. 20. that if the dean and chapter refuse to elect the person named by the king, or any archbishop or bishop to confirm or consecrate him, they shall fall within the penalties of the statutes of præmunire. Also by statute 5 Eliz. c. 1. to refuse the oath of supremacy will incur the pains of præmunire; and to defend the pope's jurisdiction in this realm, is a præmunire for the first offence, and high treason for the second. So, too, by statute 13 Eliz. c. 2. to import any *agnus Dei*, crosses, beads, or other superstitious things pretended to be hallowed by the bishop of Rome, and tender the same to be used; or to receive the same with such intent, and not discover the offender; or if a justice of the peace, knowing thereof, shall not within 14 days declare it to a privy-counsellor, they all incur a præmunire. But importing or selling mass-books, or other Popish books, is by stat. 3 Jac. I. c. 5. § 25. only liable to a penalty of 40s. Lastly, to contribute to the maintenance of a Jesuit's college, or any Popish seminary whatever beyond sea, or any person in the same, or to contribute to the maintenance of any Jesuit or Popish priest in England, is by statute 37 Eliz. c. 2. made liable to the penalties of præmunire.

Thus far the penalties of præmunire seem to have kept within the proper bounds of their original institution, the depressing the power of the pope: but they being pains of no considerable consequence, it has been thought fit to apply the same to other heinous offences; some of which bear more, and some less, relation to this original offence, and some no relation at all.

Thus, 1. By the statute 1 and 2 Ph. and Mar. c. 8. to molest the possessors of abbey-lands granted by parliament to Henry VIII. and Edward VI. is a præmunire. 2. So likewise is the offence of acting as a broker or agent in any usurious contract where above 10 per cent. interest is taken, by statute 13 Eliz. c. 10. 3. To obtain any stay of proceedings, other than by arrest of judgment or writ of error, in any suit for a monopoly, is likewise a præmunire, by stat. 21 Jac. I. c. 3. 4. To obtain an exclusive patent for the sole making or importation of gunpowder or arms, or to hinder others from importing them, is also a præmunire by two statutes; the one 16 Car. I. c. 21. the other 1 Jac. II. c. 8. 5. On the abolition, by stat. 12 Car. II. c. 24. of purveyance, and the prerogative of pre-emption, or taking any victual, beasts, or goods for the king's use, at a stated price, without consent of the proprietor, the exertion of any such power for the future was declared to incur the penalties of præmunire. 6. To assert, maliciously and advisedly, by speaking or writing, that both or either house of parliament have a legislative authority without the king, is declared a præmunire by statute 13 Car. II. c. 1. 7. By the *habeas corpus* act also, 31 Car. II. c. 2. it is a præmunire, and incapable of the king's pardon, besides other heavy penalties, to send any subject of this realm a prisoner into parts beyond the

feas. 8. By the statute 1 W. & M. st. 1. c. 8. persons of 18 years of age refusing to take the new oaths of allegiance as well as supremacy, upon tender by the proper magistrate, are subject to the penalties of a præmunire; and by statutes 7 & 8 W. III. c. 24. serjeants, counsellors, proctors, attorneys, and all officers of courts, practising without having taken the oaths of allegiance and supremacy, and subscribed the declaration against popery, are guilty of a præmunire whether the oaths be tendered or not. 9. By the statute 6 Ann. c. 7. to assert maliciously and directly, by preaching, teaching, or advised speaking, that the then pretended prince of Wales, or any person other than according to the acts of settlement and union, hath any right to the throne of these kingdoms, or that the king and parliament cannot make laws to limit the descent of the crown; such preaching, teaching, or advised speaking, is a præmunire: as writing, printing, or publishing the same doctrines amounted, we may remember, to high treason. 10. By statute 6 Ann. c. 23. if the assembly of peers of Scotland, convened to elect their 16 representatives in the British parliament, shall presume to treat of any other matter save only the election, they incur the penalties of a præmunire. 11. The stat. 6 Geo. I. c. 18. (enacted in the year after the infamous South Sea project had beggared half the nation) makes all unwarrantable undertakings by unlawful subscriptions, then commonly known by the name of *bubbles*, subject to the penalties of a præmunire. 12. The stat. 12 Geo. III. c. 11. subjects to the penalties of the statute of præmunire all such as knowingly and wilfully solemnize, assist, or are present at, any forbidden marriage of such of the descendants of the body of King Geo. II. as are by that act prohibited to contract matrimony without the consent of the crown.

Having thus inquired into the nature and several species of præmunire, its punishment may be gathered from the foregoing statutes, which are thus shortly summed up by Sir Edward Coke: "That, from the conviction, the defendant shall be out of the king's protection, and his lands and tenements, goods and chattels, forfeited to the king; and that his body shall remain in prison at the king's pleasure, or (as other authorities have it) during life; both which amount to the same thing, as the king by his prerogative may at any time remit the whole, or any part of the punishment, except in the case of transgressing the statute of *habeas corpus*. These forfeitures here inflicted do not (by the way) bring this offence within our former definition of FELONY; being inflicted by particular statutes, and not by the common law." But so odious, Sir Edward Coke adds, was this offence of præmunire, that a man that was attainted of the same, might have been slain by any other man without danger of law; because it was provided by law, that any man might do to him as to the king's enemy; and any man may lawfully kill an enemy. However, the position itself, that it is at any time lawful to kill an enemy, is by no means tenable: it is only lawful, by the law of nature and nations, to kill him in the heat of battle, or for necessary self-defence. And to obviate such savage and mistaken notions, the statute 5 Eliz. c. 1. provides, that it shall not be lawful to kill any person attainted in a præmunire, any law, statute, opinion, or exposition of law to the contrary notwithstanding. But still such delinquent, though protected as a

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part of the public from public wrongs, can bring no action for any private injury, how atrocious soever; being so far out of the protection of the law, that it will not guard his civil rights, nor remedy any grievance which he as an individual may suffer. And no man, knowing him to be guilty, can with safety give him comfort, aid, or relief.

PRÆNESTÆ, in *Ancient Geography*, a town of Latium, to the south-east of Rome, towards the territory of the Æqui; a place of great strength. Famous for the temple and oracle of Fortune, called *Sortes Prænestinæ* (Strabo); which Tiberius wanted to destroy, but was deterred by the awful majesty of the place. From a colony it was raised to a municipium by Tiberius (Inscriptions, Florus, A. Gellius), on the consideration of his recovery from a dangerous illness near this place. Thither the Roman emperors usually retired, on account of the agreeableness of the situation (Suetonius.) It was a very ancient city, with a territory of large extent (Livy). The temple of Fortune was built in the most sumptuous manner by Sylla, and the pavement was mosaic work (Pliny). Concerning the Sortes, there is a remarkable passage in Cicero; who says, that it was all a mere contrivance, in order to deceive, either for the purposes of gain or superstition. The town that has succeeded it stands low in a valley, and is called *Palestrina*, in the Campania of Rome. E. Long. 13. 30. N. Lat. 42. 0.

PRÆSIDIUM (Notitia), a town of the Cornavii in Britain. Now thought to be Warwick (Camden).—Another of Corfica (Antonine), 30 miles to the south of Aleria.—A third *Præsidium* surnamed *Julium*, in Bætica (Pliny).

PRÆTORIA AUGUSTA (Ptolemy), a town of Dacia. Now called *Brassow* by the natives, and *Cronstat* by the Germans (Baudrand): a town in Transylvania. E. Long. 25°. N. Lat. 47°.—Another of the Salassii, near the two gates or defiles of the Alps, the Grajæ and Penninæ (Pliny); a Roman colony, settled by Augustus after the defeat of the Salassii by Terentius Varro, on the spot where he encamped (Strabo, Dio Cassius, Ptolemy), situated on the river Duria Major. The town is now called *Aosta* or *Aouf*, in Piedmont. E. Long. 7. 14. N. Lat. 45. 19.

PRÆTORIUM (Antonine, Notitia Imperii), a town of the Brigantes. Now *Paterington* (Camden), near the mouth of the Humber in Yorkshire. *Coventry* (Talbot).

PRAGMATIC SANCTION, in the civil law, is defined by Hottoman to be a rescript or answer of the sovereign, delivered by advice of his council, to some college, order, or body of people, upon consulting him on some case of their community. The like answer given to any particular person is called simply *rescript*.

The term *pragmatic sanction* is chiefly applied to a settlement of Charles VI. emperor of Germany, who, in the year 1722, having no sons, settled his hereditary dominions on his eldest daughter the archduchess Maria Theresa, which was confirmed by the diet of the empire, and guaranteed by Great Britain, France, the States-General, and most of the powers in Europe. The word *pragmatic* is derived from the Greek *πραγμα, negotium*, "business."—It is sometimes also called absolutely *pragmatic, το πραγματικον*.

PRAGUE, a city of Bohemia, and capital of the

whole kingdom, is situated in 14° 40' of longitude, and 50° 5' of latitude. It stands on both sides the Moldau, over which there is a bridge 700 feet long, built of large freestone. The river, though of great breadth here, is nevertheless shallow, and not navigable. On both sides the bridge are several statues, and among others that of St John of Neponuck, whom King Wensel caused to be thrown from the bridge into the river, for venturing to reprove him upon some occasion; but in 1720 he was canonized as a saint, and is at present held in such veneration in Bohemia, that all other saints seem on his account to be forgotten. Near the bridge, which stands at the upper part of the city, the number of people is very great, but the further you go from thence the more desolate you find every place. The city is about three miles long and two broad; the number of its Christian inhabitants is said to be 70,000, and of Jews about 12,000. The principal branch of its trade consists in brewing beer. It is divided into the Old and the New Towns, and that called the *Small side*; the former lying on the east side of the Moldau, and the latter on the west. The whole is about 12 miles in circumference. The fortifications are not of great importance, as it may be flanked and raked on all sides. However, the king of Prussia was not able to make himself master of it in the late war, though he almost destroyed it with his bombs, &c. See PRUSSIA, N° 24, &c.—It has suffered greatly by sieges, and has been often taken and plundered. The university was founded by Charles IV. in the year 1347. In 1409, when John Hus was rector of the university, there were no less than 44,000 students; and when the emperor Charles V. would have retrenched their privileges, 24,000 are said to have left it in one week, and 16,000 in a short time after. The Jews have the trade of this city almost entirely in their own hands. They deal in all sorts of commodities, especially the precious stones found in the Bohemian mines, and, by receiving all old-fashioned things in payment, quite ruin the Christian handicraftsmen. In 1744 they narrowly escaped being expelled the kingdom, having been suspected of corresponding with the Prussians, when they made themselves masters of the city. The grand prior of the order of Malta, for Bohemia, Moravia, and Silesia, resides here; and the church and hospital of the Holy Ghost is the seat of the general and grandmasters of the holy order of knights of the cross with the red star, residing in the above-mentioned countries, and in Poland and Hungary. The houses of this city are all built of stone, and generally consist of three stories; but there are very few good buildings in it, and almost every thing looks dirty. The cathedral, which is dedicated to St Veit, is an old building, in which there are some pieces of excellent architecture and many magnificent tombs of great men. There are 100 churches and chapels, and about 40 cloisters in the place. On Ratschin-hill, in Upper Prague, most of the nobility have houses, and the emperor a very magnificent palace, and a summer-house commanding one of the finest prospects in the world. Here the tribunals of the regency meet; and the halls, galleries, and other apartments, are adorned with a multitude of noble pictures. The great hall, where the coronation feast is kept, is said to be the largest of the kind in Europe next to that of Westminster. The castle stands on the above-mentioned

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ed mountain, called *Ratſchin* or the *White Mountain*, and is very ſtrong. From a window of this caſtle the emperor's counſellors were thrown in 1618; but though they fell from a great height, yet they were not killed, nor indeed much hurt. On the ſame mountain ſtands alſo the archiepiſcopal palace. In the New Town is an arſenal, and a religious foundation for ladies, called the *Free Temporal Engliſh Foundation*, over which an abbeſs preſides. In the Leſſer Side or Town, the counts Coloredo and Wallenſtein have very magnificent palaces and gardens. The ſtables of the latter are very grand; the racks being of ſteel and the mangers of marble, and a marble pillar betwixt each horſe; over each horſe alſo is placed his picture as big as life. Though the inhabitants of Prague in general are poor, and their ſhops but meanly furniſhed, yet, it is ſaid, there are few cities where the nobility and gentry are more wealthy, and live in greater ſtate. Here is much gaming, maſquerading, feaſting, and very ſplendid public balls, with an Italian opera, and aſſemblies in the houſes of the quality every night. On the White Mountain, near the town, was fought the battle in which the Proteſtants, with the elector Palatine Frederic their king, were defeated. The luſtres and drinking-glaſſes made here of Bohemian cryſtal are much eſteemed, and vended all over Europe. Theſe cryſtals are alſo poliſhed by the Jews, and ſet in rings, ear-pendants, and ſhirt-buttons. The chief tribunal conſiſts of twelve ſtadholders, at the head of whom is the great burgrave, governor of the kingdom and city, immediately under the emperor, and the chancery of Bohemia. Though the city of Prague is very ill-built, it is pleaſantly ſituated, and ſome of the proſpects are beautiful, and the gardens and pleaſure-houſes are excellent. The people, Rieſbeck informs us, enjoy ſenſual pleaſures more than thoſe of Vienna, becauſe they know better how to connect mental enjoyments with them. The numerous garrifon kept in the place (9000 men) contributes much to its gaiety and livelineſs.

PRAM or PRAME, a kind of lighter uſed in Holland and the ports of the Baltic ſea, to carry the cargo of a merchant ſhip *along ſide*, in order to lade or to bring it to ſhore to be lodged in the ſtorehouſes after being diſcharged out of the veſſel.

PRAME, in military affairs, a kind of floating battery, being a flat-bottomed veſſel, which draws little water, mounts ſeveral guns, and is very uſeful in covering the diſembarkation of troops. They are generally made uſe of in tranſporting troops over the lakes in America.

PRASIUM, a genus of plants belonging to the didymia claſs, and in the natural method ranking under the 4th order, *Verticillatæ*. See *BOTANY Index*.

PRATINAS, a Greek poet contemporary with Æſchylus, born at Phlius. He was the firſt among the Greeks who compoſed ſatires, which were repreſented as farces. Of theſe 32 were acted, as alſo 18 of his tragedies, one of which only obtained the poetical prize. Some of his verſes are extant, quoted by Athenæus.

PRATIQUE, or PRATTIC, in commerce, a negotiation or communication of commerce which a merchant veſſel obtains in the port it arrives in and the countries it diſcovers: hence to obtain a pratique, is to ob-

tain liberty to frequent a port, to go aſhore, to buy and ſell, &c.

Pratt.

PRATT, CHARLES, earl of Camden, was the third ſon of Sir John Pratt, knight, chief-juſtice of the court of king's-bench under George I. by his ſecond wife Elizabeth, daughter of the Reverend Hugh Wilſon canon of Bangor, and was born in 1713, the year before his father was called to the honour of the bench. He received the firſt rudiments of his education at Eton, and afterwards removed to King's college Cambridge. Of his early life at both places there is little known, other than that at college he was found to be remarkably diligent and ſtudious, and particularly ſo in the hiſtory and conſtitution of this country. By ſome he was thought to be a little too tenacious of the rights and privileges of the college he belonged to; but perhaps it was to this early tendency that we are indebted for thoſe noble ſtruggles in defence of liberty, which, whether in or out of office, he diſplayed through the whole courſe of his political life. After remaining the uſual time at college, and taking his maſter's degree, in 1739 he entered himſelf a ſtudent of the Inner Temple, and was in due time admitted by the honourable ſociety as a barrifier at law. And here a circumſtance develops itſelf in the hiſtory of this great man, which ſhows how much chance governs in the affairs of this world, and that the moſt conſiderable talent and indiſputable integrity will ſometimes require the introduction of this miſtreſs of the ceremonies, in order to obtain that which they ought to poſſeſs from their own intrinsic qualifications.

Mr Pratt, after his being called to the bar, notwithstanding his family introduction, and his own perſonal character, was very near nine years in the profeſſion, without ever getting in any degree forward. Whether this aroſe from a natural timidity of conſtitution, ill-luck, or perhaps a mixture of deſpondence growing out of the two circumſtances, it is now difficult to tell; but the fact was ſo; and he was ſo diſpirited by it, that he had ſome thoughts of relinquishing the profeſſion of the law, and retiring to his college, where, in rotation, he might be ſure of a church living, that would give him a ſmall but honourable independence. With theſe melancholy ideas he went as uſual the weſtern circuit, to make one more experiment, and then to take his final determination. Mr Henley, afterwards Lord Northington and chancellor of England, was in the ſame circuit: he was Mr Pratt's moſt intimate friend; and he now availed himſelf of that friendſhip, and told him his ſituation, and his intentions of retiring to the univerſity and going into the church. He oppoſed his intention with ſtrong raillery, and got him engaged in a cauſe along with himſelf; and Mr Henley being ill, Mr Pratt took the lead, and diſplayed a profeſſional knowledge and elocution that excited the admiration of his brother barrifiers as much as that of the whole court. He gained his cauſe; and beſides, he acquired the reputation of an eloquent, profound, and conſtitutional lawyer. It was this circumſtance, together with the continued good offices of his friend Henley, which led to his future greatneſs; for with all his abilities and all his knowledge, he might otherwiſe in all probability have paſſed his life in obſcurity unnoticed and unknown.

He became now one of the moſt ſucceſſful pleaders at

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the bar, and honours and emoluments flowed thick upon him. He was chosen to represent the borough of Downton, Wilts, after the general election in 1759; recorder of Bath 1759; and the same year was appointed attorney-general; in January 1762 he was called to the degree of serjeant at law, appointed chief-justice of the common pleas, and knighted. His lordship presided in that court with a dignity, weight, and impartiality, never exceeded by any of his predecessors; and when John Wilkes, Esq. was seized and committed to the Tower on an illegal general warrant, his lordship, with the intrepidity of a British magistrate, and the becoming fortitude of an Englishman, granted him an *habeas corpus*; and on his being brought before the court of common pleas, discharged him from his confinement in the Tower, May 6. 1763, in a speech which did him honour. His wife and spirited behaviour on this remarkable occasion, so interesting to every true-born Briton, and in the consequent judicial proceedings between the printers of The North Briton and the messengers and others, was so acceptable to the nation, that the city of London presented him with the freedom of their corporation in a gold box, and desired his picture, which was put up in Guildhall, with this inscription:

HANC ICONEM
CAROLI PRATT, EQ.
SUMMI JUDICIS, C. B.
IN HONOREM TANTI VIRI,
ANGLICÆ LIBERTATIS LEGE
ASSERTORIS,
S. P. Q. L.
IN CURIA MUNICIPALI
PONI JUSSERVNT
NONO KAL. MART. A. D. MDCCCLXIV.
GULIELMO BRIDGEN, AR. PRÆ. VRB.

This portrait, painted by Reynolds, was engraved by Bafire. The corporations of Dublin, Bath, Exeter, and Norwich, paid him the like compliment; and in a petition, entered in the journals of the city of Dublin, it was declared, that no man appeared to have acquitted himself in his high station with such becoming zeal for the honour and dignity of the crown, and the fulfilling his majesty's most gracious intentions for preserving the freedom and happiness of his subjects, and such invincible fortitude in administering justice and law, as the Right Honourable Sir Charles Pratt, knight, the present lord-chief-justice of his majesty's court of common pleas in England, has shown in some late judicial determinations, which must be remembered to his lordship's honour while and wherever British liberties are held sacred.

Higher honours, however, than the breath of popular applause awaited Sir Charles Pratt. On the 16th of July 1765 he was created a peer of Great Britain, by the style and title of Lord Camden, Baron Camden, in the county of Kent; and, July 30. 1766, on the resignation of Robert earl of Northington, he was appointed lord high-chancellor of Great Britain; in which capacity he, in a speech of two hours, declared, upon the first decision of the suit against the messengers who arrested Mr Wilkes, that "it was the unanimous opinion of the whole court, that general warrants, except in cases of high treason, were illegal, oppressive, and unwarrantable. He conducted himself in this high office so as to obtain the love and esteem of all parties; but

when the taxation of America was in agitation, he declared himself against it, and strongly opposing it, was removed from his station in 1770.

Upon the fall of Lord North he was against taken into the administration, and on the 27th of March 1782 appointed president of the council; an office which he resigned in March 1783. On the 13th of May 1786, he was created Vicount Bayham of Bayham Abbey, Kent, and Earl Camden.

Whether we consider Earl Camden as a *statesman*, called to that high situation by his talents; as a *lawyer*, defending, supporting, and enlarging the constitution; or as a *man*, sustaining both by his firmness and unshaken integrity—in all he excites our general praise; and when we contemplate his high and exalted virtue, we must allow him to have been an honour to his country. He died on the 18th of April 1794 at his house in Hillstreet, Berkeley-square, being at that time president of his majesty's most honourable privy-council, a governor of the charter-house, recorder of the city of Bath, and F. R. S.

He married Elizabeth, daughter and coheir of Nicholas Jefferys, Esq. son and heir of Sir Jeffery Jefferys of Brecknock Priory, knight, who died in December 1779, and by whom he had issue John Jefferys Pratt (now Lord Camden), born 1759, and several daughters. His seat at Camden Place, Chiselmurst, was the residence of the great William Camden; on whose death it came by several intermediate owners to Weston, Spencer, and Pratt, and was much improved by his lordship.

PRAXAGORAS, a native of Athens, at 19 years of age composed the History of the Kings of Athens, in two books; and at 22 the Life of Constantine the Great, in which, though a pagan, he speaks very advantageously of that prince. He also wrote the History of Alexander the Great. He lived under Constantius, about the year 345.

PRAXITELES, a very famous Greek sculptor, who lived 330 years before Christ, at the time of the reign of Alexander the Great. All the ancient writers mention his statues with a high commendation, especially a Venus executed by him for the city of Cnidos, which was so admirable a piece, that King Nicomedes offered to release the inhabitants from their tribute as the purchase of it; but they refused to part with it. The inhabitants of the isle of Cos requested of Praxiteles a statue of Venus; and in consequence of this application the artist gave them their choice of two; one of which represented the goddess entirely naked, and the other covered with drapery. Both of these were of exquisite workmanship. Although the former was esteemed the most beautiful, nevertheless the inhabitants of Cos had the wisdom to give the preference to the latter, from a conviction that no motive whatever could justify their introducing into their city any indecent statues or paintings, which are so likely to inflame the passions of young people, and lead them to immorality and vice. What a reproach will this be to many Christians!—He was one of the gallants of Phryne the celebrated courtesan.

PRAYER, a solemn address to God, which, when it is of any considerable length, consists of *adoration*, *confession*, *supplication*, *intercession*, and *thanksgiving*.

By *adoration* we express our sense of God's infinite perfections, his power, wisdom, goodness, and mercy; and acknowledge that our constant dependence is upon

Him

Pratt
||
Prayer.

Prayer.

Him by whom the universe was created and has been hitherto preserved. By *confession* is meant our acknowledgment of our manifold transgressions of the divine laws, and our consequent unworthiness of all the good things which we enjoy at present or expect to be conferred upon us hereafter. In *supplication* we intreat our omnipotent Creator and merciful Judge, not to deal with us after our iniquities, but to pardon our transgressions, and by his grace to enable us to live henceforth righteously, soberly, and godly, in this present world; and by Christians this intreaty is always made in the name and through the mediation of Jesus Christ, because to them it is known that there is none other name under heaven given unto men whereby they may be saved. To these supplications for mercy we may likewise add our prayers for the necessaries of life; because if we seek *first* the kingdom of God and his righteousness, we are assured that such things shall be added unto us. *Intercession* signifies those petitions which we offer up for others, for friends, for enemies, for all men, especially for our lawful governors, whether supreme or subordinate. And *thanksgiving* is the expression of our gratitude to God, the giver of every good and perfect gift, for all the benefits enjoyed by us and others, for the means of grace, and for the hope of glory. Such are the component parts of a regular and solemn prayer, adapted either for the church or for the closet. But an ejaculation to God, conceived on any emergency, is likewise a prayer, whether it be uttered by the voice or suffered to remain a mere affection of the mind; because the Being to whom it is addressed discerneth the thoughts of the heart.

That prayer is a duty which all men ought to perform with humility and reverence, has been generally acknowledged as well by the untaught barbarian as by the enlightened Christian; and yet to this duty objections have been made by which the understanding has been bewildered in sophistry and affronted with jargon. "If God be independent, omnipotent, and possessed of every other perfection, what pleasure, it has been asked, can he take in our acknowledgment of these perfections? If he knows all things past, present, and future, where is the propriety of our confessing our sins unto him? If he is a benevolent and merciful Being, he will pardon our sins, and grant us what is needful for us without our supplications and intreaties; and if he be likewise possessed of infinite wisdom, it is certain that no importunities of ours will prevail upon him to grant us what is improper, or for our sakes to change the equal and steady laws by which the world is governed.

"Shall burning Ætna, if a sage requires,
 "Forget to thunder, and recal her fires?
 "On air or sea new motions be imprest,
 "Oh blameless Bethel! to relieve thy breast?
 "When the loose mountain trembles from on high,
 "Shall gravitation cease, if you go by?
 "Or some old temple, nodding to its fall,
 "For Chartres' head reserve the hanging wall *?"

* *Essay on Man.*

Such are the most plausible objections which are usually made to the practice of prayer; and though they have been set off with all the art of the metaphysical wrangler, and embellished with all the graces of the poetry of Pope, they appear to us such gross sophisms as can operate only on a very unthinking head,

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or on a very corrupt heart. For if God certainly exists, and there is not a mathematical theorem capable of more rigid demonstration, it is obvious that no man can think of such a being without having his mind strongly impressed with the conviction of his own constant dependence upon him; nor can he "contemplate the heavens, the work of God's hands, the moon, and the stars which he has ordained," without forming the most sublime conceptions that he can of the Divine power, wisdom, and goodness, &c. But such conviction, and such conceptions, whether clothed in words or not, are to all intents and purposes what is meant by adoration; and are as well known to the Deity while they remain the silent affections of the heart, as after they are spoken in the beginning of a prayer. Our adoration, therefore, is not expressed for the purpose of giving information to God, who understandeth our thoughts afar off; but merely, when the prayer is private, because we cannot think any more than speak without words, and because the very *sound* of words that are well chosen affects the heart, and helps to fix our attention: and as the Being who sees at once the past, present, and to come, and to whom a thousand years are but as one day, stands not in need of our information; so neither was it ever proposed by a man of rational piety, that he takes pleasure on his *own* account in hearing his perfections enumerated by creatures of yesterday; for being independent, he has no passions to be gratified, and being self-sufficient, he was as happy when existing alone as at that moment "when the morning stars sang together, and all the sons of God shouted for joy." Adoration is therefore proper only as it tends to preserve in our minds just notions of the Creator and Governor of the world, and of our own constant dependence upon him; and if such notions be useful to ourselves, who have a part to act in the scale of existence, upon which our happiness depends (a proposition which no theist will controvert) adoration must be acceptable to that benevolent God, who, when creating the world, could have no other end in view than to propagate happiness. See METAPHYSICS, N^o 312.

By the same mode of reasoning, it will be easy to show the duty of *confession* and *supplication*. We are not required to confess our sins unto God, because he is ignorant of them; for he is ignorant of nothing. If he were, no reason could be assigned for our divulging to our judge actions deserving of punishment. Neither are we required to cry for mercy, in order to move him in whom there is no variableness, neither shadow of turning. The Being that made the world, governs it by laws that are inflexible, because they are the best; and to suppose that he can be induced by prayers, oblations, or sacrifices, to vary his plan of government, is an impious thought, which degrades the Deity to a level with man. One of these inflexible laws is the connection established between certain dispositions of mind and human happiness. We are enjoined to pursue a particular course of conduct under the denomination of virtue, not because our virtuous actions can in any degree be of advantage to him by whom we were created, but because they necessarily generate in our own minds those dispositions which are essential to our ultimate happiness. A man of a malignant, arrogant, or sensual disposition, would have no enjoyment in that heaven, where all are actuated by a spirit of love and purity; and it is doubt-

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less for this reason among others, that the Christian religion prohibits malice, arrogance, and sensuality, among her votaries, and requires the cultivation of the opposite virtues. But a person who has deviated far from his duty cannot think of returning, unless he be previously convinced that he has gone astray. Such conviction, whenever he obtains it, will necessarily impress upon his mind a sense of his own danger, and fill his heart with sorrow and remorse for having transgressed the laws established by the most benevolent of all Beings for the propagation of universal felicity. This conviction of error, this sense of danger, and this compunction for having transgressed, are all perceived by the Deity as soon as they take place in the mind of the sinner; and he is required to *confess* his sins, only because the act of confession tends to imprint more deeply on his mind his own unworthiness, and the necessity of returning immediately into the paths of that virtue of which all the ways are pleasantness and all the paths are peace.

In the objection, it is taken for granted, that if God be a benevolent and merciful Being, he will pardon our sins, and grant us what is needful for us, whether we supplicate him or not: but this is a gross and palpable mistake, arising from the objector's ignorance of the end of virtue and the nature of man. Until a man be sensible of his sins and his danger, he is for the reason already assigned incapable of pardon, because his disposition is incompatible with the happiness of the blessed. But whenever he acquires this conviction, it is impossible for him not to form a *mental wish* that he may be pardoned; and this wish being perceptible to the all-seeing eye of his Judge, forms the sum and substance of a supplication for mercy. If he clothe it in words, it is only for a reason similar to that which makes him adore his Creator and confess his sins in words, that just notions may be more deeply imprinted on his own mind. The same reasoning holds good with respect to those prayers which we put up for temporal blessings, for protection and support in our journey through life. We are told by high authority, that "the Lord is nigh unto all them that call upon him, to all that call upon him in truth." This, however, is not because he is attracted or delighted by their prayers and intreaties, but because those prayers and intreaties fit such as offer them for receiving those benefits which he is at all times ready to pour upon all mankind. In his essence God is equally present with the righteous and with the wicked, with those who pray, and with those who pray not; for "the eyes of the Lord are in every place, beholding the evil and the good." But as the atmosphere equally surrounds every person upon this globe, and yet in its state of greatest purity does not affect the asthmatic as it affects those who are whole; so the Divine presence, though essentially the same everywhere, yet does not protect the impious as it protects the devout, because the impious are not in a state capable of the Divine protection. The end for which God requires the exercise of prayer as a duty, is not his benefit but ours; because it is a mean to generate in the petitioner such a disposition of mind as must render him a special object of that love and that providential care which extend over the whole creation.

That part of the objection which results from the consideration of the fixed laws of nature, and which the

poet has so finely illustrated, presents, it must be confessed, considerable difficulties; but none which to us appear insurmountable. If, indeed, we suppose that in the original constitution of things, when the laws of nature were established, a determinate duration was given to the top of the mountain and the nodding temple, without any regard to foreseen consequences, it would undoubtedly be absurd and perhaps impious to expect the law of gravitation to be suspended by the prayers of a good man, who should happen to be passing at the instant decreed for the fall of these objects. But of such a constitution there is so far from being evidence, that it appears not to be consistent with the wisdom and goodness of the Author of nature. This world was undoubtedly formed for the habitation of man and of other animals. If so, we must necessarily suppose, that in the establishing of the laws of nature, God adjusted them in such a manner as he saw would best serve the accommodation of those sentient beings for whose accommodation alone they were to be established. Let it then be admitted, that all the human beings who were ever to exist upon this globe, with all their thoughts, words, and actions, were at that important moment present to the divine intellect, and it surely will not be impossible to conceive, that in consequence of the foreseen danger and prayers of a good man, the determinate duration of the mountain and the tower might be either lengthened or shortened to let him escape. This idea of providence, and of the efficacy of prayer, is thus illustrated by Mr Wollaston*. "Suppose M (some man) certainly to *foreknow*, by some means or other, that, when he should come to be upon his death-bed, L would *petition* for some *particular legacy*, in a manner so earnest and humble, and with such a good disposition, as would render it proper to grant his request: and upon this, M makes his *last will*, by which he devises to L that which was to be asked, and then locks up the *will*; and all this many years before the death of M, and whilst L had yet no expectation or thought of any such thing. When the time comes, the *petition* is made and *granted*; not by making any *new will*, but by the old one already made, and without alteration: which legacy had, notwithstanding that, never been left, had the petition never been preferred. The grant may be called the effect of a future act, and depends as much upon it as if it had been made after the act. So, if it had been foreseen, that L would not *so much as ask*, and he had been therefore left out of the will, this *praeterition* would have been caused by his carriage, though much later than the date of the will. In all this nothing is hard to be admitted, if M be allowed to foreknow the case. And thus the *prayers* which good men offer to the *all-knowing* God, and the *neglect of prayers* by others, may find fitting effects *already* forecast in the course of nature."

This solution of the difficulty presents indeed to the mind a prodigious scheme, in which all things to come are, as it were, comprehended under one view, and estimated and compared together. But when it is considered what a mass of wonders the universe is in other respects; what an incomprehensibly great and perfect being God is; that he cannot be ignorant of any thing, no not of the future wants and departments of particular men; and that all things which derive their existence from him must be consistent with one another

Prayer.

* Religion of Nature delineated.

Prayer.

—it must surely be confessed that such an adjustment of physical causes to moral volitions is within the compass of infinite power and perfect wisdom.

To that part of a prayer which we have termed intercession, it has been objected, that “to intercede for others is to presume that we possess an interest with the Deity upon which their happiness and even the prosperity of whole communities depends.” In answer to this objection, it has been observed by an ingenious and useful writer *, that “how unequal soever our knowledge of the divine economy may be to a complete solution of this difficulty, which may require a comprehension of the entire plan, and of all the ends of God’s moral government, to explain it satisfactorily, we can yet understand one thing concerning it, that it is, after all, nothing more than the making of one man the instrument of happiness and misery to another; which is perfectly of a piece with the course and order that obtain, and which we must believe were intended to obtain, in human affairs. Why may we not be assisted by the prayers of other men, as well as we are beholden for our support to their labour? Why may not our happiness be made in some cases to depend upon the intercession as it certainly does in many upon the good offices of our neighbours? The happiness and misery of great numbers we see oftentimes at the disposal of one man’s choice, or liable to be much affected by his conduct: what greater difficulty is there in supposing, that the prayers of an individual may avert a calamity from multitudes, or be accepted to the benefit of whole communities.”

* Mr Paley.

These observations may perhaps be sufficient to remove the force of the objection, but much more may be said for the practice of mutual intercession. If it be one man’s duty to intercede for another, it is the duty of that other to intercede for him; and if we set aside the particular relations which arise from blood, and from particular stations in society, mutual intercession must be equally the duty of all mankind. But there is nothing (we speak from our own experience, and appeal to the experience of our readers) which has so powerful a tendency to generate in the heart of any person good-will towards another as the constant practice of praying to God for his happiness. Let a man regularly pray for his enemy with all that seriousness which devotion requires, and he will not long harbour resentment against him. Let him pray for his friend with that ardour which friendship naturally inspires, and he will perceive his attachment to grow daily and daily stronger. If, then, universal benevolence, or charity, be a disposition which we ought to cultivate in ourselves, mutual intercession is undeniably a duty, because nothing contributes so effectually to the acquisition of that spirit which an apostle terms the end of the commandment.

When it is said, that by interceding for kings, and all in authority, we seem to consider the prosperity of communities as depending upon our interest with God, the objector mistakes the nature and end of these intercessions. In the prosperity of any community consists great part of the happiness of its individual members; but that prosperity depends much upon the conduct of its governors. When, therefore, individuals intercede for their governors, the ultimate object of their prayers must be conceived to be their own good. As it is equally the duty of all the members of the community to pray for their governors, such intercessions are the

prayers of the whole community for itself, and of every individual for himself. So that in this view of the case, the most just, we apprehend, that can be taken of it, it is not true that supplications and intercessions for kings and all in authority are the prayers of one individual for another, but the prayers of many individuals for that body of which each of them knows himself to be a member.

Having evinced the duty of adoration, confession, supplication, and intercession, we need not surely waste our readers time with a formal and laboured vindication of thanksgiving. Gratitude for benefits received is so universally acknowledged to be a virtue, and ingratitude is so detestable a vice, that no man who lays claim to a moral character will dare to affirm that we ought not to have a just sense of the goodness of God in preserving us from the numberless dangers to which we are exposed, and “in giving us rain from heaven, and fruitful seasons, filling our hearts with food and gladness.” But if we have this sense, whether we express it in words or not, we offer to God thanksgiving; because every movement of the heart is open and exposed to his all-seeing eye.

In this article we have treated of prayer in general, and as the private duty of every individual; but there ought to be *public* as well as *private* prayer, which shall be considered afterwards. (See WORSHIP.) We have likewise observed, that the prayers of every Christian ought to be offered in the name and through the mediation of Jesus Christ, for which the reason will be seen in the article THEOLOGY. We shall conclude our reflections on the general duty, with observing, that nothing so forcibly restrains from ill as the remembrance of a recent address to heaven for protection and assistance. After having petitioned for power to resist temptation, there is so great an incongruity in not continuing the struggle, that we blush at the thought, and persevere lest we lose all reverence for ourselves. After fervently devoting our souls to God, we start with horror at immediate apostasy: every act of deliberate wickedness is then complicated with hypocrisy and ingratitude: it is a mockery of the Father of Mercies, the forfeiture of that peace in which we closed our address, and a renunciation of the hope which that address inspired. But if prayer and immorality be thus incompatible, surely the former should not be neglected by those who contend that moral virtue is the summit of human perfection.

PREACHING. See DECLAMATION, Art. I.—The word is derived from the Hebrew *paraſch*, *expofuit*, “he expounded.”

PREADAMITE, a denomination given to the inhabitants of the earth, conceived, by some people, to have lived before Adam.

Isaac de la Pereyra, in 1655, published a book to evince the reality of Preadamites, by which he gained a considerable number of proselytes to the opinion: but the answer of Demarets, professor of theology at Groningen, published the year following, put a stop to its progress; though Pereyra made a reply.

His system was this: The Jews he calls *Adamites*, and supposes them to have issued from Adam; and gives the title *Preadamites* to the Gentiles, whom he supposes to have been a long time before Adam. But this being expressly contrary to the first words of Genesis,

Prayer
||
Preadamites.

^{Preadamite} ^{||} ^{Precentor.} ²
 fis, Pereyra had recourse to the fabulous antiquities of the Egyptians and Chaldeans, and to some idle rabbins, who imagined there had been another world before that described by Moses. He was apprehended by the inquisition in Flanders, and very roughly used, though in the service of the dauphin. But he appealed from their sentence to Rome; whither he went in the time of Alexander VII. and where he printed a retractation of his book of Preadamites. See PRE-EXISTENCE.

PREAMBLE, in *Law*, the beginning of an act of parliament, &c. which serves to open the intent of the act, and the mischiefs intended to be remedied by it.

PREBEND, the maintenance a prebendary receives out of the estate of a cathedral or collegiate church. Prebends are distinguished into simple and dignitary: a simple prebend has no more than the revenue for its support; but a prebend with dignity has always a jurisdiction annexed to it.

PREBENDARY, an ecclesiastic who enjoys a prebend.

The difference between a prebendary and a canon is, that the former receives his prebend in consideration of his officiating in the church, but the latter merely by his being received into the cathedral or college.

PRECARIUM, in *Scots Law*. See *LAW*, N^o clxxiii.

PRECEDENCE, a place of honour to which a person is entitled. This is either of courtesy or of right. The former is that which is due to age, estate, &c. which is regulated by custom and civility: the latter is settled by authority; and when broken in upon, gives an action at law.

In Great Britain, the order of precedency is as follows: The king; the princes of the blood; the archbishop of Canterbury; the lord high chancellor; the archbishop of York; the lord treasurer of England; the lord president of the council; the lord privy seal; dukes; the eldest sons of dukes of the blood royal; marquesses; dukes eldest sons; earls; marquesses eldest sons; dukes younger sons; viscounts; earls eldest sons; marquesses younger sons; bishops; barons; speaker of the house of commons; lord commissioner of the great seal; viscounts eldest sons; earls younger sons; barons eldest sons; privy counsellors not peers; chancellor of the exchequer; chancellor of the duchy; knights of the garter not peers; lord chief justice of the king's bench; master of the rolls; lord chief justice of the common pleas; lord chief baron of the exchequer; puisne judges and barons; knights banneret, if made in the field; masters in chancery; viscounts younger sons; barons younger sons; baronets; knights banneret; knights of the Bath; knights bachelors; baronets eldest sons; knights eldest sons; baronets younger sons; knights younger sons; field and flag officers; doctors graduate; serjeants at law; esquires; gentlemen bearing coat armour; yeomen; tradesmen; artificers; labourers.—*Note*, The ladies, except those of archbishops, bishops, and judges, take place according to the degree of quality of their husbands; and unmarried ladies take place according to that of their fathers.

PRECEDENT, in *Law*, a case which has been determined, and which serves as a rule for all of the same nature.

PRECENTOR, a dignity in cathedrals, popularly called the *chantor*, or *master of the choir*.

PRECEPT, in *Law*, a command in writing sent by a chief justice or justice of the peace, for bringing a person, record, or other matter before him. ^{Precept} ^{||} ^{Precession.}

PRECEPT of *Clare Constat*, in *Scots Law*. See *LAW*, Part III. N^o clxxx. 28.

PRECEPT of *Seisin*, in *Scots Law*. See *LAW*, Part III. N^o clxiv. 16.

PRECEPTIVE, any thing which gives or contains precepts.

PRECEPTIVE Poetry. See *POETRY*, N^o 146, &c.

PRECESSION OF THE EQUINOXES. The most obvious of all the celestial motions is the diurnal revolution of the starry heavens. The whole appears to turn round an imaginary AXIS, which passes through two opposite points of the heavens, called the *poles*. One of these is in our sight, being very near the star α in the tail of the Little Bear. The great circle which is equidistant from both poles divides the heavens into the northern and southern hemispheres, which are equal. It is called the *equator*, and it cuts the horizon in the east and west points, and every star in it is 12 sidereal hours above and as many below the horizon, in each revolution. ^{Diurnal re-} ^{||} ^{volution of} ^{the starry} ^{heavens.}

The sun's motions determine the length of day and night, and the vicissitudes of the seasons. By a long series of observations, the shepherds of Asia were able to mark out the sun's path in the heavens; he being always in the opposite point to that which comes to the meridian at midnight, with equal but opposite declination. Thus they could tell the stars among which the sun then was, although they could not see them. They discovered that his path was a great circle of the heavens, afterwards called the *ECLIPTIC*; which cuts the equator in two opposite points, dividing it, and being divided by it, into two equal parts. They farther observed, that when the sun was in either of these points of intersection, his circle of diurnal revolution coincided with the equator, and therefore the days and nights were equal. Hence the equator came to be called the *EQUINOCTIAL LINE*, and the points in which it cuts the ecliptic were called the *EQUINOCTIAL POINTS*, and the sun was then said to be in the equinoxes. One of these was called the *VERNAL* and the other the *AUTUMNAL EQUINOX*. ^{Observa-} ^{||} ^{tions of the} ^{Asiatic} ^{shepherds.}

It was evidently an important problem in practical astronomy to determine the exact moment of the sun's occupying these stations; for it was natural to compute the course of the year from that moment. Accordingly this has been the leading problem in the astronomy of all nations. It is susceptible of considerable precision, without any apparatus of instruments. It is only necessary to observe the sun's declination on the noon of two or three days before and after the equinoctial day. On two consecutive days of this number, his declination must have changed from north to south, or from south to north. If his declination on one day was observed to be 21' north, and on the next 5' south, it follows that his declination was nothing, or that he was in the equinoctial point about 23' after seven in the morning of the second day. Knowing the precise moments, and knowing the rate of the sun's motion in the ecliptic, it is easy to ascertain the precise point of the ecliptic in which the equator intersected it. ^{To deter-} ^{||} ^{mine the} ^{time of the} ^{sun's occu-} ^{||} ^{pying the} ^{equinoctial} ^{points.}

By a series of such observations made at Alexandria between the years 161 and 127 before Christ, Hipparchus discovered. ^{Hippar-} ^{||} ^{chus's dis-} ^{||} ^{coveries.}

Precession. chus the father of our astronomy found that the point of the autumnal equinox was about six degrees to the eastward of the star called SPICA VIRGINIS. Eager to determine every thing by multiplied observations, he ransacked all the Chaldean, Egyptian, and other records, to which his travels could procure him access, for observations of the same kind; but he does not mention his having found any. He found, however, some observations of Arifillus and Timochares, made about 150 years before. From these it appeared evident that the point of the autumnal equinox was then about eight degrees east of the same star. He discusses these observations with great sagacity and rigour; and, on their authority, he asserts that the equinoctial points are not fixed in the heavens, but move to the westward about a degree in 75 years or somewhat less.

5 Why called the precession of the equinoxes. This motion is called the PRECESSION OF THE EQUINOXES, because by it the time and place of the sun's equinoctial station precedes the usual calculations: it is fully confirmed by all subsequent observations. In 1750 the autumnal equinox was observed to be $20^{\circ} 21'$ westward of Spica Virginis. Supposing the motion to have been uniform during this period of ages, it follows that the annual precession is about $50''\frac{1}{3}$; that is, if the celestial equator cuts the ecliptic in a particular point on any day of this year, it will on the same day of the following year cut it in a point $50''\frac{1}{3}$ to the west of it, and the sun will come to the equinox $20' 23''$ before he has completed his round of the heavens. Thus the equinoctial or tropical year, or true year of seasons, is so much shorter than the revolution of the sun or the sidereal year.

6 Importance of the discovery. It is this discovery that has chiefly immortalized the name of Hipparchus, though it must be acknowledged that all his astronomical researches have been conducted with the same sagacity and intelligence. It was natural therefore for him to value himself highly for the discovery; for it must be admitted to be one of the most singular that has been made, that the revolution of the whole heavens should not be stable, but its axis continually changing. For it must be observed, that since the equator changes its position, and the equator is only an imaginary circle, equidistant from the two poles or extremities of the axis; these poles and this axis must equally change their positions. The equinoctial points make a complete revolution in about 25745 years, the equator being all the while inclined to the ecliptic in nearly the same angle. Therefore the poles of this diurnal revolution must describe a circle round the poles of the ecliptic at the distance of about $23\frac{1}{2}^{\circ}$ degrees in 25745 years; and in the time of Timochares, the north pole of the heavens must have been 30° degrees eastward of the place where it now is.

7 Hipparchus has been accused of plagiarism. Hipparchus has been accused of plagiarism and insincerity in this matter. It is now very certain that the precession of the equinoxes was known to the astronomers of India many ages before the time of Hipparchus. It appears also that the Chaldeans had a pretty accurate knowledge of the year of seasons. From their saros we deduce their measure of this year to be 365 days 5 hours 49 minutes and 11 seconds, exceeding the truth only by $26''$, and much more exact than the year of Hipparchus. They had also a sidereal year of 365 days 6 hours 11 minutes. Now what could occasion an attention to two years, if they did not suppose the equinoxes moveable? The Egyptians also had a

knowledge of something equivalent to this: for they had discovered that the dog-star was no longer the faithful forwarner of the overflowing of the Nile; and they combined him with the star Fomalhafet * in their mystical kalendar. This knowledge is also involved in the precepts of the Chinese astronomy, of much older date than the time of Hipparchus.

But all these acknowledged facts are not sufficient for depriving Hipparchus of the honour of the discovery, or fixing on him the charge of plagiarism. This motion was a thing unknown to the astronomers of the Alexandrian school, and it was pointed out to them by Hipparchus in the way in which he ascertained every other position in astronomy, namely, as the mathematical result of actual observations, and not as a thing deducible from any opinions on other subjects related to it. We see him, on all other occasions, eager to confirm his own observations, and his deductions from them, by every thing he could pick up from other astronomers; and he even adduced the above-mentioned practice of the Egyptians in corroboration of his doctrine. It is more than probable then that he did not know any thing more. Had he known the Indian precession of $54''$ annually, he had no temptation whatever to withhold him from using it in preference to one which he acknowledges to be inaccurate, because deduced from the very short period of 150 years, and from the observations of Timochares, in which he had no great confidence.

9 This motion of the starry heavens was long a matter of discussion, as a thing for which no physical reason could be assigned. But the establishment of the Copernican system reduced it to a very simple affair; the motion which was thought to affect all the heavenly bodies, is now acknowledged to be a deception, or a false judgement from the appearances. The earth turns round its own axis while it revolves round the sun, in the same manner as we may cause a child's top to spin on the brim of a millstone, while the stone is turning slowly round its axis. If the top spin steadily, without any wavering, its axis will always point to the zenith of the heavens; but we frequently see, that while it spins briskly round its axis, the axis itself has a slow conical motion round the vertical line, so that, if produced, it would slowly describe a circle in the heavens round the zenith point. The flat surface of the top may represent the terrestrial equator, gradually turning itself round on all sides. If this top were formed like a ball, with an equatorial circle on it, it would represent the whole motion very prettily, the only difference being, that the spinning motion and this wavering motion are in the same direction; whereas the diurnal rotation and the motion of the equinoctial points are in contrary directions. Even this dissimilarity may be removed, by making the top turn on a cap, like the card of a mariner's compass.

10 It is now a matter fully established, that while the earth revolves round the sun from west to east, in the plane of the ecliptic in the course of a year, it turns round its own axis from west to east in 23h 56' 4'', which axis is inclined to this plane in an angle of nearly $23^{\circ} 28'$; and that this axis turns round a line perpendicular to the ecliptic in 25,745 years from east to west, keeping nearly the same inclination to the ecliptic.—By this means, its pole in the sphere of the starry heavens describes a circle round the pole of the ecliptic at the

Precession.
* See Dupins sur le zodiaque des Egyptiens, Mem. de l'Acad. des Inscript.

But falsely.

Heavenly motions accounted for by the Copernican system.

And the earth's.

Precession

the distance of $23^{\circ} 28'$ nearly. The consequence of this must be, that the terrestrial equator, when produced to the sphere of the starry heavens, will cut the ecliptic in two opposite points, through which the sun must pass when he makes the day and night equal; and that these points must shift to the westward, at the rate of $50\frac{1}{7}$ seconds annually, which is the precession of the equinoxes. Accordingly this has been the received doctrine among astronomers for nearly three centuries, and it was thought perfectly conformable to appearances.

11
Bradley's attempts to discover the parallax of the earth's orbit.

But Dr Bradley, the most sagacious of modern astronomers, hoped to discover the parallax of the earth's orbit by observations of the actual position of the pole of the celestial revolution. Dr Hooke had attempted this before, but with very imperfect instruments. The art of observing being now prodigiously improved, Dr Bradley resumed this investigation. It will easily appear, that if the earth's axis keeps parallel to itself, its extremity must describe in the sphere of the starry heavens a figure equal and parallel to its orbit round the sun; and if the stars be so near that this figure is a visible object, the pole of diurnal revolution will be in different distinguishable points of this figure. Consequently, if the axis describes the cone already mentioned, the pole will not describe a circle round the pole of the ecliptic, but will have a looped motion along this circumference, similar to the absolute motion of one of Jupiter's satellites, describing an epicycle whose centre describes the circle round the pole of the ecliptic.

12
Difficulties in the attempt observed by accident.

He accordingly observed such an epicyclical motion, and thought that he had now overcome the only difficulty in the Copernican system; but, on maturely considering his observations, he found this epicycle to be quite inconsistent with the consequences of the annual parallax, and it puzzled him exceedingly. One day, while taking the amusement of sailing about on the Thames, he observed, that every time the boat tacked, the direction of the wind, estimated by the direction of the vane, seemed to change. This immediately suggested to him the cause of his observed epicycle, and he found it an optical illusion, occasioned by a combination of the motion of light with the motion of his telescope while observing the polar stars. Thus he unwittingly established an incontrovertible argument for the truth of the Copernican system, and immortalized his name by his discovery of the ABERRATION of the stars.

13
His further investigation of the subject.

He now engaged in a series of observations for ascertaining all the circumstances of this discovery. In the course of these, which were continued for 28 years, he discovered another epicyclical motion of the pole of the heavens, which was equally curious and unexpected. He found that the pole described an epicycle, whose diameter was about $18''$, having for its centre that point of the circle round the pole of the ecliptic in which the pole would have been found independent of this new motion. He also observed, that the period of this epicyclical motion was 18 years and seven months. It struck him, that this was precisely the period of the revolution of the nodes of the moon's orbit. He gave a brief account of these results to Lord Macclesfield, then president of the Royal Society, in 1747. Mr Machin, to whom he also communicated the observations, gave him in return a very neat mathematical hypothesis, by which the motion might be calculated.

Plate
ccccxxxviii
Fig. 1.

Precession.

Let E (fig. 1.), be the pole of the ecliptic, and SPQ a circle distant from it $23^{\circ} 28'$, representing the circle described by the pole of the equator during one revolution of the equinoctial points. Let P be the place of this last mentioned pole at some given time. Round P describe a circle ABCD, whose diameter AC is $18''$. The real situation of the pole will be in the circumference of this circle; and its place, in this circumference depends on the place of the moon's ascending node. Draw EPF and GPL perpendicular to it; let GL be the colure of the equinoxes, and EF the colure of the solstices. Dr Bradley's observations showed that the pole was in A when the node was in L, the vernal equinox. If the node recede to H, the winter solstice, the pole is in B. When the node is in the autumnal equinox at G, the pole is at C; and when the node is in F, the summer solstice, the pole is in D. In all intermediate situations of the moon's ascending node, the pole is in a point of the circumference ABCD, three signs or 90° more advanced.

Plate
ccccxxxviii
Fig. 1.
14
Mathematical theory of the poles of the equator be supposed to describe a circle.

Dr Bradley, by comparing together a great number of observations, found that the mathematical theory, and the calculation depending on it, would correspond much better with the observations, if an ellipse were substituted for the circle ABCD, making the longer axis AC $18''$, and the shorter, BD, $16''$. Mr d'Alembert determined, by the physical theory of gravitation, the axes to be $18''$ and $13''\cdot4$.

15
More exact if an ellipse be substituted for the circle.

These observations, and this mathematical theory, must be considered as so many facts in astronomy, and we must deduce from them the methods of computing the places of all celestial phenomena, agreeable to the universal practice of determining every point of the heavens by its longitude, latitude, right ascension, and declination.

16
These observations and this theory are facts in astronomy.

It is evident, in the first place, that this equation of the pole's motion makes a change in the obliquity of the ecliptic. The inclination of the equator to the ecliptic is measured by the arch of a great circle intercepted between their poles. Now, if the pole be in O instead of P, it is plain that the obliquity is measured by EO instead of EP. If EP be considered as the mean obliquity of the ecliptic, it is augmented by $9''$ when the moon's ascending node is in the vernal equinox, and consequently the pole in A. It is, on the contrary, diminished $9''$ when the node is in the autumnal equinox, and the pole in C; and it is equal to the mean when the node is in the colure of the solstices. This change of the inclination of the earth's axis to the plane of the ecliptic was called the NUTATION of the axis by Sir Isaac Newton; who shewed, that a change of nearly a second must obtain in a year by the action of the sun on the prominent parts of the terrestrial spheroid. But he did not attend to the change which would be made in this motion by the variation which obtains in the disturbing force of the MOON, in consequence of the different obliquity of her action on the equator, arising from the motion of her own oblique orbit. It is this change which now goes by the name NUTATION, and we owe its discovery entirely to Dr Bradley. The general change of the position of the earth's axis has been termed DEVIATION by modern astronomers.

17
Obliquity of the ecliptic.

The quantity of this change of obliquity is easily ascertained. It is evident, from what has been already said, that when the pole is in C, the arch ADCO is equal to the node's longitude from the vernal equinox, and

18
Quantity of it easily ascertained.

Precession.

and that PM is its cosine ; and (on account of the smallness of AP in comparison of EP) PM may be taken for the change of the obliquity of the ecliptic. This is therefore = $9'' \times \text{cof. long. node}$, and is additive to the mean obliquity, while O is in the semicircle BAD, that is, while the longitude of the node is from 9 signs to 3 signs ; but subtractive while the longitude of the node changes from 3 to 9 signs.

19
Change of the equinoctial points.

But the nutation changes also the longitudes and right ascensions of the stars and planets by changing the equinoctial points, and thus occasioning an equation in the precession of the equinoctial points. It was this circumstance which made it necessary for us to consider it in this place, while expressly treating of this precession. Let us attend to this derangement of the equinoctial points.

20
Situation of the solstitial and equinoctial colures.

The great circle or meridian which passes through the poles of the ecliptic and equator is always the solstitial colure, and the equinoctial colure is at right angles to it : therefore when the pole is in P or in O, EP or EO is the solstitial colure. Let S be any fixed star or planet, and let SE be a meridian or circle of longitude ; draw the circles of declination PS, OS, and the circles M'EM', mEm', perpendicular to PE, OE.

21
Equation of longitude from nutation of the earth's axis.

If the pole were in its mean place P, the equinoctial points would be in the ecliptic meridian M'EM', or that meridian would pass through the intersections of the equator and ecliptic, and the angle M'ES would measure the longitude of the star S. But when the pole is in O, the ecliptic meridian mEm' will pass through the equinoctial points. The equinoctial points must therefore be to the westward of their mean place, and the equation of the precession must be additive to that precession ; and the longitude of the star S will now be measured by the angle mES, which, in the case here represented, is greater than its mean longitude. The difference, or the equation of longitude, arising from the nutation of the earth's axis, is the angle OEP, or $\frac{OM}{OE}$.

OM is the sine of the angle CPO, which, by what has been already observed, is equal to the longitude of the node : Therefore OM is equal to $9'' \times \text{long. node}$, and $\frac{OM}{OE}$ is equal to $\frac{9'' \times \text{sin. long. node}}{\text{sin. obliq. eclip.}}$. This equation is

additive to the mean longitude of the star when O is in the semicircle CBA, or while the ascending node is passing backwards from the vernal to the autumnal equinox ; but it is subtractive from it while O is in the semicircle ADC, or while the node is passing backwards from the autumnal to the vernal equinox ; or, to express it more briefly, the equation is subtractive from the mean longitude of the star, while the ascending node is in the first six signs, and additive to it while the node is in the last six signs.

This equation of longitude is the same for all the stars, for their longitude is reckoned on the ecliptic (which is here supposed invariable) ; and therefore is affected only by the variation of the point from which the longitude is computed.

22
Right ascension suffers a double change.

The right ascension, being computed on the equator, suffers a double change. It is computed from, or begins at, a different point of the equator, and it terminates at a different point ; because the equator having changed its position, the circles of declination also change

theirs. When the pole is at P, the right ascension of S from the solstitial colure is measured by the angle SPE, contained between that colure and the star's circle of declination. But when the pole is at O, the right ascension is measured by the angle SOE, and the difference of SPE and SOE is the equation of right ascension. The angle SOE consists of two parts, GOE and GOS ; GOE remains the same wherever the star S is placed, but GOS varies with the place of the star.— We must first find the variation by which GPE becomes GOE, which variation is common to all the stars. The triangles GPE, GOE, have a constant side GE, and a constant angle G ; the variation PO of the side GP is extremely small, and therefore the variation of the angles may be computed by Mr Cotes's Fluxionary Theorems. See Simpson's *Fluxions*, § 253, &c. As the tangent of the side EP, opposite to the constant angle G, is to the sine of the angle EPG, opposite to the constant side EG, so is PO the variation of the side GP, adjacent to the constant angle, to the variation x of the angle GPO, opposite to the constant side EG. This gives $x = \frac{9'' \times \text{sin. long. node}}{\text{tang. obl. eclip.}}$. This is subtractive from the mean right ascension for the first six signs of the node's longitude, and additive for the last six signs. This equation is common to all the stars.

The variation of the other part SOG of the angle, which depends on the different position of the hour circles PS and OS, which causes them to cut the equation in different points, where the arches of right ascension terminate, may be discovered as follows: The triangles SPG, SOG, have a constant side SG, and a constant angle G. Therefore, by the same Cotefian theorem, $\text{tan. SP} : \text{sin. SPG} = \text{PO} : y$, and y , or the second part of the nutation in right ascension, = $\frac{9'' \times \text{sin. diff. R. A. of star and node}}{\text{cotan. declin. star}}$.

The nutation also affects the declination of the stars : For SP, the mean codeclination, is changed into SO.— Suppose a circle described round S, with the distance SO cutting SP in f ; then it is evident that the equation of declin. is $Pf = PO \times \text{cofine OP} = 9'' \times \text{sin. r. ascen. of star} - \text{long. of node}$.

Such are the calculations in constant use in our astronomical researches, founded on Machin's Theory. When still greater accuracy is required, the elliptical theory must be substituted, by taking (as is expressed by the dotted lines) O in that point of the ellipse described on the transverse axis AC, where it is cut by OM, drawn according to Machin's Theory. All the change made here is the diminution of OM in the ratio of 18 to 13.4, and a corresponding diminution of the angle CPO. The detail of it may be seen in De la Lande's *Astronomy*, art. 2874 ; but is rather foreign to our present purpose of explaining the precession of the equinoxes. The calculations being in every case tedious, and liable to mistakes, on account of the changes of the signs of the different equations, the zealous promoters of astronomy have calculated and published tables of all these equations, both on the circular and elliptical hypothesis. And still more to abridge calculations, which occur in reducing every astronomical observation, when the place of a phenomenon is deduced from a comparison with known stars, there have been published tables of nutation and precession.

Precession. tion, for some hundreds of the principal stars, for every position of the moon's node and of the sun.

26
Precession
of the equi-
noctial
points, &c.

27
Observa-
tions of
Newton
and others
on this sub-
ject.

It now remains to consider the precession of the equinoctial points, with its equations, arising from the nutation of the earth's axis as a physical phenomenon, and to endeavour to account for it upon those mechanical principles which have so happily explained all the other phenomena of the celestial motions.

This did not escape the penetrating eye of Sir Isaac Newton; and he quickly found it to be a consequence, and the most beautiful proof, of the universal gravitation of all matter to all matter; and there is no part of his immortal work where his sagacity and fertility of resource shine more conspicuously than in this investigation. It must be acknowledged, however, that Newton's investigation is only a shrewd guess, founded on assumptions, of which it would be extremely difficult to demonstrate either the truth or falsity, and which required the genius of a Newton to pick out in such a complication of abstruse circumstances. The subject has occupied the attention of the first mathematicians of Europe since his time; and is still considered as the most curious and difficult of all mechanical problems. The most elaborate and accurate dissertations on the precession of the equinoxes are those of Sylvabella and Walmsley, in the Philosophical Transactions, published about the year 1754; that of Thomas Simpson, published in his Miscellaneous Tracts; that of Father Frisius, in the Memoirs of the Berlin Academy, and afterwards with great improvements, in his Cosmographia; that of Euler in the Memoirs of Berlin; that of D'Alembert in a separate dissertation; and that of De la Grange on the Libration of the Moon, which obtained the prize in the Academy of Paris in 1769. We think the dissertation of Father Frisius the most perspicuous of them all, being conducted in the method of geometrical analysis; whereas most of the others proceed in the fluxionary and symbolic method, which is frequently deficient in distinct notions of the quantities under consideration, and therefore does not give us the same perspicuous conviction of the truth of the results. In a work like ours, it is impossible to do justice to the problem, without entering into a detail which would be thought extremely disproportioned to the subject by the generality of our readers. Yet those who have the necessary preparation of mathematical knowledge, and wish to understand the subject fully, will find enough here to give them a very distinct notion of it; and in the article ROTATION, they will find the fundamental theorems, which will enable them to carry on the investigation. We shall first give a short sketch of Newton's investigation, which is of the most palpable and popular kind, and is highly valuable, not only for its ingenuity, but also because it will give our unlearned readers distinct and satisfactory conceptions of the chief circumstances of the whole phenomena.

28
Sketch of
Newton's
investiga-
tion of it.
Fig. 2.

Let S (fig. 2.) be the sun, E the Earth, and M the Moon, moving in the orbit NMCD*n*, which cuts the plane of the Ecliptic in the line of the nodes N*n*, and has one half raised above it, as represented in the figure, the other half being hid below the Ecliptic. Suppose this orbit folded down; it will coincide with the Ecliptic in the circle N*mcdn*. Let EX represent the axis of this orbit, perpendicular to its plane, and therefore inclined to the Ecliptic. Since the Moon gravi-

tates to the sun in the direction MS, which is all above the Ecliptic, it is plain that this gravitation has a tendency to draw the Moon towards the Ecliptic. Suppose this force to be such that it would draw the Moon down from M to *i* in the time that she would have moved from M to *t*, in the tangent to her orbit. By the combination of these motions, the Moon will desert her orbit, and describe the line M*r*, which makes the diagonal of the parallelogram; and if no farther action of the sun be supposed, she will describe another orbit M*δn'*, lying between the orbit MCD*n* and the Ecliptic, and she will come to the Ecliptic, and pass through it in a point *n'*, nearer to M than *n* is, which was the former place of her descending node. By this change of orbit, the line EX will no longer be perpendicular to it; but there will be another line E*x*, which will now be perpendicular to the new orbit. Also the Moon, moving from M to *r*, does not move as if she had come from the ascending node N, but from a point N lying beyond it; and the line of the nodes of the orbit in this new position is N'*n'*. Also the angle MN'*m* is less than the angle MN*m*.

Precession.

Thus the nodes shift their places in a direction opposite to that of her motion, or move to the westward; the axis of the orbit changes its position, and the orbit itself changes its inclination to the ecliptic. These momentary changes are different in different parts of the orbit, according to the position of the line of the nodes. Sometimes the inclination of the orbit is increased, and sometimes the nodes move to the eastward. But, in general, the inclination increases from the time that the nodes are in the line of syzygy, till they get into quadrature, after which it diminishes till the nodes are again in syzygy. The nodes advance only while they are in the octants after the quadratures, and while the moon passes from quadrature to the node, and they recede in all other situations. Therefore the recess exceeds the advance in every revolution of the moon round the earth, and, on the whole, they recede.

What has been said of one Moon, would be true of each of a continued ring of Moons surrounding the Earth, and they would thus compose a flexible ring, which would never be flat but waved, according to the difference (both in kind and degree) of the disturbing forces acting on its different parts. But suppose these Moons to cohere, and to form a rigid and flat ring, nothing would remain in this ring but the excess of the contrary tendencies of its different parts. Its axis would be perpendicular to its plane, and its position in any moment will be the mean position of all the axes of the orbits of each part of the flexible ring; therefore the nodes of this rigid ring will continually recede, except when the plane of the ring passes through the Sun, that is, when the nodes are in syzygy; and (says Newton) the motion of these nodes will be the same with the mean motion of the nodes of the orbit of one Moon. The inclination of this ring to the ecliptic will be equal to the mean inclination of the Moon's orbit during any one revolution which has the same situation of the nodes. It will therefore be least of all when the nodes are in quadrature, and will increase till they are in syzygy, and then diminish till they are again in quadrature.

Suppose this ring to contract in dimensions, the disturbing forces will diminish in the same proportion, and in this proportion will all their effects diminish. Suppose

pose

Precession.

pose its motion of revolution to accelerate, or the time of a revolution to diminish; the linear effects of the disturbing forces being as the squares of the times of their action, and their angular effects as the times, those errors must diminish also on this account; and we can compute what those errors will be for any diameter of the ring, and for any period of its revolution. We can tell, therefore, what would be the motion of the nodes, the change of inclination, and deviation of the axis, of a ring which would touch the surface of the earth, and revolve in 24 hours; nay, we can tell what these motions would be, should this ring adhere to the earth. They must be much less than if the ring were detached; for the disturbing forces of the ring must drag along with it the whole globe of the earth. The quantity of motion which the disturbing forces would have produced in the ring alone, will now (says Newton) be produced in the whole mass; and therefore the velocity must be as much less as the quantity of matter is greater: But still all this can be computed.

Now there is such a ring on the earth: for the earth is not a sphere, but an elliptical spheroid. Sir Isaac Newton therefore engaged in a computation of the effects of the disturbing force, and has exhibited a most beautiful example of mathematical investigation. He first asserts, that the earth *must* be an elliptical spheroid, whose polar axis is to its equatorial diameter as 229 to 230. Then he demonstrates, that if the sine of the inclination of the equator be called π , and if t be the number of days (sidereal) in a year, the annual motion of

a detached ring will be $360^\circ \times \frac{3\sqrt{1-\pi^2}}{4t}$. He then

shows that the effect of the disturbing force on this ring is to its effect on the matter of the same ring, distributed in the form of an elliptical stratum (but still detached) as 5 to 2; therefore the motion of the nodes

will be $360^\circ \times \frac{3\sqrt{1-\pi^2}}{10t}$, or $16' 16'' 24'''$ annually. He

then proceeds to show, that the quantity of motion in the sphere is to that in an equatorial ring revolving in the same time, as the matter in the sphere to the matter in the ring, and as three times the square of a quadrant arch to two squares of a diameter, jointly: Then he shows, that the quantity of matter in the terrestrial sphere is to that in the protuberant matter of the spheroid, as 52900 to 461 (supposing all homogeneous). From these premises it follows, that the motion of $16' 16'' 24'''$, must be diminished in the ratio of 10717 to 100, which reduces it to $9'' 07'''$ annually. And this (he says) is the precession of the equinoxes, occasioned by the action of the sun; and the rest of the $50\frac{1}{2}''$ which is the observed precession, is owing to the action of the moon, nearly five times greater than that of the sun. This appeared a great difficulty; for the phenomena of the tides show that it *cannot* much exceed twice the sun's force.

Nothing can exceed the ingenuity of this process. Justly does his celebrated and candid commentator, Daniel Bernoulli, say (in his Dissertation on the Tides, which shared the prize of the French Academy with M'Laurin and Euler), that Newton saw through a veil what others could hardly discover with a microscope in the light of the meridian sun. His determination of the form and dimensions of the earth, which is the

foundation of the whole process, is not offered as any thing better than a probable guess, *in re difficillima*; and it has since been demonstrated with geometrical rigour by M'Laurin.

His next principle, that the motion of the nodes of the rigid ring is equal to the mean motion of the nodes of the moon, has been most critically discussed by the first mathematicians, as a thing which could neither be proved nor refuted. Frisius has at least shown it to be a mistake, and that the motion of the nodes of the ring is double the mean motion of the nodes of a single moon: and that Newton's own principles should have produced a precession of $18\frac{1}{4}$ seconds annually, which removes the difficulty formerly mentioned.

His third assumption, that the quantity of motion of the ring must be shared with the included sphere, was acquiesced in by all his commentators, till D'Alembert and Euler, in 1749, showed that it was not the quantity of motion round an axis of rotation which remained the same, but the quantity of momentum or rotatory effort. The quantity of motion is the product of every particle by its velocity; that is, by its distance from the axis; while its momentum, or power of producing rotation, is as the square of that distance, and is to be had by taking the sum of each particle multiplied by the square of its distance from the axis. Since the earth differs so little from a perfect sphere, this makes no sensible difference in the result. It will increase Newton's precession about three-fourths of a second.

We proceed now to the examination of this phenomenon upon the fundamental principles of mechanics.

Because the mutual gravitation of the particles of matter in the solar system is in the inverse ratio of the squares of the distance, it follows, that the gravitations of the different parts of the earth to the sun or to the moon are unequal. The nearer particles gravitate more than those that are more remote.

Let PQP (fig. 3.) be a meridional section of the terrestrial sphere, and POpp the section of the inscribed sphere. Let CS be a line in the plane of the ecliptic passing through the sun, so that the angle ECS is the sun's declination. Let NCM be a plane passing through the centre of the earth at right angles to the plane of the meridian PQP; NCM will therefore be the plane of illumination.

In consequence of the unequal gravitation of the matter of the earth to the sun, every particle, such as B, is acted on by a disturbing force parallel to CS, and proportional to BD, the distance of the particle from the plane of illumination; and this force is to the gravitation of the central particle to the sun, as three times BD to CS, the distance of the earth from the sun.

Let ABa be a plane passing through the particle B, parallel to the plane EQ of the equator. This section of the earth will be a circle, of which Aa is a diameter, and Qq will be the diameter of its section with the inscribed sphere. These will be two concentric circles, and the ring by which the section of the spheroid exceeds the section of the sphere, will have AQ for its breadth: Pp is the axis of figure.

Let EC be represented by the symbol	-	a
OC or PC	-	b
EO their difference,	$= \frac{a^2 - b^2}{a + b}$	d
	L 1 2	CL

29
His determination of the form and dimensions of the earth demonstrated by M'Laurin.

Precession.

30
Examination of phenomenon of precession mechanical principles.

Precession.

CL	-	-	-	$\frac{x}{\sqrt{b^2-x^2}}$
QL	-	-	-	π
The periphery of a circle to radius Γ	-	-	-	f
The disturbing force at the distance Γ from the plane NCM	-	-	-	m
The fine of declination ECS	-	-	-	n
The cofine of ECS	-	-	-	

of an arch, and the sum of its square and the square of its corresponding cofine is equal to the square of the radius. Therefore the sum of all the squares of the fines, together with the sum of all the squares of the cofines, is equal to the sum of the same number of squares of the radius; and the sum of the squares of the fines is equal to the sum of the squares of the corresponding cofines: therefore the sum of the squares of

It is evident, that with respect to the inscribed sphere, the disturbing forces are completely compensated, for every particle has a corresponding particle in the adjoining quadrant, which is acted on by an equal and opposite force. But this is not the case with the protuberant matter which makes up the spheroid. The segments NS $s n$ and MT $t m$ are more acted on than the segments NT $t n$ and MS $s m$; and thus there is produced a tendency to a conversion of the whole earth, round an axis passing through the centre C, perpendicular to the plane PQ ρ E. We shall distinguish this motion from all others to which the spheroid may be subject, by the name LIBRATION. The axis of this libration is always perpendicular to that diameter of the equator over which the sun is, or to that meridian in which he is.

PROB. I. To determine the momentum of libration corresponding to any position of the earth respecting the sun, that is, to determine the accumulated energy of the disturbing forces on all the protuberant matter of the spheroid.

Let B and b be two particles in the ring formed by the revolution of AQ, and so situated, that they are at equal distances from the plane NM; but on opposite sides of it. Draw BD, $b d$, perpendicular to NM, and FLG perpendicular to LT.

Then, because the momentum, or power of producing rotation, is as the force and as the distance of its line of direction from the axis of rotation, jointly, the combined momentum of the particles B and b will be $f \cdot BD \cdot DC - f \cdot b d \cdot d c$, (for the particles B and b , are urged in contrary directions). But the momentum of B is $f \cdot BF \cdot DC + f \cdot FD \cdot DC$, and that of b is $f \cdot b G \cdot d C - f \cdot d G \cdot d C$; and the combined momentum is $f \cdot BF \cdot D C - f \cdot FD \cdot DC + d C$, $= 2 f \cdot BF \cdot LF - 2 f \cdot LT \cdot TC$.

Because m and n are the sine and cofine of the angle ECS or LCT, we have $LT = m \cdot CL$, and $CT = n \cdot CL$, and $LF = m \cdot BL$, and $BF = n \cdot BL$. This gives the momentum $= 2 f m n \cdot BL^2 - CL^2$.

The breadth AQ of the protuberant ring being very small, we may suppose, without any sensible error, that all the matter of the line AQ is collected in the point Q; and, in like manner, that the matter of the whole ring is collected in the circumference of its inner circle, and that B and b now represent, not single particles, but the collected matter of lines such as AQ, which terminate at B and b . The combined momentum of two such lines will therefore be $2 m n f \cdot A Q \cdot BL^2 - CL^2$.

Let the circumference of each parallel of latitude be divided into a great number of indefinitely small and equal parts. The number of such parts in the circumference, of which Q q is the diameter, will be $\pi \cdot QL$. To each pair of these there belongs a momentum $2 m n f \cdot A Q \cdot BL^2 - CL^2$. The sum of all the squares of BL, which can be taken round the circle, is one half of as many squares of the radius CL; for BL is the sine

the radius is double of either sum. Therefore $\int \pi \cdot Q L \cdot BL^2 = \frac{1}{2} \pi \cdot Q L \cdot Q L^2$. In like manner the sum of the number $\pi \cdot Q L$ of CL^2 's will be $= \pi \cdot Q L \cdot CL^2$. These sums, taken for the semicircle, are $\frac{1}{4} \pi \cdot Q L \cdot Q L^2$, and $\frac{1}{2} \pi \cdot Q L \cdot CL^2$, or $\pi \cdot Q L \cdot \frac{1}{4} Q L^2$, and $\pi \cdot Q L \cdot \frac{1}{2} CL^2$: therefore the momentum of the whole ring will be $2 m n f \cdot A Q \cdot Q L \cdot \pi (\frac{1}{4} Q L^2 - \frac{1}{2} CL^2)$: for the momentum of the ring is the combined momenta of a number of pairs, and this number is $\frac{1}{2} \pi \cdot Q L$.

By the ellipse we have $OC : QL = EO : AQ$, and $AQ = QL \frac{EO}{OC} = QL \frac{d}{b}$; therefore the momentum of the ring is $2 m n f \frac{d}{b} Q L^2 \pi (\frac{1}{4} Q L^2 - \frac{1}{2} CL^2) = m n f \frac{d}{b} Q L^2 \pi (\frac{1}{2} Q L^2 - CL^2)$: but $Q L^2 = b^2 - x^2$; therefore $\frac{1}{2} Q L^2 - CL^2 = \frac{1}{2} b^2 - \frac{1}{2} x^2 - x^2 = \frac{1}{2} b^2 - \frac{3}{2} x^2 = \frac{b^2 - 3x^2}{2}$;

therefore the momentum of the ring is $m n f \frac{d}{b} \pi (b^2 - x^2) (\frac{b^2 - 3x^2}{2}) = m n f \frac{d}{b} \pi (\frac{b^4 - 4b^2x^2 + 3x^4}{2})$, $= m n f \frac{d}{2b} \pi (b^4 - 4b^2x^2 + 3x^4)$.

If we now suppose another parallel extremely near to A a , as represented by the dotted line, the distance L l between them being x , we shall have the fluxion of the momentum of the spheroid $m n f \frac{d}{2b} \pi (b^4 x - 4b^2 x^2 x + 3x^4 x)$, of which the fluent is

$m n f \frac{d}{2b} \pi (b^4 x - 4b^2 \frac{x^3}{3} + \frac{3x^5}{5})$. This expresses the momentum of the zone EA a Q, contained between the equator and the parallel of latitude A a . Now let x become $= b$, and we shall obtain the momentum of the hemispheroid $= m n f \frac{d}{2b} \pi (b^5 - \frac{4}{3} b^5 + \frac{3}{5} b^5)$, and that of

the spheroid $= m n f \frac{d}{b} \pi (b^5 - \frac{4}{3} b^5 + \frac{3}{5} b^5) = \frac{4}{15} m n f d \pi b^4$.

This formula does not express any motion, but only a pressure tending to produce motion, and particularly tending to produce a libration by its action on the cohering matter of the earth, which is affected as a number of levers. It is similar to the common mechanical formula $w \cdot d$, where w means a weight, and d its distance from the fulcrum of the lever.

It is worthy of remark, that the momentum of this protuberant matter is just one-fifth of what it would be if it were all collected at the point O of the equator: for the matter in the spheroid is to that in the inscribed sphere as a^2 to b^2 , and the contents of the inscribed sphere is $\frac{2}{3} \pi b^3$. Therefore $a^2 : a^2 - b^2 = \frac{2}{3} \pi b^3 : \frac{2}{3} \pi b^3 \frac{a^2 - b^2}{a^2}$, which is the quantity of protuberant matter

Precession. We may, without sensible error, suppose $\frac{a^2-b^2}{a} = 2d$;

then the protuberant matter will be $\frac{4}{3}\pi b^2 d$. If all this were placed at O, the momentum would be $\frac{4}{3}\pi d b^2 f \cdot OH \cdot HC = \frac{4}{3} m n f d b^4$, because $OH \cdot HC = m n b^2$; now $\frac{4}{3}$ is 5 times $\frac{4}{15}$.

Also, because the sum of all the rectangles $OH \cdot HC$ round the equator is half of as many squares of OC , it follows that the momentum of the protuberant matter placed in a ring round the equator of the sphere or spheroid is one half of what it would be if collected in the point O or E; whence it follows that the momentum of the protuberant matter in its natural place is two-fifths of what it would be if it were disposed in an equatorial ring. It was in this manner that Sir Isaac Newton was enabled to compare the effect of the sun's action on the protuberant matter of the earth, with his effect on a rigid ring of moons. The preceding investigation of the momentum is nearly the same with his, and appears to us greatly preferable in point of perspicuity to the fluxionary solutions given by later authors. These indeed have the appearance of greater accuracy, because they do not suppose all the protuberant matter to be condensed on the surface of the inscribed sphere: nor were we under the necessity of doing this, only it would have led to very complicated expressions had we supposed the matter in each line AQ collected in its centre of oscillation or gyration. We made a compensation for the error introduced by this, which may amount to $\frac{1}{15}$ of the whole, and should not be neglected, by taking d as equal to $\frac{a^2-b^2}{2a}$ instead of $\frac{a^2-b^2}{a+b}$.

The consequence is, that our formula is the same with that of the later authors.

Thus far Sir Isaac Newton proceeded with mathematical rigour; but in the application he made two assumptions, or, as he calls them, hypotheses, which have been found to be unwarranted. The first was, that when the ring of protuberant matter is connected with the inscribed sphere, and subjected to the action of the disturbing force, the same quantity of motion is produced in the whole mass as in the ring alone. The second was, that the motion of the nodes of a rigid ring of moons is the same with the mean motion of the nodes of a solitary moon. But we are now able to demonstrate, that it is not the quantity of motion, but of momentum, which remains the same, and that the nodes of a rigid ring move twice as fast as those of a single particle. We proceed therefore to

Prob. 2. To determine the deviation of the axis, and the retrograde motion of the nodes which result from this libratory momentum of the earth's protuberant matter.

But here we must refer our readers to some fundamental propositions of rotatory motions which are demonstrated in the article ROTATION.

If a rigid body is turning round an axis A , passing through its centre of gravity with the angular velocity a , and receives an impulse which alone would cause it to turn round an axis B , also passing through its centre of gravity, with the angular velocity b , the body will now turn round a third axis C , passing through its centre of gravity, and lying in the plane of the axes A and B , and the sine of the inclination of this third axis to the axis A will be to the sine of inclination to the axis B as the velocity b to the velocity a .

When a rigid body is made to turn round any axis by the action of an external force, the quantity of momentum produced (that is, the sum of the products of every particle by its velocity and by its distance from the axis) is equal to the momentum or similar product of the moving force or forces. Precession.
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If an oblate spheroid, whose equatorial diameter is a and polar diameter b , be made to librate round an equatorial diameter, and the velocity of that point of the equator which is farthest from the axis of libration be v , the momentum of the spheroid is $\frac{4}{15}\pi a^2 b^2 v$. 33

The two last are to be found in every elementary book of mechanics.

Let $ANan$ (fig. 4.) be the plane of the earth's equator, cutting the ecliptic $CNKn$ in the line of the nodes or equinoctial points Nn . Let OAS be the section of the earth by a meridian passing through the sun, so that the line OCS is in the ecliptic, and CA is an arch of an hour-circle or meridian, measuring the sun's declination. The sun not being in the plane of the equator, there is, by prop. 1. a force tending to produce a libration round an axis ZOz at right angles to the diameter Aa of that meridian in which the sun is situated, and the momentum of all the disturbing forces is $\frac{4}{15} m n f d \pi b^4$. The product of any force by the moment i of its action expresses the momentary increment of velocity; therefore the momentary velocity, or the velocity of libration generated in the time i is $\frac{4}{15} m n f d \pi b^4 i$. This is the absolute velocity of a point at the distance i from the axis, or it is the space which would be uniformly described in the moment i , with the velocity which the point has acquired at the end of that moment. It is double the space actually described by the libration during that moment; because this has been an uniformly accelerated motion, in consequence of the continued and uniform action of the momentum during this time. This must be carefully attended to, and the neglect of it has occasioned very faulty solutions of this problem.

Let v be the velocity produced in the point A , the most remote from the axis of libration. The momentum excited or produced in the spheroid is $\frac{4}{15}\pi a^2 b^2 v$ (as above), and this must be equal to the momentum of the moving force, or to $\frac{4}{15} m n f d \pi b^4 i$; therefore we obtain $v = \frac{\frac{4}{15} m n f d \pi b^4 i}{\frac{4}{15} \pi a^2 b^2}$, that is $v = m n f d i \frac{b^2}{a^2}$ or ve-

ry nearly $m n f d i$, because $\frac{b^2}{a^2} = 1$ very nearly. Also,

because the product of the velocity and time gives the space uniformly described in that time, the space described by A in its libration round Zz is $m n f d i^2$, and

the angular velocity is $\frac{m n f d i}{a}$.

Let r be the momentary angle of diurnal rotation. The arch $A r$, described by the point A of the equator in this moment i will therefore be $a r$, that is, $a \times r$, and the velocity of the point A is $\frac{a r}{i}$, and the angular velocity of rotation is $\frac{r}{i}$.

Here then is a body (fig. 5.) turning round an axis Fig. 5.
OP.

31
Effects of the libratory momentum of the earth's protuberant matter.

Precession. OP, perpendicular to the plane of the equator zoz , and therefore situated in the plane ZP z ; and it turns round this axis with the angular velocity $\frac{\dot{r}}{t}$. It has received an impulse, by which alone it would librate round the axis Z z , with the angular velocity $\frac{m n f d i}{a}$. It will therefore turn round neither axis (n^o 31.), but round a third axis OP', passing through O, and lying in the plane ZP z , in which the other two are situated, and the sine P'' of its inclination to the axis of libration Z z will be to the sine P ρ of its inclination to the axis OP of rotation as $\frac{\dot{r}}{t}$ to $\frac{m n f d i}{a}$.

Fig. 4.

Now A, in fig. 4. is the summit of the equator both of libration and rotation; $m n f d i^2$ is the space described by its libration in the time i ; and $a r$ is the space or arch Ar (fig. 4.) described in the same time by its rotation: therefore, taking Ar to Ac (perpendicular to the plane of the equator of rotation, and lying in the equator of libration,) as $a r$ to $m n f d i^2$, and completing the parallelogram Armc, Am will be the compound motion of A (n^o 31.), and $a r : m n f d i^2 = 1 : \frac{m n f d i^2}{a r}$, which will be the tangent of the angle

$m A r$, or of the change of position of the equator. But the axes of rotation are perpendicular to their equator; and therefore the angle of deviation \dot{w} is equal to this angle $r \Delta m$. This appears from fig. 5.; for $\Pi P'' : P'p = Op : P'p, = OP : \tan. POP$; and it is evident that $a r : m n f d i^2 = \frac{\dot{r}}{t} m n f d \frac{t}{a}$, as is required by the composition of rotations.

In consequence of this change of position, the plane of the equator no longer cuts the plane of the ecliptic in the line Nn. The plane of the new equator cuts the former equator in the line AO, and the part AN of the former equator lies between the ecliptic and the new equator AN', while the part An of the former equator is above the new one AN'; therefore the new node N', from which the point A was moving, is removed to the westward, or farther from A; and the new node n', to which A is approaching, is also moved westward, or nearer to A; and this happens in every position of A. The nodes, therefore, or equinoctial points, continually shift to the westward, or in a contrary direction to the rotation of the earth; and the axis of rotation always deviates to the east side of the meridian which passes through the sun.

This account of the motions is extremely different from what a person should naturally expect. If the earth were placed in the summer solstice, with respect to us who inhabit its northern hemisphere, and had no rotation round its axis, the equator would begin to approach the ecliptic, and the axis would become more upright; and this would go on with a motion continually accelerating, till the equator coincided with the ecliptic. It would not stop here, but go as far on the other side, till its motion were extinguished by the opposing forces; and it would return to its former position, and again begin to approach the ecliptic, playing up

and down like the arm of a balance. On this account this motion is very properly termed *libration*; but this very slow libration, compounded with the incomparably swifter motion of diurnal rotation, produces a third motion extremely different from both. At first the north pole of the earth inclines forward toward the sun; after a long course of years it will incline to the left hand, as viewed from the sun, and be much more inclined to the ecliptic, and the plane of the equator will pass through the sun. Then the south pole will come into view, and the north pole will begin to decline from the sun; and this will go on (the inclination of the equator diminishing all the while) till, after a course of years, the north pole will be turned quite away from the sun, and the inclination of the equator will be restored to its original quantity. After this the phenomena will have another period similar to the former, but the axis will now deviate to the right hand. And thus, although both the earth and sun should not move from their places, the inhabitants of the earth would have a complete succession of the seasons accomplished in a period of many centuries. This would be prettily illustrated by an iron ring poised very nicely on a cap like the card of a mariner's compass, having its centre of gravity coinciding with the point of the cap, so that it may whirl round in any position. As this is extremely difficult to execute, the cap may be pierced a little deeper, which will cause the ring to maintain a horizontal position with a very small force. When the ring is whirling very steadily, and pretty briskly, in the direction of the hours of a watch-dial, hold a strong magnet above the middle of the nearer femicircle (above the 6 hour point) at the distance of three or four inches. We shall immediately observe the ring rise from the 9 hour point, and sink at the 3 hour point, and gradually acquire a motion of precession and nutation, such as has been described.

If the earth be now put in motion round the sun, or the sun round the earth, motions of libration and deviation will still obtain, and the succession of their different phases, if we may so call them, will be perfectly analogous to the above statement. But the quantity of deviation, and change of inclination, will now be prodigiously diminished, because the rapid change of the sun's position quickly diminishes the disturbing forces, annihilates them by bringing the sun into the plane of the equator, and brings opposite forces into action.

We see in general that the deviation of the axis is always at right angles to the plane passing through the sun, and that the axis, instead of being raised from the ecliptic, or brought nearer to it, as the libration would occasion, deviates sidewise; and the equator, instead of being raised or depressed round its east and west points, is twisted sidewise round the north and south points; or at least things have this appearance; but we must now attend to this circumstance more minutely.

The composition of rotation shows us that this change of the axis of diurnal rotation is by no means a translation of the former axis (which we may suppose to be the axis of figure) into a new position, in which it again becomes the axis of diurnal motion; nor does the equator of figure, that is, the most prominent section of the terrestrial spheroid, change its position, and in this new position continue to be the equator of rotation. This was indeed supposed by Sir Isaac Newton;

Precession. ton; and this supposition naturally resulted from the train of reasoning which he adopted. It was strictly true of a single moon, or of the imaginary orbit attached to it; and therefore Newton supposed that the whole earth did in this manner deviate from its former position, still, however, turning round its axis of figure. In this he has been followed by Walmesly, Simpson, and most of his commentators. D'Alembert was the first who entertained any suspicion that this might not be certain; and both he and Euler at last showed that the new axis of rotation was really a new line in the body of the earth, and that its axis and equator of figure did not remain the axis and equator of rotation. They ascertained the position of the real axis by means of a most intricate analysis, which obscured the connection of the different positions of the axis with each other, and gave us only a kind of momentary information. Father Frisius turned his thoughts to this problem, and fortunately discovered the composition of rotations as a general principle of mechanical philosophy. Few things of this kind have escaped the penetrating eye of Sir Isaac Newton. Even *this* principle had been glanced at by him. He affirms it in express terms with respect to a body that is perfectly spherical (cor. 22. prop. 66. B. I.). But it was reserved for Frisius to demonstrate it to be true of bodies of any figure, and thus to enrich mechanical science with a principle which gives simple and elegant solutions of the most difficult problems.

But here a very formidable objection naturally offers itself. If the axis of the diurnal motion of the heavens is not the axis of the earth's spheroidal figure, but an imaginary line in it, round which even the axis of figure must revolve; and if this axis of diurnal rotation has so greatly changed its position, that it now points at a star at least 12 degrees distant from the pole observed by Timochares, how comes it that the equator has the very same situation on the surface of the earth that it had in ancient times? No sensible change has been observed in the latitudes of places.

The answer is very simple and satisfactory: Suppose that in 12 hours the axis of rotation has changed from the position PR (fig. 6.) to pr , so that the north pole, instead of being at P, which we may suppose to be a particular mountain, is now at p . In this 12 hours the mountain P, by its rotation round pr , has acquired the position π . At the end of the next 12 hours, the axis of rotation has got the position πq , and the axis of figure has got the position pr , and the mountain P is now at p . Thus, on the noon of the following day, the axis of figure PR is in the situation which the real axis of rotation occupied at the intervening midnight. This goes on continually, and the axis of figure follows the position of the axis of rotation, and is never further removed from it than the deviation of 12 hours, which does not exceed $\frac{1}{700}$ th part of one second, a quantity altogether imperceptible. Therefore the axis of figure will always sensibly coincide with the axis of rotation, and no change can be produced in the latitudes of places on the surface of the earth.

34 Application of this reasoning to nutation and precession.

We have hitherto considered this problem in the most general manner; let us now apply the knowledge we have gotten of the deviation of the axis or of the momentary action of the disturbing force to the explanation of the phenomena: that is, let us see what precession and

what nutation will be accumulated after any given time of action. Precession.

For this purpose we must ascertain the precise deviation which the disturbing forces are competent to produce. This we can do by comparing the momentum of libration with the gravitation of the earth to the sun, and this with the force which would retain a body on the equator while the earth turns round its axis.

The gravitation of the earth to the sun is in the proportion of the sun's quantity of matter M directly, and to the square of the distance A inversely, and may therefore be expressed by the symbol $\frac{M}{A^2}$. The disturbing force

at the distance 1 from the plane of illumination is to the gravitation of the earth's centre to the sun as 3 to A , (A being measured on the same scale which measures the distance from the plane of illumination).

Therefore $\frac{3M}{A^3}$ will be the disturbing force f of our formula.

Let p be the centrifugal force of a particle at the distance 1 from the axis of rotation; and let t and T be the times of rotation and of annual revolution, viz. sidereal day and year. Then $p : \frac{M}{A^2} = \frac{1}{t^2} : \frac{A}{T^2}$. Hence

we derive $\frac{3M}{A^3} = 3p \frac{t^2}{T^2}$. But since \dot{r} was the angular velocity of rotation, and consequently $1 \times \dot{r}$ the space described, and $\frac{1 \times \dot{r}}{1}$ the velocity; and since the centrifugal force is as the square of the velocity divided by the radius, (this being the measure of the generated velocity, which is the proper measure of any accelerating force), we have $p = \frac{1^2 \times \dot{r}^2}{1^2 \times 1^2} = \frac{\dot{r}^2}{1^2}$, and $f = \frac{3 \dot{r}^2}{1^2}$

$\times \frac{t^2}{T^2}$. Now the formula $f m n d \frac{i^2}{a}$ expressed the sine of the angle. This being extremely small, the sine may be considered as equal to the arc which measures the angle. Now, substitute for it the value now found, viz. $\frac{3 \dot{r}^2}{1^2} \times \frac{t^2}{T^2}$, and we obtain the angle of deviation $\dot{w} = \dot{r} \frac{3 t^2}{T^2} m n \frac{d}{a}$, and this is the simplest form in which it can appear. But it is convenient, for other reasons, to express it a little differently: d is nearly equal to $\frac{a^2 - b^2}{2 a^2}$, therefore $\dot{w} = \dot{r} \times \frac{3}{2} \frac{t^2}{T^2} m n \frac{a^2 - b^2}{a^2}$, and this is the form in which we shall now employ it.

The small angle $\dot{r} \frac{3 t^2}{2 T^2} m n \frac{a^2 - b^2}{a^2}$ is the angle in which the new equator cuts the former one. It is different at different times, as appears from the variable part mn , the product of the sine and cosine of the sun's declination. It will be a maximum when the declination is in the solstice, for mn increases all the way to 45° , and the declination never exceeds $23\frac{1}{2}$. It increases, therefore, from the equinox to the solstice, and then diminishes.

Let

Let

Let

Precession.
Fig. 7.

Let ESL (fig. 7.) be the ecliptic, EAC the equator, BAD the new position which it acquires by the momentary action of the sun, cutting the former in the angle $BAE = \dot{r} \frac{3}{2} \frac{t^2}{T^2} mn \frac{a^2 - b^2}{2}$. Let S be the sun's place in the ecliptic, and AS the sun's declination, the meridian AS being perpendicular to the equator. Let $\frac{a^2 - b^2}{a^2}$ be k . The angle BAE is then $= \dot{r} \frac{3t^2}{2T^2} kmn$. In

the spherical triangle BAE we have $\sin. B : \sin. AE = \sin. A : \sin. BE$, or $= AB : BE$, because very small angles and arches are as their sines. Therefore BE, which is the momentary precession of the equinoctial point E, is equal to $A \frac{\sin. AE}{\sin. B} = \dot{r} \times \frac{3t^2}{2T^2} kmn$,
 $\frac{\sin. R. ascenf.}{\sin. obl. ecl.}$

35
Various
modes of
application.

The equator EAC, by taking the position BAD, recedes from the ecliptic in the colure of the solstices CL, and CD is the change of obliquity or the nutation. For let CL be the solstitial colure of BAD, and $c'l$ the solstitial colure of EAC. Then we have $\sin. B : \sin. E = \sin. LD : \sin. lc$; and therefore the difference of the arches LD and lc will be the measure of the difference of the angles B and E. But when BE is indefinitely small, CD may be taken for the difference of LD and lc , they being ultimately in the ratio of equality. Therefore CD measures the change of the obliquity of the ecliptic, or the nutation of the axis with respect to the ecliptic.

The real deviation of the axis is the same with the change in the position of the equator, Pp being the measure of the angle EAB. But this not being always made in a plane perpendicular to the ecliptic, the change of obliquity generally differs from the change in the position of the axis. Thus when the sun is in the solstice, the momentary change of the position of the equator is the greatest possible; but being made at right angles to the plane in which the obliquity of the ecliptic is computed, it makes no change whatever in the obliquity, but the greatest possible change in the precession.

36 In order to find CD the change of obliquity, observe that in the triangle CAD, $R : \sin. AC$, or $R : \cos. AE = \sin. A : \sin. CD$, $= A : CD$ (because A and CD are exceedingly small). Therefore the change of obliquity (which is the thing commonly meant by nutation) $CD = A \times \cos. AE = \dot{r} \frac{3t^2}{2T^2} kmn \cos. AE = \dot{r} \frac{3t^2}{2T^2} k \times \sin. declin. \times \cos. declin. \times \cos. R. ascenf.$

37 But it is more convenient for the purposes of astronomical computation to make use of the sun's longitude SE. Therefore make

The sun's longitude ES	-	-	=	z
Sine of sun's long.	-	-	=	x
Cofine	-	-	$\sqrt{1-x^2}$	= y
Sine obliq. eclipt.	-	-	$23\frac{1}{2}$	= p
Cofine obliq.	-	-		= q

38 In the spherical triangle EAS, right-angled at A (because AS is the sun's declination perpendicular to the equator), we have $R : \sin. ES = \sin. E : \sin. AS$, and $\sin. AS = p x$. Also $R : \cos. AS = \cos. AE : \cos.$

ES, and $\cos. ES = y = \cos. AS \times \cos. AE$. Therefore $pxy = \sin. AS \times \cos. AS \times \cos. AE = mn \times \cos. AE$.

Precession.

Therefore the momentary nutation $CD = \dot{r} \times \frac{3t^2}{2T^2} k p x y$.

39

We must recollect that this angle is a certain fraction of the momentary diurnal rotation. It is more convenient to consider it as a fraction of the sun's annual motion, that so we may directly compare his motion on the ecliptic with the precession and nutation corresponding to his situation in the heavens. This change is easily made, by augmenting the fraction in the ratio of the sun's angular motion to the motion of rotation, or multiplying the fraction by $\frac{T}{t}$; therefore

the momentary nutation will be $\dot{r} \frac{3t}{2T} k p x y$. In this va-

lue $\frac{3t}{2T} k p$ is a constant quantity, and the momentary nutation is proportional to $x y$, or to the product of the sine and cosine of the sun's longitude, or to the sine of twice the sun's longitude; for $x y$ is equal to half the sine of twice z .

If therefore we multiply this fraction by the sun's momentary angular motion, which we may suppose, with abundant accuracy, proportional to z , we obtain the fluxion of the nutation, the fluent of which will express the whole nutation while the sun describes the arch z of the ecliptic, beginning at the vernal equinox. Therefore in place of y put $\sqrt{1-x^2}$, and in place

40

of z put $\frac{x}{\sqrt{1-x^2}}$, and we have the fluxion of the nutation for the moment when the sun's longitude is z , and the fluent will be the whole nutation. The fluxion resulting from this process is $\frac{3t k p}{2T} x \dot{x}$, of which the

fluent is $\frac{3t k p}{4T} x^2$. This is the whole change produced on the obliquity of the ecliptic while the sun moves along the arch z ecliptic, reckoned from the vernal equinox. When this arch is 90° , x^2 is 1, and therefore $\frac{3t k p}{4T}$ is the nutation produced while the sun moves from the equinox to the solstice.

The momentary change of the axis and plane of the equator (which is the measure of the changing force) is $\frac{3t k}{2T} m n$.

The momentary change of the obliquity of the ecliptic is $\frac{3t k p}{2T} x \dot{x}$.

41
The real
and mo-
mentary
changes
greatest
at the
solstices,
and at the
equinoxes,
and at the
nothing.

The whole change of obliquity is $\frac{3t k p}{4T} x^2$.

Hence we see that the force and the real momentary change of position are greatest at the solstices, and diminish to nothing in the equinoxes.

The momentary change of obliquity is greatest at the solstices, being proportional to $x \dot{x}$ or to $x y$.

The whole accumulated change of obliquity is greatest at the solstices, the obliquity itself being then smallest.

We must in like manner find the accumulated quantity.

Fig. 1.

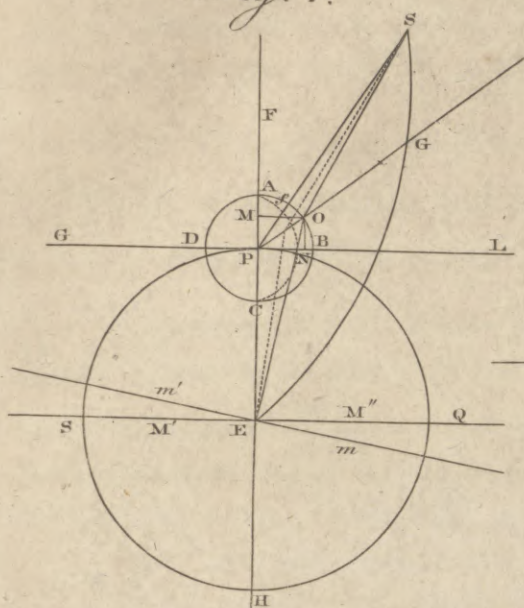


Fig. 2.

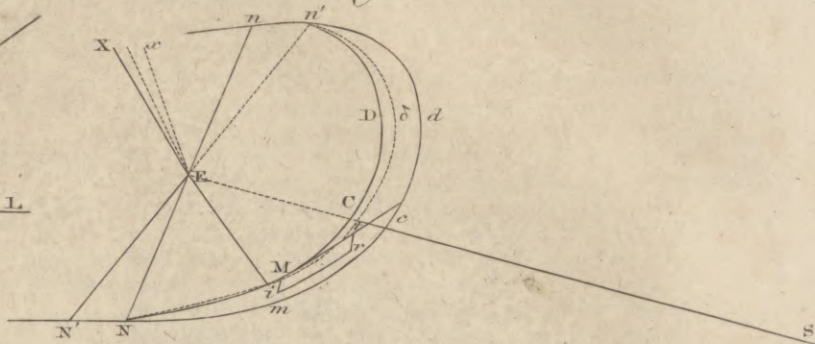


Fig. 3.

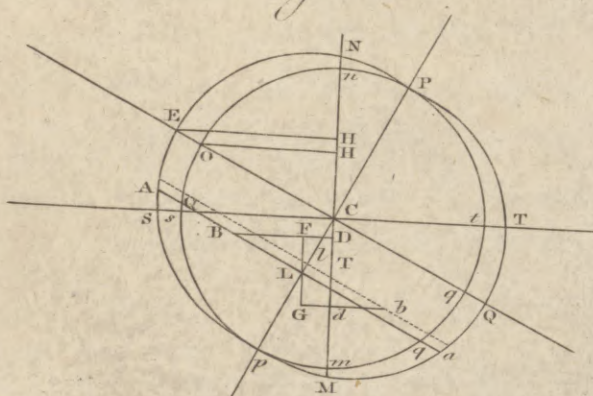


Fig. 4.

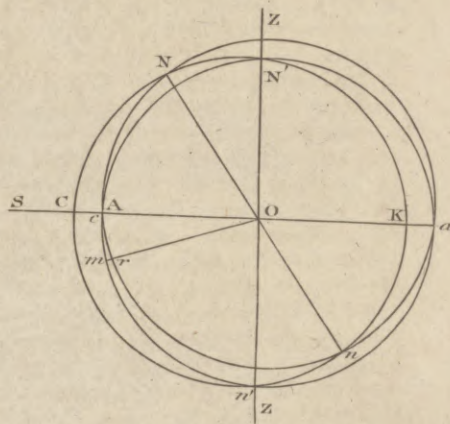


Fig. 5.

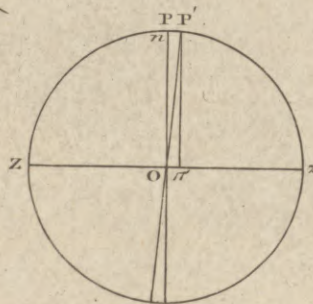


Fig. 6.

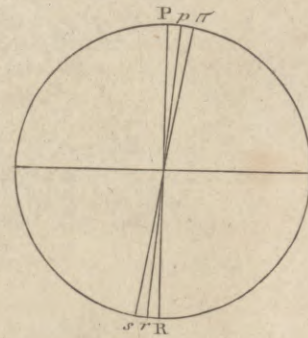


Fig. 7.

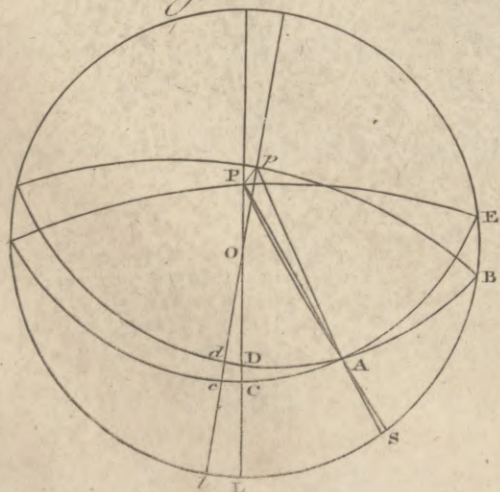
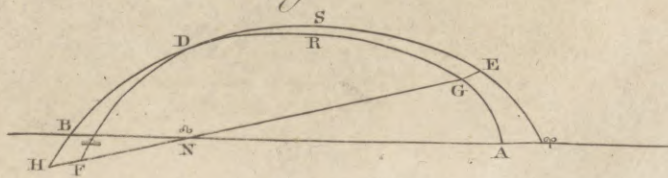
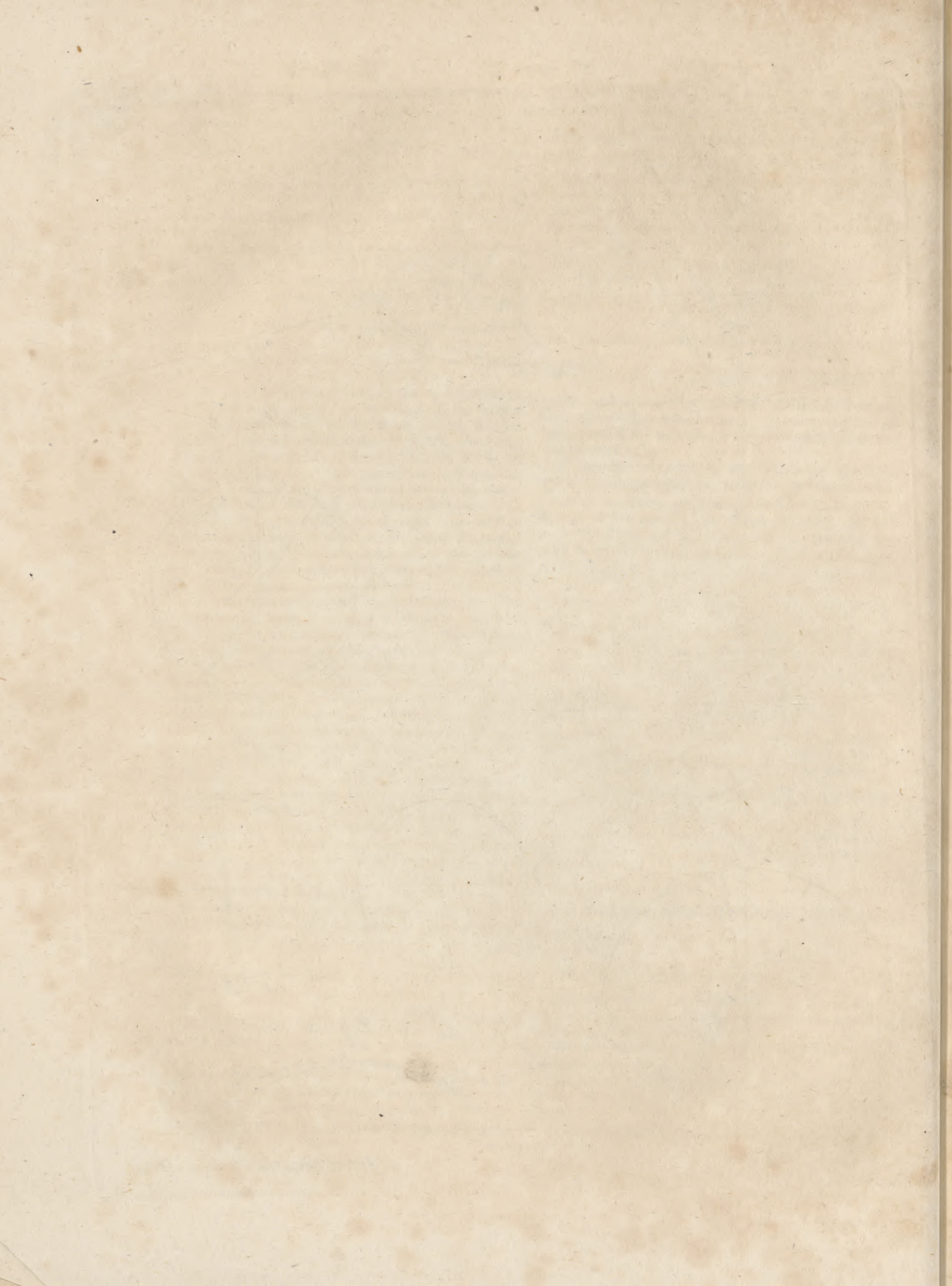


Fig. 8.



A. Bell Pin. Wal. Sculptor fecit.



Precession. Quantity of precession in a given time. tity of the precession after a given time, that is, the arch BE for a finite time.

We have ER : CD = sin. EA : sin. CA (or cof. EA) = tan. EA : 1, and EB : ER = 1 : sin. B. Therefore EB : CD = tan. EA : sin. B. But tan. EA = cof. E x tan. ES, = cof. E x $\frac{\text{fin. long.}}{\text{cof. long.}} = \frac{q x}{\sqrt{1-x^2}}$

Therefore EB : CD = $\frac{q x}{\sqrt{1-x^2}} p$, and CD = EB : $\frac{\text{fin. obliq. eclip.}}{\text{tan. long. } \odot}$. If we now substitute for CD its value found in N^o 40. viz. $\frac{3tkp}{2T} x$, we obtain EB =

$\frac{3t}{2T} \times \frac{kq x^2}{\sqrt{1-x^2}}$, the fluxion of the precession of the equinoxes occasioned by the action of the sun. The fluent of the variable part $\frac{x^2}{\sqrt{1-x^2}} = x y$, of which the fluent is evidently a segment of a circle whose arch is z and sine x , that is, $= \frac{z - x\sqrt{1-x^2}}{2}$, and the whole precession, while the sun describes the arch z , is $\frac{3t}{2T} \times \frac{kq}{2} (2 - x\sqrt{1-x^2})$. This is the precession of the equinoxes while the sun moves from the vernal equinox along the arch z of the ecliptic.

In this expression, which consists of two parts, $\frac{3tkq}{4T} z$, and $\frac{3tkq}{4T} (-x\sqrt{1-x^2})$, the first is incomparably greater than the second, which never exceeds 1", and is always compensated in the succeeding quadrant. The precession occasioned by the sun will be $\frac{3tkq}{4T} z$, and from this expression we see that the precession increases uniformly, or at least increases at the same rate with the sun's longitude z , because the quantity $\frac{3tkq}{4T}$ is constant.

43 Mode of using the formulæ. In order to make use of these formulæ, which are now reduced to very great simplicity, it is necessary to determine the values of the two constant quantities $\frac{3tkp}{4T}$, $\frac{3tkq}{4T}$, which we shall call N and P, as factors of the nutation and precession. Now t is one sidereal day, and T is 366 $\frac{1}{2}$. k is $\frac{a^2-b^2}{a^2}$, which according to Sir Isaac Newton is $\frac{231^2-230^2}{231^2} = \frac{1}{115}$; p and q are the sine and cosine of 23^o 28', viz. 0.39822 and 0.91729.

These data give N = $\frac{1}{141030}$ and P = $\frac{1}{61224}$ of which the logarithms are 4.85069 and 5.21308, viz. the arithmetical complements of 5.14931 and 4.78692.

44 sample of the utility of the investigation. Let us, for an example of the use of this investigation, compute the precession of the equinoxes when the sun has moved from the vernal equinox to the summer solstice, so that z is 90^o, or 324000".

Log 324000' = z	-	-	5.51055
Log P	-	-	5.21308
Log 5".292	-	-	0.72363

Precession.

The precession therefore in a quarter of a year is 5.292 seconds; and, since it increases uniformly, it is 21".168 annually.

We must now recollect the assumptions on which this computation proceeds. The earth is supposed to be homogeneous, and the ratio of its equatorial diameter to its polar axis is supposed to be that of 231 to 230. If the earth be more or less protuberant at the equator, the precession will be greater or less in the ratio of this protuberance. The measures which have been taken of the degrees of the meridian are very inconsistent among themselves; and although a comparison of them all indicates a smaller protuberancy, nearly $\frac{1}{17}$ instead of $\frac{1}{21}$, their differences are too great to leave much confidence in this method. But if this figure be thought more probable, the precession will be reduced to about 17" annually. But even though the figure of the earth were accurately determined, we have no authority to say that it is homogeneous. If it be denser towards the centre, the momentum of the protuberant matter will not be so great as if it were equally dense with the inferior parts, and the precession will be diminished on this account. Did we know the proportion of the matter in the moon to that in the sun, we could easily determine the proportion of the whole observed annual precession of 50 $\frac{1}{2}$ " which is produced by the sun's action. But we have no unexceptionable data for determining this; and we are rather obliged to infer it from the effect which she produces in disturbing the regularity of the precession, as will be considered immediately. So far, therefore, as we have yet proceeded in this investigation, the result is very uncertain. We have only ascertained unquestionably the law which is observed in the solar precession. It is probable, however, that this precession is not very different from 20" annually; for the phenomena of the tides show the disturbing force of the sun to be very nearly $\frac{2}{3}$ of the disturbing force of the moon. Now 20" is $\frac{2}{3}$ of 50".

46 Effect of the moon's action on the protuberant matter of the earth. But let us now proceed to consider the effect of the moon's action on the protuberant matter of the earth; and as we are ignorant of her quantity of matter, and consequently of her influence in similar circumstances with the sun, we shall suppose that the disturbing force of the moon is to that of the sun as m to 1. Then (*cæteris paribus*) the precession will be to the solar precession π in the ratio of the force and of the time of its action jointly. Let t and T therefore represent a periodical month and year, and the lunar precession will be = $\frac{m\pi t}{T}$. This precession must be reckoned on the plane of the lunar orbit, in the same manner as the solar precession is reckoned on the ecliptic. We must also observe, that $\frac{m\pi t}{T}$ represents the lunar precession only on the supposition that the earth's equator is inclined to the lunar orbit in an angle of 23 $\frac{1}{2}$ degrees. This is indeed the mean inclination; but it is sometimes increased to above 28^o, and sometimes reduced to 18^o. Now in the value of the solar precession the cosine of the obliquity was employed. Therefore whatever is

Precession. the angle E contained between the equator and the lunar orbit, the precession will be $= \frac{m\pi t}{T} \cdot \frac{\text{Cof. E}}{\text{Cof. } 23\frac{1}{2}^\circ}$, and it must be reckoned on the lunar orbit.

47
Fig. 8.

Now let φB (fig. 8.) be the immoveable plane of the ecliptic, $\varphi ED \triangleq F$ the equator in its first situation, before it has been deranged by the action of the moon, $AGRDBH$ the equator in its new position, after the momentary action of the moon. Let $EGNFH$ be the moon's orbit, of which N is the ascending node, and the angle $N=5^\circ 8' 46''$.

Let $N\varphi$ the long. of the node be	-	-	z
Sine $N\varphi$	-	-	x
Cofine $N\varphi$	-	-	y
Sine $\varphi=23\frac{1}{2}$	-	-	a
Cofine φ	-	-	b
Sine $N=5.8.46$	-	-	c
Cofine N	-	-	d
Circumference to radius 1, $=6.28$	-	-	e
Force of the moon	-	-	m
Solar precession (supposed $=14\frac{1}{2}''$ by observation)	-	-	π
Revolution of $\zeta = 27\frac{1}{3}$	-	-	t
Revolution of $\odot = 366\frac{1}{4}$	-	-	T
Revolution of $N=18$ years 7 months	-	-	n

43
Lunar precession in a month reduced to the ecliptic.

In order to reduce the lunar precession to the ecliptic, we must recollect that the equator will have the same inclination at the end of every half revolution of the sun or of the moon, that is, when they pass through the equator, because the sum of all the momentary changes of its position begins again each revolution. Therefore if we neglect the motion of the node during one month, which is only $1\frac{1}{2}$ degrees, and can produce but an insensible change, it is plain that the moon produces, in one half revolution, that is, while she moves from H to G , the greatest difference that she can in the position of the equator. The point D , therefore, half-way from G to H , is that in which the moveable equator cuts the primitive equator, and DE and DF are each 90° . But S being the solstitial point, φS is also 90° . Therefore $DS = \varphi E$. Therefore, in the triangle DGE , we have $\text{fin. ED} : \text{fin. G} = \text{fin. EG} : \text{fin. D}$, $= \text{EG} : D$. Therefore $D = \text{EG} \times \text{fin. G}$, $= \text{EG} \times \text{fin. E}$ nearly. Again, in the triangle φDA we have $\text{fin. A} : \text{fin. } \varphi D$ (or $\text{cof. } \varphi E$) $= \text{fin. D} : \text{fin. } \varphi A$, $= D : \varphi A$. Therefore

$$\varphi A = \frac{D \cdot \text{cof. } \varphi E}{\text{fin. A}} = \frac{\text{EG} \cdot \text{fin. E} \cdot \text{cof. } \varphi E}{\text{fin. } 23\frac{1}{2}} = \frac{m\pi t}{T} \frac{\text{fin. E} \cdot \text{cof. E} \cdot \text{cof. } \varphi E}{\text{fin. } \varphi \cdot \text{cof. } \varphi}$$

49

This is the lunar precession produced in the course of one month, estimated on the ecliptic, not constant like the solar precession, but varying with the inclination or the angle E or F , which varies both by a change in the angle N , and also by a change in the position of N on the ecliptic.

50
Nutation in the same time,

We must find in like manner the nutation SR produced in the same time, reckoned on the colure of the solstices RL . We have $R : \text{fin. DS} = D : RS$, and $RS = D \cdot \text{fin. DS}$, $= D \cdot \text{fin. } \varphi E$. But $D = \text{EG} \cdot \text{fin. E}$. Therefore $RS = \text{EG} \cdot \text{fin. E} \cdot \text{fin. } \varphi E$, $= \frac{m\pi t \text{ cof. E}}{T \cdot \text{cof. } \varphi} \times \text{fin. E} \times \text{fin. } \varphi E$. In this expression we must substitute

Precession. the angle N , which may be considered as constant during the month, and the longitude φN , which is also nearly constant, by observing that $\text{fin. E} : \text{fin. } \varphi N = \text{fin. N} : \text{fin. } \varphi E$. Therefore $RS = \frac{m\pi t}{T} \times \frac{\text{fin. N} \cdot \text{fin. } \varphi N \cdot \text{cof. E}}{\text{cof. } \varphi}$.

But we must exterminate the angle E , because it changes by the change of the position of N . Now, in the triangle φEN we have $\text{cof. E} = \text{cof. } \varphi N \cdot \text{fin. N} \cdot \text{fin. } \varphi - \text{cof. N} \cdot \text{cof. } \varphi$, $= yca - db$. And because the angle E is necessarily obtuse, the perpendicular will fall without the triangle, the cofine of E will be negative, and we shall have $\text{cof. E} = b d - a c y$. Therefore the nutation

for one month will be $= \frac{m\pi t}{T} \times \frac{cx(bd - acy)}{b}$, the node being supposed all the while in N .

These two expressions of the monthly precession and nutation may be considered as momentary parts of the moon's action, corresponding to a certain position of the node and inclination of the equator, or as the fluxions of the whole variable precession and nutation, while the node continually changes its place, and in the space of 18 years makes a complete tour of the heavens.

We must, therefore, take the motion of the node as the fluent of comparison, or we must compare the fluxions of the node's motion with the fluxions of the precession and nutation; therefore, let the longitude of the node be z , and its monthly change $= \dot{z}$; we shall then have

$t : n = \dot{z} : e$, and $t = \frac{n\dot{z}}{e} = \frac{n\dot{z}}{e\sqrt{1-x^2}}$. Let T be $= 1$, in order that n may be 18.6, and substitute for t its value in the fluxion of the nutation, by putting $\sqrt{1-x^2}$ in place of y . By this substitution we obtain $m\pi n \frac{c}{eb}$

$\left(\frac{dbx\dot{x}}{\sqrt{1-x^2}} - acx\dot{x} \right)$. The fluent of this is $m\pi n \frac{c}{eb} \left(-db\sqrt{1-x^2} - \frac{acx^2}{2} \right)$. (Vide Simpson's Fluxions, § 77.)

But when x is $= 0$, the nutation must be $= 0$, because it is from the position in the equinoctial points that all our deviations are reckoned, and it is from this point that the period of the lunar action recommences. But if we make $x = 0$ in this expression, the term

$-\frac{acx^2}{2}$ vanishes, and the term $-db\sqrt{1-x^2}$ becomes $= -db$; therefore our fluent has a constant part $+db$; and the complete fluent is $m\pi n \frac{c}{eb} \left(db - db\sqrt{1-x^2} - \frac{acx^2}{2} \right)$.

Now this is equal to $m\pi n \frac{c}{eb} (db \times \text{versed sine } z - \frac{1}{2} ac \times \text{versed sine } 2z)$: For the versed sine of z is equal to $(1 - \text{cof. } z)$; and the square of the sine of an arch is $\frac{1}{2}$ the versed sine of twice that arch.

This, then, is the whole nutation while the moon's ascending node moves from the vernal equinox to the longitude $\varphi N = z$. It is the expression of a certain number of seconds, because π , one of its factors, is the solar precession in seconds; and all the other factors are numbers, or fractions of the radius 1; even e is expressed in terms of the radius 1.

The fluxion of the precession, or the monthly precession,

Precession.

51
may be considered as momentary parts of the moon's action.

52
Precession and nutation compared.

53

54

Precession.

tion, is to that of the nutation as the cotangent of φE is to the sine of φ . This also appears by considering fig. 7. Pp measures the angle A , or change of position of the equator; but the precession itself, reckoned on the ecliptic, is measured by Po , and the nutation by po ; and the fluxion of the precession is equal to the fluxion of

nutation $\times \frac{\cot. \varphi E}{\text{fine } \varphi}$, but $\cot. \varphi E = \frac{ad + bcy}{cx}$; therefore $\frac{\cot. \varphi E}{\text{fine } \varphi} = \frac{ad + bc\sqrt{1-x^2}}{cx}$: This, multiplied into the fluxion of the nutation, gives $\frac{m\pi n}{abe} \left(\frac{abd^2}{\sqrt{1-xx}} + (b^2 - a^2)dc - abc^2\sqrt{1-xx} \right) \dot{x}$ for the monthly precession. The fluent of this $\frac{m\pi n}{abe} \left(ad^2bx + (b^2 - a^2)dcx - \frac{1}{2}abc^2x - \frac{1}{2}abc^2x\sqrt{1-x^2} \right)$, or it is equal to $\frac{m\pi n}{abe} \left((d^2 - \frac{1}{2}c^2)abx + (b^2 - a^2)dcx - \frac{1}{4}abc^2 \text{ fine } 2x \right)$.

55 Let us now express this in numbers: When the node has made a half revolution, we have $x = 180^\circ$, whose versed sine is 2, and the versed sine of $2x$, or 360° , is $= 0$; therefore, after half a revolution of the node, the nutation ($n^\circ 52'$) becomes $\frac{m\pi n c}{eb} 2bd$. If, in this expression, we suppose $m = 2\frac{1}{2}$, and $\pi = 14\frac{1}{2}''$, we shall find the nutation to be $19\frac{1}{3}''$.

56 Now the observed nutation is about $18''$. This requires m to be $2\frac{1}{6}$, and $\pi = 16\frac{1}{4}''$. But it is evident that no astronomer can pretend to warrant the accuracy of his observations of the nutation within $1''$.

To find the lunar precession during half a revolution of the node, observe, that then x becomes $= \frac{e}{2}$, and the sine of x and of $2x$ vanish, d^2 becomes $1 - c^2$, and the precession becomes $\frac{m\pi n}{2} (d^2 - \frac{1}{2}c^2) = \frac{m\pi n}{2} (1 - \frac{1}{2}c^2)$, and the precession in 18 years is $m\pi n 1 - \frac{1}{2}c^2$.

57 We see, by comparing the nutation and precession for nine years, that they are as $\frac{4cd}{e}$ to $1 - \frac{1}{2}c^2$ nearly as 1 to $17\frac{1}{3}$. This gives $313''$ of precession, corresponding to $18''$, the observed nutation, which is about $35''$ of precession annually produced by the moon.

58 Gives the disturbing force and matter of the moon.

And thus we see, that the inequality produced by the moon in the precession of the equinoxes, and, more particularly, the nutation occasioned by the variable obliquity of her orbit, enables us to judge of her share in the whole phenomenon; and therefore informs us of her disturbing force, and therefore of her quantity of matter. This phenomenon, and those of the tides, are the only facts which enable us to judge of this matter: and this is one of the circumstances which has caused this problem to occupy so much attention. Dr Bradley, by a nice comparison of his observations with the mathematical theory, as it is called, furnished him by Mr Machin, found that the equation of precession computed by that theory was too great, and that the theory

would agree better with the observations, if an ellipse were substituted for Mr Machin's little circle. He thought that the shorter axis of this ellipse, lying in the colure of the solstices, should not exceed $16''$. Nothing can more clearly show the astonishing accuracy of Bradley's observations than this remark: for it results from the theory, that the pole must really describe an ellipse, having its shorter axis in the solstitial colure, and the ratio of the axes must be that of 18 to 16.8; for the mean precession during a half revolution of the node is $\frac{m\pi n}{2} (d^2 - \frac{c^2}{2})$; and therefore, for the longitude x , it will be $\frac{xm\pi n}{e} (d^2 - \frac{c^2}{2})$; when this is taken from the true precession for that longitude ($n^\circ 54'$), it leaves the equation of precession $\frac{m\pi n}{abe} \left((b^2 - a^2)dc \text{ fine } x - \frac{1}{4}abc \text{ fine } 2x \right)$; therefore, when the node is in the solstice, and the equation greatest, we have it $= \frac{m\pi n cd}{abe} (b^2 - a^2)$. We here neglect the second term as insignificant.

This greatest equation of precession is to $\frac{2m\pi n cd}{c}$, ⁵⁹ Greatest equation of precession. the nutation of $18''$, as $b^2 - a^2$ to $2ab$; that is as radius to the tangent of twice the obliquity of the ecliptic. This gives the greatest equation of precession $16''.8$, not differing half a second from Bradley's observations.

Thus have we attempted to give some account of this curious and important phenomenon. It is curious, because it affects the whole celestial motions in a very intricate manner, and received no explanation from the more obvious application of mechanical principles, which so happily accounted for all the other appearances. It is one of the most illustrious proofs of Sir Isaac Newton's sagacity and penetration, which caught at a very remote analogy between this phenomenon and the libration of the moon's orbit. It is highly important to the progress of practical and useful astronomy, because it has enabled us to compute tables of such accuracy, that they can be used with confidence for determining the longitude of a ship at sea. This alone fixes its importance: but it is still more important to the philosopher, affording the most incontestible proof of the universal and mutual gravitation of all matter to all matter. It left nothing in the solar system unexplained from the theory of gravity but the acceleration of the moon's mean motion; and this has at last been added to the list of our acquisitions by Mr de la Place.

Quæ toties animos veterum torfere Sophorum,
Quæque scholas frustra rauco certamine vexant,
Obvia conspicimus, nube pellente Mathesi,
Jam dubios nulla caligine prægravat error
Queis superùm penetrare domos, atque ardua cœli
Scandere sublimis genii concessit acumen.
Nec fas est propius mortali attingere divos.

Halley.

PRECIÆ, (*precious*, "early"), the name of the 21st order in Linnæus's fragments of a natural method; consisting of primrose, an early flowering plant, and a

Precession, Precia.

Precipitant
||
Predestina-
tion.

few genera which agree with it in habit and structure, though not always in the character or circumstance expressed in the title. See BOTANY, *Natural Orders*.

PRECIPITANT, in *Chemistry*, is applied to any liquor, which, when poured on a solution, separates what is dissolved, and makes it precipitate, or fall to the bottom of the vessel.

PRECIPITATE, in *Chemistry*, a substance which, having been dissolved in a proper menstruum, is again separated from its solvent, and thrown down to the bottom of the vessel, by pouring some other liquor upon it.

PRECIPITATION, the process by which a precipitate is formed.

PRECOGNITION, in *Scots Law*. See LAW, Part III. n^o CLXXXVI. 43.

PRECORDIA, in *Anatomy*, a general name for the parts situated about the heart, in the forepart of the thorax; as the diaphragm, pericardium, and even the heart itself, with the spleen, lungs, &c.

PREDECESSOR, properly signifies a person who has preceded or gone before another in the same office or employment; in which sense it is distinguished from ancestor.

The doctrine stated.

PREDESTINATION, the decree of God, whereby he hath from all eternity unchangeably appointed whatsoever comes to pass; and hath more especially fore-ordained certain individuals of the human race to everlasting happiness, and hath passed by the rest, and fore-ordained them to everlasting misery. The former of these are called the *elect*, and the latter are called the *reprobate*.

Not peculiar to Christianity.

This doctrine is the subject of one of the most perplexing controversies that has occurred among mankind. But it is not altogether peculiar to the Christian faith. The opinion, that whatever occurs in the world at large, or in the lot of private individuals, is the result of a previous and unalterable arrangement by that Supreme Power which presides over nature, has always been a favourite opinion among the vulgar, and has been believed by many speculative men. Thus, in that beautiful scene in the sixth book of the *Iliad*, Hector, taking leave of his wife and his child, speaks thus:

Andromache! my soul's far better part,
Why with untimely sorrows heaves thy heart?
No hostile hand can antedate my doom,
Till fate condemns me to the silent tomb.
Fix'd is the term to all the race of earth,
And such the hard condition of our birth.
No force can then resist, no flight can save,
All sink alike, the fearful and the brave. 1. 624.

The ancient Stoics, Zeno and Chrysippus, whom the Jewish Essenes seem to have followed, asserted the existence of a Deity, that, acting wisely, but necessarily, contrived the general system of the world; from which, by a series of causes, whatever is now done in it unavoidably results. This series, or concatenation of causes, they held to be necessary in every part; and that God himself is so much the servant of necessity, and of his own decrees, that he could not have made the smallest object in the world otherwise than it now is, much less is he able to alter any thing.

According to the words of Seneca, *Eadem necessitas et Deos alligat. Irrevocabilis divina pariter atque*

humana cursus velut. Ille ipse omnium conditor ac rector scripsit quidem fata sed sequitur. Semper parat, semel jussit. "The same chain of necessity contrains both gods and men. Its unalterable course regulates divine as well as human things. Even he who wrote the Fates, the Maker and Governor of all things, submits to them. He did but once command, but he always obeys." The stoical fate, however, differs from the Christian predestination in several points. They regarded the divine nature and will as a necessary part of a necessary chain of causes; whereas the Christians consider the Deity as the Lord and Ruler of the Universe, omnipotent and free, appointing all things according to his pleasure. Being doubtful of the immortality of the soul, the Stoics could have no idea of the doctrine of election and reprobation; nor did they ever doubt their own freedom of will, or power of doing good as well as evil, as we shall presently see the Christian predestinarians have done.

Predestina-
tion.

Mahomet introduced into his Koran the doctrine of an absolute predestination of the course of human affairs. He represented life and death, prosperity and adversity, and every event that befalls a man in this world, as the result of a previous determination of the one God who rules over all; and he found this opinion the best engine for inspiring his followers with that contempt of danger, which, united to their zeal, has extended the empire of their faith over the fairest portion of the habitable globe.

The controversy concerning predestination first made its appearance in the Christian church about the beginning of the fifth century*. Pelagius a British, and Coelestius an Irish, monk, both lived at Rome during that period, and possessed great celebrity on account of their piety and learning. They taught that the opinion is false, which asserts, that human nature is necessarily corrupted by a depravity derived from our first parents.— They contended, that men are born at present in a state as pure as that in which Adam was originally created; and that they are not less qualified than he was for fulfilling all righteousness, and for reaching the most sublime eminence of piety and virtue: that the external grace of God, which is given unto all, and attends the preaching of the gospel, is necessary to call forth the attention and exertions of men; but that we do not want the assistance of any internal grace to purify the heart, and to give it the first impulse towards what is good. Having fled into Africa on account of the Goths, who at that time invaded Italy, A. D. 410, Coelestius remained at Carthage as a presbyter; but Pelagius went into the East, where he settled, and prospered under the patronage of John bishop of Jerusalem, to whom his sentiments were agreeable. On the contrary, the celebrated Augustine, bishop of Hippo, strenuously asserted the depravity of human nature since the fall of the first man, the necessity of a special interposition of divine grace to enable us to do any one good action; and consequently, that none could obtain salvation excepting those whom God has thought fit to elect, and upon whom he bestows this grace. The dispute was carried on with great zeal. Zozimus bishop of Rome decided at first in favour of Pelagius and Coelestius, whose followers were called *Pelagians*; but he afterwards altered his opinion; and by the activity of Augustine, the council of Ephesus was called,

When first agitated in the church. * *Meibem. Hist. Eccl.*

4
Augustine a predestinarian,

Predestina-
tion. at which the opinion of his antagonists was formally con-
demned.

In the course of the same century, these opinions assumed a variety of forms and modifications. One party, called *Predestinarians*, carried Augustine's doctrine fully farther than he himself had ventured to do in express words; and asserted, that God had not only predestinated the wicked to *punishment*, but also that he had decreed that they should commit those very *sins* on account of which they are hereafter to be punished.— Another party moderated the doctrine of Pelagius, and were called *Semipelagians*. Their peculiar opinion is expressed in a different manner by different writers; but all the accounts sufficiently agree. Thus, some represent them as maintaining that inward grace is not necessary to the first beginning of repentance, but only to our progress in virtue. Others say, that they acknowledged the power of grace, but said that faith depends upon ourselves, and good works upon God; and it is agreed upon all hands, that these Semipelagians held that predestination is made upon the foresight of good works. The assistance of Augustine, though then far advanced in life, was called in to combat these tenets, and he wrote several treatises upon the subject. In all these he strenuously maintained, that the predestination of the elect was independent of any foresight of their good works, but was according to the good pleasure of God only; and that perseverance comes from God, and not from man. Thereafter the doctrine of Augustine, or St Austin as he is often called, became general. He was the oracle of the schoolmen. They never ventured to differ from him in sentiment; they only pretended to dispute about the true sense of his writings.

5
and all the
earliest re-
formers, but
more espe-
cially Cal-
vin.

The whole of the earliest reformers maintained these opinions of Augustine. They assumed under Luther a more regular and systematic form than they had ever formerly exhibited. But as the Lutherans afterwards abandoned them, they are now known by the name of *Calvinistic Doctrines*, from John Calvin of Geneva. He asserted, that the everlasting condition of mankind in a future world was determined from all eternity by the unchangeable decree of the Deity, arising from his sole good pleasure or free will. Being a man of great ability, industry, and eloquence, Geneva, where he taught, and which was a free state, soon became the resort of all the men of letters belonging to the reformed churches, and was a kind of seminary from which missionaries issued to propagate the Protestant doctrines through Europe. Their success was such, that, excepting a part of Germany, the principles of all the reformed churches are professedly Calvinistic or Predestinarian.

6
Rise of the
Arminians.
* *Relatio
Historica
de Origine
et Progressu
Controversiarum in
Paederao
Belgio de
Predestina-
tione
Philippi à
Limborch.*

The opponents of the doctrine of predestination among the Protestants usually receive the appellation of *Arminians* or *Remonstrants*. They derive the first of these appellations from James Arminius, who was A. D. 1602, appointed * professor of theology at Leyden. He was violently opposed by Gomer his colleague, and died A. D. 1609. After his death, the controversy was conducted with great eagerness on both sides. The Calvinists, however, gradually prevailed. A synod was called at Dort, A. D. 1618, to which the most celebrated divines of different countries were invited. There, in a great measure, by the authority and influ-

ence of Maurice prince of Orange, the Arminians were condemned as heretics; for by this time ambitious and powerful men found themselves politically interested in this religious contest. The Arminians presented to this synod a remonstrance, containing a statement of their faith upon the subjects in dispute; and from this they derived the appellation of *Remonstrants*. This statement contained the following five articles: 1. That God from all eternity predestinated those to everlasting salvation whom he foresaw would believe in Christ unto the end of their lives; and predestinated obstinate unbelievers to everlasting punishment. 2. Jesus Christ died for the whole human race, and for every individual of it, but believers alone reap the benefit of his death. 3. No man can produce faith in his mind by his own free will, but it is necessary that man, who is by nature wicked and unfit for acting or thinking aright, should be regenerated by the grace of the Holy Spirit, imparted by God for Christ's sake. 4. This divine grace constitutes the source, the progress, and the fulfilment, of all that is good in man; but it is not irresistible in its operation. 5. Believers, by the assistance of the Holy Spirit, are abundantly fitted for every good work; but whether it is possible for those who have once been truly such to fall away, and to perish finally, is not clear, and must be better inquired into by searching the sacred scriptures.

In opposition to these, a counter-remonstrance was presented, containing the opinions of the Calvinists, which was approved of by the synod. The substance of it was afterwards adopted, and in nearly the same expressions, into the Confession of Faith compiled by the assembly of divines which met at Westminster, A. D. 1643, and which every clergyman and probationer for the ministry in Scotland is at present required to subscribe previous to his admission. To give as clear and as fair an idea as possible of the Calvinistic doctrine upon this head, we transcribe the following passage from that Confession: "God from all eternity did, by the most wise and holy counsel of his own will, freely and unchangeably ordain whatsoever comes to pass; yet so, as thereby neither is God the author of sin, nor is violence offered to the will of the creatures, nor is the liberty or contingency of second causes taken away, but rather established. Although God knows whatsoever may or can come to pass upon all supposed conditions; yet hath he not decreed any thing because he foresaw it as future, or that which would come to pass upon such conditions. By the decree of God, for the manifestation of his glory, some men and angels are predestinated unto everlasting life, and others are fore-ordained to everlasting death. These angels and men, thus predestinated and fore-ordained, are particularly and unchangeably designed; and their number is so certain and definite, that it cannot be either increased or diminished. Those of mankind that are predestinated unto life, God, before the foundation of the world was laid, according to his eternal and immutable purpose, and the secret counsel and good pleasure of his will, hath chosen, in Christ, unto everlasting glory, out of his mere free grace and love, without any foresight of faith, or good works, or perseverance in either of them, or any other thing in the creature, as conditions or causes moving him thereunto; and all to the praise of his glorious grace. As God hath appointed the elect unto glo-
ry,

7
Calvinistic
doctrine of
predestina-
tion.

Predestina-
tion. ry, so hath he, by the eternal and most free purpose of his will, fore-ordained all the means thereunto. Wherefore, they who are elected, being fallen in Adam, are redeemed by Christ, are effectually called unto faith in Christ, by his spirit working in due season; are justified, adopted, sanctified, and kept, by his power through faith unto salvation. Neither are any other redeemed by Christ effectually called, justified, adopted, sanctified, and saved, but the elect only. The rest of mankind, God was pleased, according to the unsearchable counsel of his own will, whereby he extendeth or withholdeth mercy as he pleaseth for the glory of his sovereign power over his creatures, to pass by, and to ordain them to dishonour and wrath for their sin, to the praise of his glorious justice."

3
Supralap-
sarians and
Sublapsari-
ans. There are two kinds of Calvinists or Predestinarians, viz. the *Supralapsarians*, who maintained that God did originally and expressly decree the fall of Adam, as a foundation for the display of his justice and mercy; while those who maintain that God only *permitted* the fall of Adam, are called *Sublapsarians*, their system of decrees concerning election and reprobation being, as it were, subsequent to that event. But, as Dr Priestley justly remarks, if we admit the divine prescience, there is not, in fact, any difference between the two schemes; and accordingly that distinction is now seldom mentioned.

9
Disputes in
the church
of Rome on
the subject. Nor was the church of Rome less agitated by the contest about predestination than the first Protestants were. The council of Trent was much perplexed how to settle the matter without giving offence to the Dominicans, who were much attached to the doctrine of Augustine, and possessed great influence in the council. After much dispute, the great object came to be, how to contrive such a decree as might give offence to nobody, although it should decide nothing. Upon the whole, however, they seem to have favoured the Semi-pelagian scheme. Among other things, it was determined, that good works are of themselves meritorious to eternal life; but it is added, by way of softening, that it is through the goodness of God that he makes his own gifts to be merits in us. Catarin revived at that council an opinion of some of the schoolmen, that God chose a small number of persons, such as the blessed virgin, the apostles, &c. whom he was determined to save without any foresight of their good works; and that he also wills that all the rest should be saved, providing for them all necessary means, but they are at liberty to use them or not. This is called the *Baxterian* scheme in England, from one of its promoters there. But at all events, the council of Trent seems to have been extremely anxious that any opinions entertained among them concerning predestination might have as little influence as possible upon practical morality. "Let no man (say they), while he remains in this mortal state, presume that he is among the number of the elect, and

that therefore he cannot sin, or sin without repentance; for it cannot be known who are elected without a special revelation from God." *Ses. 6. c. 13.* Predestina-
tion.

The Jesuits at first followed the opinion of Augustine; but they afterwards forsook it. *Molina*, one of their order, was the author of what is called the *middle scheme*, or the doctrine of a *grace sufficient for all men*, but subject to the freedom of the human will. *Jansenius*, a doctor of Louvain, opposed the Jesuits with great vigour, and supported the doctrine of Augustine. He wrote in a very artful manner. He declared, that he did not presume to state his own sentiments upon the subject. He pretended only to explain and publish the sentiments of that great father of the church St Augustine. But the Jesuits, in consequence of that inviolable submission to the authority of the pope which they always maintained, had sufficient interest at Rome to procure the opinions of Jansenius to be condemned there; but with this addition subjoined, that nothing was thereby intended to be done in prejudice of the doctrine of St Augustine. This produced an absurd dispute about the pope's infallibility in matters of fact. The Jansenists affirmed, that the pope had made a mistake in condemning the opinion of Jansenius as different from those of Augustine; whereas in truth they are the same, and the one cannot be condemned without the other. But the Jesuits affirmed, that the pope is no less infallible in points of fact than he is in questions of faith; and he having decided, that the opinions of Jansenius are different from those of St Augustine, every good catholic is bound to believe accordingly that they are different. These disputes have never been fully settled, and still divide the Roman catholic churches. Some of the ablest supporters of predestination have appeared among the Jansenists, and particularly among the gentlemen of Port-Royal.

With regard to Great Britain, the earliest English reformers were in general Sublapsarians, although some of them were Supralapsarians. But the rigid Predestinarians have been gradually declining in number in that church, although they still subscribe the 39 articles of their faith, which are unquestionably Calvinistic. The celebrated Scotch reformer John Knox having been educated at Geneva, established in this country the doctrine of predestination in its strictest form: and it has probably been adhered to with more closeness in Scotland than in any country in Europe.

Of late years, however, the dispute concerning predestination has assumed a form considerably different from that which it formerly possessed. Instead of being considered as a point to be determined almost entirely by the sacred scriptures, in the hands of a number of able writers, it has in a great measure resolved itself into a question of natural religion, under the head of the philosophical liberty or necessity of the will (A); or, whether all human actions are or are not necessarily determined

(A) Dr Priestley, the most celebrated Necessarian of the age, has written a whole section of his *Illustrations*, with a view to show, that between "the two schemes of Calvinistic predestination and philosophical necessity, there is no sort of resemblance, except that the future happiness or misery of all men is certainly foreknown and appointed by God. In all other respects (says he) they are most essentially different; and even where they agree in the end, the difference in the manner by which that end is accomplished is so very great, that the influence of the

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tion.

terminated by motives arising from the character which God has impressed on our minds, and the train of circumstances amidst which his providence has placed us? We have already discussed this point (see METAPHYSICS) by giving a candid statement of the arguments on both sides of the question. We shall treat the subject of predestination in the same manner, avoiding as far as possible any recapitulation of what has been advanced under the head of *NECESSITY and Liberty*.

prayer absurd, and even the preaching of the gospel vain; seeing that all things are immutably fixed, and none can believe or be saved excepting the elect, and they must certainly and at all events be safe. Against all this they reason thus.

11
Points at
issue be-
tween the
predestina-
rians and
their oppo-
nents.

From what has been already said, it will appear that the points chiefly at issue between the parties are the following: First, With what views and purposes did God create the world and frame his decrees concerning mankind? Did he contrive a great unalterable scheme of creation and providence only for the sake of manifesting his own glory and perfections? Or did he first consider the free motions of those rational agents whom he intended to create, and frame his decrees upon the consideration of what they might choose or do in all the various circumstances in which he intended to place them?—The second and following questions are branches of this leading one. Did Christ die for a particular portion of the human race, who shall therefore certainly be saved? or was his death intended as a benefit to all, from which none are excluded excepting those who willingly reject it? Is the divine grace certainly and irresistibly efficacious in all those minds to which it is given? or does its effect depend upon the good use which men may or may not make of it? Can any good action be done without it? Do those who have once received it certainly persevere and obtain eternal salvation? or is it possible for any of them to fall away and perish finally?

The great and everlasting Author of all things existed from eternity alone, independent and essentially perfect. As there was no other, he could only consider himself and his own glory. He must therefore have designed all things in and for himself. To make him stay his determinations till he should see what free creatures would do, is to make him decree with uncertainty, and dependently upon them, which falls short of infinite perfection. He existed alone, and his counsels could have no object excepting himself; he could only then consider the display of his own attributes and perfection. In doing this, as the end is more important than the means, Divine Wisdom must begin its designs with that which is to come last in the execution of them; but the conclusion of all things at the last judgment will be the complete manifestation of the wisdom, the goodness, and justice of God: we must therefore suppose, that, in the order of things, he decreed that first, although with him, in the order of time, there is no first nor second, but all is from eternity. When this great design was laid, the means were next designed. Creation, and its inhabitants of every order, form the means by which the author and disposer of all things accomplishes his will. But creatures in his sight are nothing, and are figuratively said to be less than nothing. We may entertain proud and elevated conceptions of our own dignity if we please; but if we in our designs regard not the dust on which we tread, or the lives of ants and insects, the omnipotent Lord of all, from whom we are more infinitely distant, must regard us as at least equally inconsiderable, and only valuable as we serve the accomplishment of his great and mysterious purposes, which cannot be us or our aggrandisement, but himself and his own glory.

12
Arguments
for the doc-
trine

We shall begin by stating the argument on the side of the predestinarians, and in the language which they commonly use. But it is necessary to make this previous remark, that the general * objections to their doctrine are, that it is hostile to all our ideas of the justice of God, representing him as a partial being, rewarding without merit, and punishing without sin; that it renders him the author of evil, destroys moral distinctions, makes useless every effort on our part, makes every

It is only by this view of the divine conduct that some of the attributes of God can be explained, or their existence rendered possible. In the scriptures he claims the attribute of *prescience* as his distinguishing prerogative;

13
as necessary
to explain
the Divine
attributes.

* *Calvini
Respon-
sion. contra Pig-
batium, ad
2dum lib.*

two systems on the minds of those that adopt and act upon them is the reverse of one another. The Calvinistic doctrine of predestination, according to a very authentic statement of the doctrine *, is, that "God, for his own glory, hath foreordained whatsoever comes to pass." The scheme of philosophical necessity, as stated by an intimate friend and warm admirer of Dr Priestley's, is, "That every thing is predetermined by the Divine Being; that whatever has been, must have been; and that whatever will be, must be; that all events are pre-ordained by infinite wisdom and unlimited goodness; that the will, in all its determinations, is governed by the state of mind; that this state of mind is in every instance determined by the Deity; and that there is a continued chain of causes and effects, of motives and actions, inseparably connected, and originating from the condition in which we are brought into existence by the Author of our being." The author or compiler of the same book affirms, "That all motion indeed originates in the Deity; that the Deity is self-moved; that he possesses the singular attribute underived of moving himself." But it is added in the very same paragraph from which this last sentence is quoted, that "the very argument we employ to prove one underived source of motion and existence, is a gross solecism in logic; and that the ascription of this power to the Divine Being is in fact nothing else than the less of two palpable *absurdities*, or rather *impossibilities*, if these could admit of degrees †."

* *Shorter
Catechism
of the As-
sembly of
Divines at
Westmin-
ster.*

The piety of these assertions will be obvious, we are persuaded, to every one of our readers; but to some it is possible that their consistency may not be apparent. We would advise all such "to peruse once and again Dr Priestley's Illustrations," which, we have the best authority to say, will remove from their minds all libertarian prejudices, convince them "that the hypothesis of necessity is incontrovertibly true," and show them that all the defenders of that hypothesis are in perfect harmony with themselves and with one another!

† *Essay on
Philosophi-
cal Necessi-
ty by Alex-
ander
Crombie,
A. M.*

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tion.

gative; but there can be no prescience of future contingencies; for it involves a contradiction to say, that things which are not certainly to be should be certainly foreseen. If they are certainly foreseen, they *must* certainly be, and can therefore be no longer contingent. An uncertain foresight is also an imperfect act, as it may be a mistake, and is therefore inconsistent with divine perfection. On the other side the difficulty is easily explained. When God decrees that an event shall take place, its existence thenceforth becomes certain, and as such is certainly foreseen. For it is an obvious absurdity to say, that a thing happens freely, that is to say, that it may be or may not be, and yet that it is certainly foreseen by God. He cannot foresee things but as he decrees them, and consequently gives them a future certainty of existence; and therefore any prescience antecedent to his decree must be rejected as impossible. Conditional decrees are farther absurd, inasmuch as they subject the purposes of God to the will and the actions of his creatures. Does he will or wish that all mankind should be saved, and shall they not all be saved? Infinite perfection can with nothing but what it can execute: and if it is fit to wish, it is also fit to execute its wishes. We are indeed certainly informed by the scriptures, that all shall not be saved; and we therefore as certainly conclude, that God never intended that they should be so; *for the counsel of the Lord standeth fast, and the thoughts of his heart, to all generations.*

14
Christ died
only for the
lect.

We conclude upon the same principles, that although the blessings resulting from the death of Christ are offered to all, yet that intentionally and actually he only died for those whom the Father had chosen and given to him to be saved by him. That Christ should have *died in vain* is represented by the apostle Paul as a great absurdity (Gal. ii. 21.): but if he died for all, he must have died in vain with regard to the greater part of mankind who are not to be saved by him. In so far as some inferior blessings are concerned, which through him are communicated, if not to all men, at least to all Christians, he may perhaps justly be said to have died for all: but with regard to eternal salvation, his design, to avoid rendering it fruitless, could go no farther than the secret purpose and election of God. This is implied in these words, *all that are given me of my Father, thine they were, and thou gavest them me. To these his intercession is limited; I pray not for the world, but for those that thou hast given me; for they are thine, and all thine are mine, and mine are thine* (Jo. xvii. 9, 10.) Universal words are indeed used with regard to the death of Christ: but the reason is obvious, the Jewish religion was confined to the family and descendants of Abraham. In contradiction to this, the gospel is said to be preached to *every creature, and to all the world*; because it is not limited to any one race or nation, and because the apostles received a general commission to teach it unto all who should be willing to receive it. These extensive expressions can only be understood in this manner, because in their strict acceptation they have never been verified. Nor can their meaning be carried farther without an imputation upon the justice of God: for if he has received a sufficient satisfaction for the sins of the whole world, it is not just that all should not be saved by it, or at least have the offer of salvation made to them, that they may accept of it if they please.

2

Predestina-
tion.

But to return to the divine purposes and attributes in general: it is in vain to assert that God is partial and unjust while he prefers without merit, and predestinates to punishment those who have not yet offended. The same error misleads men here that has so often seduced them from the true path of scientific research. Instead of submitting to the patient and humble observation of nature, they boldly form some plausible hypothesis of their own, and vainly attempt to reconcile every appearance to their favourite system. This mode of procedure never has proved, and never will prove, successful in any branch of true philosophy. We are not entitled to frame to ourselves certain notions of the justice of God, and from these to decide that thus he must act and in no other manner. He takes no counsel from us concerning his conduct, and we have no right to rejudge his judgments. What he regards as just or unjust between himself and his creatures, is a question of fact not to be known by ingenious conjectures, but by the cautious observation of the manner in which he acts in the course of his providence, and by attending to what he has declared concerning himself in the sacred scriptures. If from these it shall appear that he does prefer where there is no merit, and reject where there is no crime; it will be in vain thereafter to assert that such conduct is unjust: the fact will be on our side of the question, and we shall leave those to account for it who insist that their limited reason is capable of comprehending all the mysterious ways of an Infinite Being.

In the course of providence, then, we see the greatest inequalities take place, and such as appear altogether contradictory to our ideas of justice. We see the sins of the fathers punished in the persons of the children, who often derive debilitated bodies from the intemperance of their parents, and corrupted manners from the example of their vices. God frequently afflicts good men in this life for a great length of time, as in the case of Job, only for the manifestation of his own glory, that their faith and patience may be made manifest. Some sins are punished with other sins, and often with a course of severe miseries in the persons of those who never committed them. We may transfer this from time to eternity; for if God may do for a little time what is inconsistent with our notions, and with our rules of justice, he may do it for a longer duration: since it is as impossible that he can be unjust for a day as for all eternity: and the same inequality of management appears in the great as in the private affairs of this world. During many ages almost the whole human race were lost in the darkness of idolatry: even since the Christian religion came into the world, how few nations have received it; and of these few, the number is still smaller of those who have enjoyed it in tolerable purity. If we consider how many great nations remain under the delusion contrived by Mahomet; if we reflect upon the idolatry of the Indies and of China, and the superstition of the Greek church, and of the church of Rome—we shall find that very few nations have possessed the most ordinary means of grace. Even the blessings of civilization, of science, and of liberty, are so rarely scattered over the face of the earth, that it is to be regarded as a melancholy truth, that with a very few favoured exceptions the whole human race have hitherto been sunk in the depth of barbarism, ignorance, slavery, and idolatry. When the Arminians think fit to assert, then,

15
Great ine-
qualities in
the ordina-
ry course of
providence.

Predestina-
tion.* *Calvini*
Tract. de
Eterna Dei
Prædest.

then, that the doctrine of absolute decrees is contrary to their ideas of the impartiality and justice of God, we can only answer that we are sorry for them if they have formed ideas of the character of God which are contrary to the truth. We presume not * like them to call his attributes before the tribunal of our understandings; we only observe the ways of his providence, and declare that thus stands the fact. If he leave whole nations in darkness and corruption, and freely chooses others to communicate the knowledge of himself to them, we need not be surpris'd if he act in the same manner with individuals. For surely the rejecting immense empires for so many ages is much more unaccountable than the selection of a few individuals, and the leaving others in ignorance and depravity. It is in vain to allege that he extends his mercy to those who make the best use of the dim light which they have. This does not remove the difficulty of a choice and a preference; as it cannot be denied that their condition is very deplorable, and that the condition of others is much more hopeful: so that the mysterious doctrine of election and reprobation is an unquestionable truth under the government of God, seeing that great numbers of men are born in such circumstances that it is morally impossible they should not perish in them; whereas others are more happily situated and enlightened.

16
The lan-
guage of
Scripture
predestina-
sian.

Nor are we left to common observation upon this point. The language of the sacred scriptures is positive and clear. The whole reasoning in the ninth chapter to the Romans resolves all the acts of God's justice and mercy, his *hardening* as well as his *pardonings*, into an absolute freedom and an unsearchable depth. More pointed expressions for this purpose can scarcely be conceived than those actually made use of. *For the children being not yet born, neither having done any good or evil, that the purpose of God according to election might stand, not of works, but of him that calleth, it was said, The elder shall serve the younger. As it is written, Jacob have I loved, but Esau have I hated. What shall we say then? Is there unrighteousness with God? God forbid. For he saith to Moses, I will have mercy on whom I will have mercy, and I will have compassion on whom I will have compassion. So then it is not of him that willeth, nor of him that runneth, but of God that showeth mercy; for the scripture saith unto Pharaoh, Even for this same purpose have I raised thee up, that I might show my power in thee, and that my name might be declared throughout all the earth. Therefore hath he mercy on whom he will have mercy, and whom he will he hardeneth.* If any man shall still be sufficiently bold to declare that all this is contrary to what he is pleas'd to consider as just and impartial, we can only reply to him in the words of the celebrated John Calvin of Geneva †.

17
An objec-
tion answer-
ed.† *Ubi supra.*

Tibi molestum est ac odiosum, Deum plus posse et facere, quam mens tua capit; æquali autem tuo interdum concedes, ut suo iudicio fruatur. Et tu in tanto furore, Dei mentionem ullam facere audes? "Is it painful to thee that the power and the works of God exceed thy limited capacity? Thou sometimes sufferest thine equal to judge of his own conduct for himself, and darest thou in thy folly to censure the ways of God?" Or rather we may reply in those words of the apostle Paul which immediately follow the passage already quoted. *Thou wilt say then to me, Why doth he yet find fault? for who hath resisted his will? Nay but, O man, who art thou that re-*

pliest against God? Shall the thing formed say to him that formed it, Why hast thou made me thus? Hath not the potter power over the clay; of the same lump to make one vessel unto honour, and another unto dishonour? Let these passages, and even the whole of the chapter now alluded to, be explained in any manner that is judged proper, still their import with regard to the present argument will remain the same. If God loved Jacob so as to chuse his posterity to be his people, and rejected or hated Esau and his posterity, and this without regard to them or their future conduct, but merely in consequence of the purpose and design of his election; if by the same purpose the Gentiles were to be grafted upon that stock from which the once favoured Jews were cut off; it will follow, not only that the great and mysterious decree of final election is unsearchably free and absolute, but also that all the means of grace are granted or withheld in the same unlimited and free manner according to the sovereign will and good pleasure of God, independent of any foresight of merit on our part. The words of our Saviour express this: *I thank thee O Father, Lord of heaven and earth, because thou hast hid these things from the wise and prudent, and hast revealed them unto babes:* The reason of which is given in the following words, *Even so, Father, for so it seemed good in thy sight,* (Mat. xi. 26.). The passage immediately preceding this, shows clearly that the means of grace are not bestowed upon those who, it is foreseen, will make a good use of them; nor denied to those who will make a bad use of them. *Wo unto thee Chorazin, wo unto thee Bethsaida: for if the mighty works which were done in you had been done in Tyre and Sidon, they would have repented long ago in sackcloth and ashes.* But the passages in scripture are innumerable, which declare that the whole character and destiny of every man is the result of the counsel and uncontrouled determination of God. The expression is often repeated in the book of Exodus; *God hardened the heart of Pharaoh, so that he would not let his people go,* (Exod. iv. 21.), &c. It is said, that *God has made the wicked man for the day of evil,* (Prov. xvi. 4.). On the other hand, it is said, *as many believed the gospel as were appointed to eternal life,* (Acts i. 48.). Some are said to be *written in the book of life, of the Lamb slain from the foundation of the world* (Rev. xiii. 8.). Every prayer that is used, or directed to be used, in scripture, is for a grace that opens our eyes, that turns the heart, that makes us to go, that leads us not into temptation, but delivers us from evil. All these expressions denote that we desire more than a power or capacity to act, such as is given to all men. Indeed we do not, and we cannot, pray earnestly for that which we know all men as well as ourselves possess at all times.

The *grace of God* is the medium by which his sovereign will and absolute decrees are accomplished. Accordingly, it is set forth in scripture by such expressions as clearly denote its sure efficacy; and that it does not depend upon us to use it or not at our pleasure. It is said to be a creation; *we are created unto good works, and we become new creatures:* It is called a regeneration, or a *new birth*; it is called a quickening and a resurrection, as our former state is compared to a feebleness, a blindness, and a death. God is said to *work in us both to will and to do: His people shall be willing in the day of his power: He will write his laws in their hearts,*

18

Predestina-
tion.

hearts, and make them to walk in them. In a passage already quoted, the human race are compared to a mass of *clay* in the hands of the *potter*, who of the same lump makes at his pleasure *vessels of honour and dishonour*. These passages, and this last more particularly, prove that there is an absolute and a conquering power in divine grace; and that the love of God constrains us, as St Paul expresses himself. Our Saviour compares the union and influence that he communicates to believers to the union of an head with the members, and of a root with the branches, which imparts an internal, a vital, and an efficacious influence. The outward means may indeed be rejected, but this overcoming grace never returns empty: these outward means coming from God, the resisting of them is said to be the *resisting* of God, the *grieving* or *quenching* of his spirit; and in that sense we may resist the grace or favour of God; but we can never withstand him when he intends to overcome us; *For the foundation of God standeth sure, having this seal, The Lord knoweth them that are his,* (2 Tim. ii. 19.). *Having predestinated us unto the adoption of children by Jesus Christ himself, according to the good pleasure of his will,* (Eph. i. 5.).

19
Perseve-
rance of
the saints.

That the saints shall certainly persevere unto the end is a necessary consequence of absolute decrees and of efficacious grace: all depends on God. He *of his own will begat us*; and with him *there is no variableness nor shadow of turning: whom he loves, he loves to the end*: and he has promised that he will never leave nor forsake those to whom he becomes a God. Our Lord hath said, *I give unto them eternal life, and they shall never perish; neither shall any pluck them out of my hand,* (Jo. x. 28.). Hence we must conclude, that the *purpose and calling of God is without repentance,* (Heb. xiii. 5.). And therefore, although good men may fall into great sins, yet of all those who are given by the Father to the Son to be saved by him, none are lost: The conclusion from the whole is, that God did in himself, and for his own glory, *foreknow* a determinate number in whom he would be both sanctified and glorified. These he *predestinated* to be holy, conformable to the image of his son: they are to be *called*, not by a general calling in the sense of these words, *many are called, but few are chosen*; but to be *called according to his purpose*. He *justified* them upon their obeying that calling, and in the conclusion he will *glorify* them; for nothing can separate us from the love of God in Christ, (Rom. ix. 19.). And he is not less absolute in his decree of reprobation than he is in his election: *for ungodly men are said to be of old ordained to condemnation, and to be given up by God unto vile affections, and to be given over by him to a reprobate mind.*

20
Arguments
against the
doctrine
from the
attributes
of God.

THUS far we have defended the doctrine of predestination: we proceed next to state the arguments usually adduced in favour of the Arminian system.

God is just, holy, and merciful. In speaking of himself in scripture, he is pleased to make appeals to the human understanding, and to call upon men to reason with him concerning his ways. The meaning of this is, that men may examine his actions and his attributes with that measure of intelligence which they possess, and they will be forced to approve of them; nay, he proposes himself to us as a pattern for our imitation. We are required to be holy as he is holy, and

merciful as he is merciful: which is a proof that he accounts us not incapable of forming just notions at least of these attributes. What then can we think of a justice that shall condemn us for a fact that we never committed? that designs first of all to be glorified by our being eternally miserable, and which afterwards decrees that we shall commit sins to justify this previous decree of our reprobation? For if God originally designs and determines all things, and if all his decrees are certainly effected, it is inconceivable how there should be a justice in punishing that which he himself, by an antecedent and irreversible decree, appointed to be done. Or, setting justice aside, is it possible that a being of infinite holiness, and who is *of purer eyes than to behold iniquity*, would by an antecedent decree fix our committing so many sins, in such a manner that it is not possible to avoid them? He represents himself in the scriptures as *gracious, merciful, slow to anger, and abundant in goodness and truth*. It is often said, that *he desires that no man should perish, but that all should come to the knowledge of the truth*: this is even said with the solemnity of an oath, *As I live, saith the Lord, I take no pleasure in the death of sinners*. What sense can these words bear if we believe that God did by an absolute decree doom so many of them to everlasting misery? If all things that happen arise out of the absolute decree of God as their first cause, then we must believe that God takes pleasure both in his own decrees and in the execution of them, consequently that *he doth take pleasure in the death of sinners*; and this in express contradiction to the most positive language of scripture. Besides all this, what are we to think of the truth of God, and of the sincerity of those offers of grace and mercy, with the exhortations and expostulations upon them that occur so frequently in scripture, if we can imagine that by antecedent acts he determined that all these should be ineffectual? In one word, are we to regard our existence as a blessing, and to look up with gratitude to that paternal goodness which has placed us in a *land* of hope, which formed our nature, weak indeed and exposed to many imperfections, but capable of rising by virtuous efforts and by a patient continuance in well-doing to excellence and to high and immortal felicity? or, are we to curse the hour in which we were born under the dominion of a master, who is not only severe, but absurd, and even adds insult to cruelty; who, after placing us in a goodly habitation, binds us hand and foot, locks the door, blocks up the windows, sets fire to the fabric, and then very mercifully calls upon us to come forth lest we perish?

It is not true that rational beings are nothing in the sight of their Maker. Compared to his Almighty strength and uncreated existence, our powers do indeed diminish into weakness, and our years into a moment: yet although our interests may be unimportant in themselves, the attributes of God with which they are connected are far from being so. There was no necessity for his calling us into existence; but the instant he bestowed upon us that gift, and conferred upon us faculties capable of rising to happiness by the contemplation of himself and of his works, he became our parent, and granted to us a right to look up to him for protection and mercy, and to hope that our existence and our faculties were not bestowed in vain. Nor will he

trample

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tion.

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tion.

trample upon the just and reasonable hopes of the meanest of his creatures. He is watchful over our interests; he hath sent his Son to die for us; his providence has been exerted for no other purpose but to promote our welfare; and there is joy in heaven even over one sinner that repenteth. Let it be allowed, that the universe was formed for no other purpose but to promote the glory of God; that glory can surely be little promoted by the exertion of undistinguishing and blind acts of power, in the arbitrary appointment to eternal reprobation of millions of unresisting and undeserving wretches*. Is it not more honourable to the Deity to conceive of him as the parent, guide, governor, and judge of free beings, formed after the likeness of himself, with powers of reason and self-determination, than to conceive of him as the former and conductor of a system of conscious machinery, or the mover and controuler of an universe of puppets, many of whom he is pleased to make completely miserable? The most important and fundamental point of religion, considered as a speculative science, consists in our forming high and just ideas of God and of his attributes, that from them we may understand the maxims of true and perfect morality. But were we to attempt to form our own natures upon the idea of the divine character that is given us by the doctrine of absolute decrees, we would certainly become imperious, partial, and cruel; at least we should not readily learn the virtues of kindness, mercy, and compassion.

* Correspondence between
Price and Priestley.21
The difficulty of
prescience
solved.

It is true that, setting aside predestination, it is not easy to show how future contingencies should be certainly foreseen; but it is obvious that such foresight involves no contradiction, (see METAPHYSICS, N^o 308); and if the actions of men be free, we know from the train of prophecies, which in the sacred scriptures appear to have been made in one age and fulfilled in another, that contingencies are foreseen by that infinite Being who inhabiteth eternity, and to whom a thousand years are but as one day. The prophecies concerning the death and sufferings of Christ were fulfilled by the free acts of the Jewish priests and people: These men sinned in accomplishing that event, which proves that they acted with their natural liberty. From these and all the other prophecies both in the old and new Testament, it must be confessed that future contingencies were certainly foreknown, but where to found that certainty cannot be easily resolved. We doubt not, however, that we may safely refer it to the infinite perfection of the Divine mind. And it ought to be observed that this difficulty is of a very different nature from that to which our antagonists are reduced on their side of the argument. They are compelled to confess that they cannot reconcile their doctrine with the justice of God, an attribute the nature of which we clearly understand, and which is held forth to our imitation; whereas we are only at a loss how to explain the mode in which the divine prescience is exerted; an attribute which God claims as peculiarly his own, and which it is not to be expected that we should be able in the smallest degree to comprehend. We can go farther than this. Heaven hath given to man two revelations of itself. The one consists in the knowledge which we procure by the right use of our rational faculties; and the other is bestowed by means of the sacred scriptures. Without intending to derogate from the authority of

inspiration, it is fair to assert, that we are *more certain* that God is the author and bestower of our reason, than that he is the author of the scriptures; at least it is certain that the last cannot contradict the first, because God cannot contradict himself. By the primary revelation from heaven then, that is, by our reason, we are informed that God is true, and just, and good. If an angel from heaven should preach a doctrine contrary to this, we are entitled to say with the apostle, *let him be accursed*. If our antagonists then should succeed in proving that the doctrine of absolute decrees, which represents the Deity as cruel and unjust, is contained in scripture, the consequence would be, not that we would believe it, for that is impossible, but that we should be reduced to the necessity of rejecting the authority of the scriptures, because they contradict the previous sure revelation of God, our reason. We believe that the doctrines contained in the scriptures are certainly true, because they were taught by those who wrought miracles and foretold future events in proof of their being inspired by the God of truth. But miracles and prophecy are *direct* evidences of nothing but the *power* and *wisdom* of their Author; and unless we know by other evidence, that this powerful and wise Being is likewise the father of truth and justice, we cannot be sure that the scriptures, notwithstanding their source, are any thing better than a tissue of falsehoods. The very arguments therefore by which predestination is supported, tend to sap the foundation of that revelation from which its advocates pretend to draw them. The case is very different when no doctrine is asserted that is not contradictory to our reason, but only above it. For example, when we are told that God can create rational beings, that he attends without distraction to the minutest affairs that pass in a thousand worlds, that he knows all things, the past, the present, and the future, we do not presume that we comprehend how he can do all this: but there is nothing in it that contradicts our reason; we ourselves possess a certain degree of power, can attend at once to a certain number of objects, can in some cases form very sure conjectures about futurity, and we resolve all the rest into the infinite nature and perfections of God.

Predestina-
tion.22
Scripture
cannot con-
tradict the
clear dic-
tates of
reason.

It is farther to be observed, that prescience does not make effects certain because they are foreseen; but they are foreseen because they are to be: so that the certainty of the prescience is not the cause, but the consequence of the certainty of the event. The Roman republic has fallen; but our knowledge or ignorance of that event does not render it more or less true and certain. That it was to fall, was as surely true before it happened as it is now; and had we known it beforehand, as many men of sense probably did, it would neither have fallen sooner nor later on that account. This shows that the knowledge which an intelligent being has of a past or future event need not have any influence upon the circumstances that produce that event.

On some occasions the scripture takes notice of a conditional prescience*. God answered David, that Saul would come to Keilah, and that the men of Keilah would deliver him up; yet both the one and the other rested upon the condition of his staying there; and he going from thence, neither of them ever happened. Such also was the prophecy of Jonah, at the failure of

23
Conditional
prescience.
* 1 Sam.
xxiii. 11,
12.
† Chap. iii.
of 4.

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tion.

of which he was so absurdly offended: and such was Christ's saying, That those of Tyre and Sidon, Sodom and Gomorrah, would have turned to him, if they had seen the miracles that he wrought in the towns of Galilee. Since, then, this preience may be so certain that it can never err or mislead the exertions of providence, and since by this, both the attributes of God are vindicated, and the due freedom of man is asserted, all difficulties seem to be thus easily removed.

24
Christ died
for the
whole
world.

With regard to the purpose of Christ's death, he is said to be the *propitiation for the sins of the whole world*; and the wicked are said to *deny the Lord that bought them*. His death, as to its extent, is set in opposition to the sins of *Adam*; so that as by the offence of one judgment came upon all men to condemnation, so by the righteousness of one the free gift came upon all men to justification of life, (Rom. v. 18.). The *all* on the one side must be as extensive as the *all* on the other: so, since *all* are concerned in *Adam's* sin, *all* must likewise be concerned in the death of Christ. To this we may add, that *all* men are commanded and required to believe that Christ died for their sins; but no man can be obliged to believe what is not true: he must therefore have died for *all*. The following passages express clearly the universality of the object of Christ's death. *If any man sin, we have an advocate with the Father, Jesus Christ the righteous: and he is the propitiation for our sins: and not for ours only, but also for the sins of the whole world,* (1 Jo. ii. 1, 2.). *The love of Christ constraineth us; because we thus judge, that if one died for all, then were all dead: and that he died for all, that they which live should not henceforth live unto themselves,* (2 Cor. v. 14.). *God so loved the world that he gave his only begotten Son, that whosoever believeth in him might not perish, but might have everlasting life.* (Jo. iii. 16.).

25
Freedom
essential to
moral
agents.

But a proper attention to the nature of man will set the justice of our argument in a still stronger point of view. It is obvious, that such an inward freedom as renders a man the master of his own conduct, and able to do or not to do what he pleases, is so necessary to the morality of our actions, that without it they are neither good nor evil, neither capable of rewards nor punishments. Madmen, or men asleep, are not to be charged with the good or evil of what they do; therefore at least some small degree of liberty must be left us, otherwise why are we praised or blamed for our conduct? All virtue and religion, all discipline and industry, arise out of this as their first principle, that there is a power in us to govern our own thoughts and actions, and to raise and improve our faculties. If this be denied, all efforts, all education, all attention bestowed upon ourselves or others, become fruitless and vain. If a man account himself under an inevitable decree, as he will have little remorse for the evil he does while he imputes it to that inevitable force that constrains him, so he will naturally conclude that it is to no purpose for him to struggle with impossibilities. Men are sufficiently inclined to throw all censure off from themselves, and to indulge in indolence; and upon the doctrine of absolute predestination who can blame them, seeing that their efforts can be of no value?

Matter is inactive of itself, and only moves in consequence of its being acted upon by some other being. Man is possessed of a power to begin motion, and to determine it in any direction that he may judge proper. This power

and this intelligence constitute his liberty, and form that image of God that is stamped upon his nature. Whether man possesses this power of acting originally and of himself, or whether he is incapable of forming any resolution, or making any effort, without being acted upon by a foreign cause, is not a point to be reasoned on or disputed about: it is a question of fact, which, as far as it can possibly be known, every man has it in his power to determine by the evidence of his own consciousness. We do aver, then, that every man is conscious that he is a free agent, and that it is not possible for the most staunch predestinarian that has ever yet appeared seriously and practically to convince himself of the contrary. It is not possible for a man in his senses to believe, that in all those crimes which men charge *themselves* with, and reproach *themselves* for, God is the agent; and that, properly speaking, they are no more agents than a sword is when employed to commit murder. We do indeed, on some occasions, feel ourselves hurried on so impetuously by violent passions, that we seem for an instant to have lost our freedom; but on cool reflection we find, that we both might and ought to have restrained that heat in its first commencement. We feel that we can divert our thoughts, and overcome ourselves in most instances, if we set seriously about it. We feel that knowledge, reflection, and proper society, improve the temper and disposition; and that ignorance, negligence, and the society of the worthless and abandoned, corrupt and degrade the mind. From all this we conclude, that man is free, and not under inevitable fate, or irresistible motions to good or evil. This conclusion is confirmed by the whole style of scripture, which upon any other supposition becomes a solemn and unworthy mockery. It is full of persuasions, exhortations, reproofs, expostulations, encouragements, and terrors. But to what purpose is it to speak to dead men, to persuade the blind to see, or the lame to run? If we are under impotence till the irresistible grace comes, and if, when it comes, nothing can withstand it, what occasion is there for these solemn discourses which can have no effect? They cannot render us inexcusable, unless it were in our power to be improved by them; and to imagine that God gives light and blessings, which can do no good, to those whom he before intended to damn, only to make them more inexcusable, and for the purpose of aggravating their condemnation, gives so strange an idea of his character as it is not fit to express in the language that naturally arises out of it.

Predestina-
tion.
26
Liberty or
necessity a
question of
fact.

Our antagonists seem to have formed ideas of the divine perfection and sovereignty that are altogether false. There is no imperfection implied in the supposition that some of the acts of God may depend upon the conduct of his creatures. Perfection consists in the most suitable means. The Author of Nature conducts the planets in their orbits with immutable precision according to fixed rules: but it would be absurd to pretend to manage free agents, or their affairs, in the same manner by mathematical or mechanical principles. The providence that is exerted over material objects is fixed and steady in its operations, because it is fit that material objects which cannot move of themselves should be moved in a regular manner: but free and intelligent beings enjoy a wider range, and ought not to be confined to a prescribed train of exertions; it may

27
Some of
the acts of
God depend
on the conduct
of his crea-
tures.

Predestina-
tion. } may therefore be necessary that the providence which
superintends them should accommodate itself to circum-
stances. This, however, is not injurious to the divine
sovereignty; for God himself is the author of that free-
dom of agency which he is pleased to watch over. He
is not less the Lord of the universe; and surely his
wisdom and benevolence are more conspicuous when he
brings good out of evil, and renders the perverse wan-
derings of the human heart subservient to purposes of
mercy, than when he hurls into the immensity of space
the most enormous mass of dead and passive matter sub-
jected to unerring laws.

28
The ine-
qualities of
Providence
accounted
for. } As for the inequalities of moral situation that are to
be observed in the world, and the giving to some na-
tions and persons the means of improvement, and the
denying them to others, the scriptures do indeed as-
cribe these wholly to the riches and freedom of God's
grace. And, we confess, that the ways of Providence
are often dark and mysterious. In this world there are
many things which are hard to be understood, and many
which appear altogether unaccountable: we see the
wicked man prospering in his wickedness, though it
impose misery upon thousands; we see truth hiding its
head, and the world governed by fraud and absurdity.
Still, however, we can venture to assert, that God be-
stows upon all what is necessary to enable them to ful-
fil the obligations expected from the state in which they
are placed; and it is elsewhere shown, that physical evil
is among men the parent of moral good. (See PRO-
VIDENCE). God winketh at the times of ignorance;
much is required of them to whom much is given; and
it shall be more tolerable in the day of judgement for
the inhabitants of Sodom and Gomorrah than for the en-
lightened cities of Galilee. Thus God will be just
when he judges; none will meet with condemnation ex-
cepting those who are inexcusable. For although he
grants more to some than may be absolutely necessary,
yet he grants less to none; and where he grants little,
he will suit his judgements to the little which he gave.
There is no injustice in this. If it was the intention
of the great Creator that his creation should contain
within its ample bosom every possible variety of intelli-
gent natures, it was necessary that there should be some-
where such a being as man; and, in forming all possible
varieties of human minds and situations, it was necessary
that every particular individual should exist. Hence a
man may as well complain that he was not formed one
of the flaming seraphims that surround the throne of the
Eternal, as that he is not placed in other circumstances
in life than those which he now occupies; for if little
is given, little will be required from him. Thus the
designs of Providence go on according to the goodness
and mercy of God. None can complain, though some
have more cause for joy than others. What happens
to individuals may happen to nations in a body; some
may have higher privileges, and be placed in happier
circumstances than others; but none can complain of
the wise and just disposer of all, who has given enough,

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tion. } although we may have good reason to complain of our-
selves, for not using what was sufficient.

As to the case of those who are not blessed with the
light of the gospel, we may consider, that if they have
fewer and less advantages than others, their nature and
capacities must likewise be inferior; to which their fu-
ture state may be proportioned. God is not obliged to
make all men equally perfect in the next world any more
than in this; and if their capacity be rendered less than
that of an ordinary *Christian*, a lower degree of happiness
may fill it. However, we need not be extremely solici-
tous about their state, much less cast any ungrateful im-
putations on the Governor of the world for not having
dealt so bountifully with them as he has with ourselves;
since we know that Christ died for the whole race of
mankind; that every one will at length be 'accepted
according to that he has, and not according to that he
has not; and that to whomsoever much is given, of him
shall much be required (B).

29
Scriptural
expressions
explained. } Upon these principles, we can easily explain all the
passages in the New Testament concerning the *purpose*,
the *election*, the *foreknowledge*, and the *predestination* of
God. They relate to the design of calling the Gentile
world to the knowledge of the Messiah: This was kept
secret, though hints had been given of it by several of
the prophets, so that it was a mystery; but it was reveal-
ed when the apostles, in consequence of Christ's commis-
sion, *to go and teach all nations*, went about preaching
the gospel to the Gentiles. This was a stumbling-block
to the Jews, and it was the chief subject of dispute be-
twixt them and the apostles at the time when the Epis-
tles were written; so that it was necessary for them to
clear up this point very fully, and to mention it fre-
quently. But in the beginning of Christianity there was
no need of amusing men with high and unsearchable spe-
culations concerning the decrees of God; the apostles
therefore take up the point in dispute, the calling of the
Gentiles in a general manner. They show, that Abra-
ham at first, and Isaac and Jacob afterwards, were cho-
sen by a discriminating favour, that they and their poste-
rity should be in covenant with God; but that, never-
theless, it always was the intention of Providence to call
in the Gentiles, though it was not executed till these later
times.

With this key we can explain coherently the whole
of St Paul's discourses upon this subject, without assert-
ing antecedent and special decrees as to particular per-
sons. Things that happen under a permissive and direct-
ing Providence, may, by a largeness of expression, be as-
cribed to the will and counsel of God; for a permissive
will is really a will, though it is not the agent or cause
of the effect. The *hardening of Pharaoh's heart* may be
ascribed to God, though it is said that his *heart hard-
ened itself*, because he took advantage of the respites
which God granted him from the plagues, to encour-
age himself to longer resistance. Besides this, he was
a cruel and bloody tyrant, and deserved such judgements
for his other sins; so that he may be considered as at that
time

(B) See Bishop Law's *Considerations on the Theory of Religion*, where this question is treated in a very masterly manner. The work, though less known than it ought to be, has great merit, and of the author we have given a biographical sketch.

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tion.

time under final condemnation, and only preserved from the first plagues, to afford a striking instance of the avenging justice of God. That this is the meaning of the passage, appears extremely probable from the manner in which Exod. ix. 16. is rendered in the Vatican and Aldus's edit. of the LXX. Instead of saying, as in our translation, "And in very deed for this cause have I raised thee up, for to show in thee my power, &c." God is represented in that version as saying, "And in very deed for this cause have I kept thee alive till now, for to show," &c. *Whom he will he hardeneth*, is an expression that can only be applied to such persons as this tyrant was. It is obvious that the words of our Saviour concerning those *whom his Father had given him*, are only meant of a dispensation of Providence, and not of a decree; since he adds, *And I have lost none of them except the son of perdition*: for it cannot be said that Judas Iscariot was in the decree, and yet was lost. And in the same passage in which God is said *to work in us both to will and to do*, we are required *to work out our own salvation with fear and trembling*. The word *ordained* to eternal life also signifies fitted and disposed to eternal life. The question, *Who made thee to differ?* (1 Cor. iv. 7.) refers to those extraordinary gifts which, in different degrees and measures, were bestowed upon the first Christians, in which they were unquestionably passive.

30
Grace not
irresistible.

If the decrees of God are not absolute, neither can his grace be so efficacious as absolutely and necessarily to determine our conduct, else why are we required *not to grieve God's spirit?* why is it said, *ye do always resist the Holy Ghost; as your fathers did, so do ye? How often would I have gathered you under my wings, and ye would not? What could I have done in my vineyard that has not been done in it?* These expressions indicate a power in us, by which we not only can, but often do, resist the motions of grace. But if the determining efficacy of grace be not acknowledged, it will be much harder to believe that we are efficaciously determined to sin. This supposition is so contrary both to the holiness of God, and to the whole style of the sacred writings, that it is unnecessary to accumulate proofs of it. *O Israel, thou hast destroyed thyself, but in me is thy help: ye will not come unto me that ye may have life: Why will you die, O house of Israel?*

31
The great-
est saint on
earth may
fall.

As for perseverance, we may remark, that the many promises made in the sacred scriptures to them that *overcome*, that continue *steadfast and faithful to the death*, do certainly insinuate that a man may fall from a good state. The words of the apostle to the Hebrews are very clear and pointed: *For it is impossible for those who were once enlightened, and have tasted of the heavenly gift, and were made partakers of the Holy Ghost, and have tasted the good word of God, and the powers of the world to come, if they shall fall away, to renew them again unto repentance* (Heb. vi. 4.). It is also said, *The just shall live by faith: but if he draw (c) back, my soul shall have no pleasure in him*, (Heb. x. 38.). And it is said by the prophet, *When the righteous turneth away from his righteousness, and committeth iniquity, all his righteousness that*

he hath done shall not be mentioned; in his sin that he hath sinned shall he die, (Ezek. viii. 24.). These passages, with many others, give us every reason to believe that a good man may fall from a good state, as well as that a wicked man may turn from a bad one.

Predestina-
tion.

We conclude the whole by observing, that the only difficulty which attends the question arises from the mysterious, and apparently partial and unequal, course of the divine government in our present state; but there is an important day approaching, when God will condescend to remove these obscurities, and to vindicate the ways of his providence to man. On that great day, we are well assured, that the question will be decided in our favour; for we know that judgement will be given, not according to any absolute decree, but according to the deeds which we ourselves shall have freely done in the body, whether they have been good, or whether they have been evil.

32
All diffi-
culties
solved at
the day of
judgement.

Thus have we stated, we hope with fairness and impartiality, a summary of the arguments on both sides of this long agitated question. We need hardly add, that it is a question involved in considerable difficulties.—Milton, who was an eminent philosopher and divine, as well as the first of poets, when he wished to exhibit the fallen angels themselves as perplexed by questions above their comprehension, set them to dispute about predestination.

They reason'd high, of knowledge, will, and fate,
Fix'd fate, free-will, fore-knowledge absolute;
And found no end, in wand'ring mazes lost.

Paradise Lost.

The weak side of the Calvinistic doctrine consists in the impossibility of reconciling the absolute and unconditional decree of reprobation with our ideas of the justice and goodness of God. The weak side of the Arminian scheme consists in the difficulty of accounting for the certainty of the divine foreknowledge, upon the supposition of a contingency of events, or an absolute freedom of will in man.

33
The weak
side of each
doctrine.

To elude the former of these difficulties, some of the late writers upon philosophical necessity, and Dr Priestly is among the number, have given up the doctrine of reprobation, and asserted, that this world is only a state of preparation for another, in which all men, of every description and character, shall attain to final and everlasting happiness, when God *shall be all, and in all*.—On the other side, some of the supporters of free agency, and Montesquieu * is among the number, have been disposed to deny the divine attribute of prescience.

* *Lettres Pers.*

Whatever may be thought of the practical tendency of the two opinions, there is one remark which we think ourselves bound in justice to make, although it appears to us to be somewhat singular. It is this, that from the earliest ages down to our own days, if we consider the character of the ancient Stoics, the Jewish Essenes, the modern Calvinists, and Jansemits, when compared with that of their antagonists the Epicureans, the Saducees, Arminians, and the Jesuits, we shall find that they

(c) In our translation we read, "if any man draw back," &c.; but the words *any man* are not in the original; and if they do not make nonsense of the text, they must at least be acknowledged to obscure its meaning.

Predestination
||
Pre-existence.

they have excelled in no small degree in the practice of the most rigid and respectable virtues, and have been the highest honour of their own ages, and the best models for imitation to every age succeeding. At the same time, it must be confessed, that their virtues have in general been rendered unamiable by a tinge of gloomy and severe austerity.

So far as the speculative foundation of their principles is considered, however, neither party seems liable to censure in a moral point of view. Each of them wishes to support, though in a different manner from the other, the honour of the divine character. The Calvinists begin their argument with the notion of infinite perfection, independency, and absolute sovereignty, and thence deduce their opinions; making every difficulty yield to these first and leading ideas. Their opponents are more jealous of the respect due to the divine attributes of justice, truth, holiness, and mercy, and deduce their sentiments from the idea which they have formed of these. Each party lays down general maxims that are admitted by the other, and both argue plausibly from their first principles. Dr Burnet, whom we have here followed very closely, justly observes †, that "these are great grounds for mutual charity and forbearance."

34
Mutual forbearance recommended.

† Exposition of the 39 Articles.

PREDETERMINATION, in *Philosophy* and *Theology*, is that concurrence of God which makes men act, and determines them in all their actions, both good and evil, and is called by the schoolmen *physical predetermination* or *promotion*. See **METAPHYSICS**, Part III. chap. v. and **PREDESTINATION**.

PREDIAL SLAVES. See *Predial SLAVES*.

PREDIAL Tithes, are those that are paid of things arising and growing from the ground only; as corn, hay, fruit, &c.

PREDICABLE, among logicians, denotes a general quality which may be predicated, or asserted of several things: thus animal is predicable of mankind, beasts, birds, fishes, &c.

PREDICAMENT, among logicians, the same with category. See **CATEGORY** and **PHILOSOPHY**.

PREDICATE, in *Logic*, that which, in a proposition, is affirmed or denied of the subject. In these propositions, *snow is white, ink is not white*; whiteness is the predicate which is affirmed of snow, and denied of ink.

PRE-EMPTION, a privilege anciently allowed the king's purveyor, of having the choice and first buying of corn and other provisions for the king's house: but taken away by the statute 19 Car. II.

PREENING, in *Natural History*, the action of birds cleaning, composing, and dressing their feathers, to enable them to glide more easily through the air. For this purpose they have two peculiar glands on their rump, which secrete an unctuous matter into a bag that is perforated, out of which the bird occasionally draws it with its bill.

PRE-EXISTENCE, a priority of being, or the being of one thing before another. Thus a cause, if not in time, is yet in nature pre-existent to its effect. Thus God is pre-existent to the universe. Thus a human father is pre-existent to his son. The Peripatetics, though they maintained the eternity of the world, were likewise dogmatical in their opinion, that the universe was formed, actuated, and governed, by a sovereign intelligence. See *Aristotle on the Soul*, and our

i
The Peripatetics maintained the eternity of the world.

articles **CREATION** and **EARTH**. See also the *Philosophical Essays of Dr Isaac Watts*, and the *Principles of natural and revealed Religion*, by the Chevalier Ramsay, where the subject of the world's eternity is discussed. Mr Hume's speculations also, on this abstruse and arduous subject, had a greater tendency to dissipate its gloom than that philosopher himself could imagine.

The pre-existence of the human soul to its corporeal vehicle had been from time immemorial a prevailing opinion among the Asiatic sages, and from them was perhaps transferred by Pythagoras to the philosophy of the Greeks; but his metempsychosis, or transmigration of souls, is too trivial either to be seriously proposed or refuted. Nevertheless, from the sentiments of Socrates concerning the immortality of the soul, delivered in his last interview with his friends, it is obvious that the tenet of pre-existence was a doctrine of the Platonic school. If at any period of life, say these philosophers, you should examine a boy, of how many ideas, of what a number of principles, of what an extent of knowledge will you find him possessed: these without doubt could neither be self-derived nor recently acquired. With what avidity and promptitude does he attain the knowledge of arts and sciences, which appear entirely new to him! these rapid and successful advances in knowledge can only be the effects of reminiscence, or of a fainter and more indistinct species of recollection. But in all the other operations of memory, we find retrospective impressions attending every object or idea which emerges to her view; nor does she ever suggest any thought, word, or action, without informing us, in a manner equally clear and evident that those impressions have been made upon our senses, mind or intellect, on some former occasion. Whoever contemplates her progress, will easily discover, that association is her most faithful and efficacious auxiliary; and that by joining impression with impression, idea with idea, circumstance with circumstance, in the order of time, of place, of similarity or dissimilarity, she is capacitated to accumulate her treasures and enlarge her province even to an indefinite extent. But when intuitive principles, or simple conclusions, are elicited from the puerile understanding by a train of easy questions properly arranged, where is the retrospective act of memory, by which the boy recognises those truths as having formerly been perceived in his mind? Where are the crowds of concomitant, antecedent, or subsequent ideas, with which those recollections ought naturally to have been attended? In a word, where is the sense of personal identity, which seems absolutely inseparable from every act of memory? This hypothesis, therefore, will not support pre-existence. After the Christian religion had been considerably diffused, and warmly combated by its philosophical antagonists, the same doctrine was resumed and taught at Alexandria, by Platonic proselytes, not only as a topic constituent of their master's philosophy, but as an answer to those formidable objections which had been deduced from the doctrine of original sin, and from the vices which stain, and from the calamities which disturb, human life: hence they strenuously asserted, that all the human race were either introduced to being prior to Adam, or pre-existent in his person; that they were not, therefore, represented by our first parents, but actually concurred in their crime, and participated their ruin.

Pre-existence.

2
Pre-existence of the soul taught by Asiatic sages.

3
Socratic arguments for pre-existence refuted.

4
Pre-existence taught by Christian Platonists.

The.

Pre-existence.

* See Pre-adamites,
5
But no solution of original sin.

The followers of Origen, and such as entertained the notion of Pre-adamites*, might argue from the doctrine of pre-existence with some degree of plausibility. For the human beings introduced by them to the theatre of probation had already attained the capacity or dignity of moral agents; as their crime therefore was voluntary, their punishment might be just. But those who believe the whole human race created in Adam to be only pre-existent in their germs or stamina, were even deprived of this miserable subterfuge; for in these homunculi we can neither suppose the moral nor rational constitution unfolded. Since, therefore, their degeneracy was not spontaneous, neither could their sufferings be equitable. Should it be said that the evil of original sin was penal, as it extended to our first parents alone, and merely consequential as felt by their posterity, it will be admitted that the distinction between penal and consequential evil may be intelligible in human affairs, where other laws, assortments, and combinations than those which are simply and purely moral, take place. But that a moral government, at one of the most cardinal periods of its administration, should admit gratuitous or consequential evil, seems to us irreconcilable with the attributes and conduct of a wise and just legislator. Consequential evil, taken as such, is misery sustained without demerit; and cannot result from the procedure of wisdom, benignity, and justice; but must flow from necessity, from ignorance, from cruelty, or from caprice, as its only possible sources. But even upon the supposition of those who pretend that man was mature in all his faculties before the commission of original sin, the objections against it will still remain in full force: for it is admitted by all except the Samian sage, that the consciousness of personal identity which was felt in pre-existence, is obliterated in a subsequent state of being.

Now it may be demanded, whether agents thus re-stituted for punishment have not the same right to murmur and complain as if they had been perfectly innocent, and only created for that dreadful catastrophe? It is upon this principle alone that the effects of punishment can be either exemplary or disciplinary; for how is it possible, that the punishment of beings unconscious of a crime should ever be reconciled either to the justice or beneficence of that intention with which their sufferings are inflicted? Or how can others be supposed to become wise and virtuous by the example of those who are neither acquainted with the origin nor the tendency of their miseries, but have every reason to think themselves afflicted merely for the sake of afflicting? To us it seems clear, that the nature and *rationale* of original sin lie inscrutably retired in the bosom of Providence; nor can we, without unpardonable presumption and arrogance, form the most simple conclusion, or attempt the minutest discovery, either different from or extraneous to the clear and obvious sense of revelation. This sense indeed may with propriety be extracted from the whole, or from one passage collated with another; but independent of it, as reason has no premises, she can form no deductions. The boldness and temerity of philosophy, not satisfied with contemplating pre-existence as merely relative to human nature, has dared to try how far it was compatible with the glorious Persons of the sacred Trinity. The Arians, who allowed the subordinate divinity of our Saviour, believed him pre-existent to all time, and before all worlds; but the Socinians,

who esteemed his nature as well as his person merely human, insisted, that before his incarnation he was only pre-existent in the divine idea, not in nature or person. But when it is considered, that children do not begin to deduce instructions from nature and experience, at a period so late as we are apt to imagine; when it is admitted, that their progress, though insensible, may be much more rapid than we apprehend; when the opportunities of sense, the ardour of curiosity, the avidity of memory, and the activity of understanding, are remarked—we need not have recourse to a pre-existent state for our account of the knowledge which young minds discover. It may likewise be added, that moral agents can only be improved and cultivated by moral discipline. Such effects therefore of any state, whether happy or miserable, as are merely mechanical, may be noxious or salutary to the patient, but can never enter into any moral economy as parts of its own administration. Pre-existence, therefore, whether rewarded or punished, without the continued impression of personal identity, affords no solution of original sin.

PREFACE, something introductory to a book, to inform the reader of the design, method, &c. observed therein, and generally whatever is necessary to the understanding of a book.

PREFECT, in ancient Rome, one of the chief magistrates who governed in the absence of the kings, consuls, and emperors.

This power was greatest under the emperors. His chief care was the government of the city, taking cognizance of all crimes committed therein and within 100 miles. He judged capitally and finally, and even presided in the senate. He had the superintendance of the provisions, building, and navigation.

The prefect of modern Rome differs little from the ancient *præfectus*, his authority only extending to 40 miles round the city.

PREFECT of the *Prætorium*, the leader of the prætorian bands destined for the emperor's guards, consisting, according to Dion, of 10,000 men. This officer, according to Suetonius, was instituted by Augustus, and usually taken from among the knights.

By the favour of the emperors his power grew very considerable; to reduce which, Constantine divided the prefecture of the prætorium into four prefectures, and each of these again he subdivided into civil and military departments, though the name was only reserved to him who was invested with the civil authority, and that of *comes belli* given him who commanded the cohorts.

PREGADI, in *History*, a denomination given to the senate of Venice, in which resides the whole authority of the republic. At its first institution, it was composed of 60 senators, to whom 60 more have been added. See VENICE.

PREGNANCY, the state of a woman who has conceived, or is with child. See MIDWIFERY.

PREHNITE, a mineral first brought by Colonel Prehn from the Cape of Good Hope, whose name it bears. See MINERALOGY *Index*.

PREJUDICE, or PREJUDGEMENT, from *præ* and *judicium*, means a judgement formed beforehand, without examination; the preposition *præ* expressing an anticipation, not so much of time as of knowledge and due attention: hence the schoolmen have called it *anticipation* and a *preconceived opinion*.

Pre-existence
||
Prejudice.

Definition.

Prejudice

Prejudice.

2
Origin of
prejudice.

Prejudice arises from the associating principle, which we have explained at large in another article (see METAPHYSICS, Part I. chap. 5.), and it is a weakness from which no human mind can be wholly free. Some are indeed much more than others under its influence; but there is no man who does not occasionally act upon principles, the propriety of which he never investigated; or who does not hold speculative opinions, into the truth of which he never seriously inquired. Our parents and tutors, yea, our very nurses, determine a multitude of our sentiments: our friends, our neighbours, the custom of the country where we dwell, and the established opinions of mankind, form our belief; the great, the pious, the learned, and the ancient, the king, the priest, and the philosopher, are characters of mighty efficacy to persuade us to regulate our conduct by their practice, and to receive as truth whatever they may dictate.

The case cannot indeed be otherwise. The occasions of acting are so frequent, and the principles of action are so various, that were a man to investigate accurately the value of every single motive which presents itself to his mind, and to balance them fairly against each other, the time of acting would in most instances pass away long before he could determine what ought to be done; and life would be wasted in useless speculation. The great laws of religion and morality, which ought to be the general and leading principles of action, no man of science will take upon trust; but in the course of a busy life a thousand circumstances will occur in which we must act with such rapidity, that, after being satisfied of the lawfulness of what we are about to do, we must, for the prudence of it, confide entirely in the general customs of our country, or in the practice of other individuals placed in circumstances similar to ours. In all such cases, though we may act properly, we act from *prejudice*.

3
Its extensive
dominion.

But the dominion of prejudice is not confined to the actions of the man of business: it extends over the speculations of the philosopher himself, one half of whose knowledge rests upon no other foundation. All human sciences are related to each other (see PHILOSOPHY, N^o 2.), and there is hardly one of them in which a man can become eminent unless he has some general acquaintance with the whole circle; but no man could ever yet investigate for himself all those propositions which constitute the circle of the sciences, or even comprehend the evidence upon which they rest, though he admits them perhaps as truths incontrovertible. He must therefore receive many of them upon the authority of others, or, which is the same thing, admit them by *prejudice*.

To this reasoning it may be objected, that when a man admits as true abstract propositions, which, though not self-evident, he cannot demonstrate, he admits them not by prejudice, but upon testimony, which has been elsewhere shown to be a sufficient foundation for human belief (see METAPHYSICS, N^o 138.) The objection is plausible, but it is not solid; for testimony commands belief only concerning *events* which, falling under the cognizance of the senses, preclude all possibility of mistake; whereas abstract propositions, not self-evident, can be proved true only by a *process of reasoning* or by a *series of experiments*; and in conducting both these, the most vigorous mind is liable to mistake. When Sir

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Isaac Newton told the world that it was the fall of an apple which first suggested to him the general law of gravitation, he bore testimony to a fact concerning which he could not be mistaken; and we receive his testimony for the reasons assigned in the article referred to. When he lays down the method of obtaining the fluxion or momentum of the rectangle or product of two indeterminate quantities, which is the main point in his doctrine of fluxions, he labours to establish that method on the basis of demonstration; and whoever makes use of it in practice, without understanding that demonstration, receives the whole doctrine of the modern geometrical analysis, not as a matter of *fact* upon the credit of Sir Isaac's *testimony*, but as a system of abstract *truth* on the credit of his *understanding*: in other words, he is a fluxionist by *prejudice*.

In vain will it be said, that in mathematical demonstration there is no room for mistake; and that therefore the man who implicitly adopts the method of fluxions may be considered as relying upon the *veracity* of its author, who had no inducement to deceive him, and whose comprehension was confessedly greater than his. In fluxionary mathematics, which treat of matters of which it is extremely difficult, if not impossible, to have adequate and steady conceptions, the most comprehensive mind is liable to mistake; and it is well known that the celebrated bishop of Cloyne wrote his *Analysis* to prove that the incomparable author of the method of fluxions had committed *two mistakes* in his fundamental proposition, which balancing one another, produced a true conclusion by false reasoning. One or other of these great men, of whom the least was an eminent mathematician, must have been bewildered in his reasoning, and have fallen into error; and therefore whoever follows either of them implicitly without perceiving the error of the other, is unquestionably under the influence of prejudice. This is the case with the writer of the present article. He perceives not the error of Bishop Berkeley's reasoning, and yet he admits the doctrine of fluxions on the authority of Sir Isaac's demonstration. That demonstration, however, he pretends not to understand; and therefore he admits the doctrine through *prejudice*.

We have made these observations, to point out the absurdity of the fashionable cry against the harbouring of any prejudices. To eradicate all prejudices from the human mind is impossible; and if it were possible, it would be very unwise: for we see that prejudice may exist on the side of truth as well as on that of falsehood; and that principles professed and believed by any individual may be useful and true, though he was brought to them not by a train of fair and candid reasoning, but through the medium of prepossession or authority. Indeed such is our nature, and such are the laws of association, that many of our best principles, and our obligation to perform many of the most amiable of our duties in common life, must evidently be acquired in this way. From endearing associations and authoritative instruction, we acquire a knowledge of our duty to our parents, and a facility in performing it, together with the first principles of religion, without a single effort of our own reason. Even when reason has begun to assert its power, and shows us the propriety of such duties, we are wonderfully assisted in performing them by the amiable prejudices which we had before acquired,

O o

and

Prejudice.

4
Impossible
to eradicate
all prejudices
from
the mind,

Prejudice. and which now appear to be natural to us. He who has never had the advantage of such associations, and who acquires a knowledge of the duties suggested by them after he has come to the years of discretion, and chiefly by the efforts of his own reason, will seldom, *ceteris paribus*, perform these duties with an energy and delight equal to that of the person who has. This remark appears to be confirmed by experience; for it is often found, that the children of the great, who have been given out to nurse in their infancy, and who have seldom been in the company of their parents till their reasoning faculties have been far advanced, are much less dutiful and affectionate than those in the middle or lower stations of life, who have scarcely ever been out of their parents company.

5
which
would not
be wife if
it were
possible.

Would it then be wise, even if it were practicable, to dissolve all those associations which tend so powerfully to increase the mutual affections of parents and children? We cannot think that it would; as we believe it might be easily shown that public spirit springs out of private affection. Plato indeed held an opinion very different from ours; for in order to extend that affection which is usually lavished at home to the whole state, he proposed that children should be educated at the public expence, and never be permitted to know the authors of their being. But this is only one of the many visionary projects of that great man, of which daily experience shows the absurdity. In modern times, we are certain that less dependence is to be had upon the *patriotism* of the man who, for the love which he pretends to his country, can overlook or forget his own partial connections in it, than on him who, at the same time that he wishes his country well, is feelingly alive to all the endearments of kindred affection.

6
Good ef-
fects of
some
prejudices.

Such affection may be called *partial*, and very probably has its foundation in that which is the source of all our prejudices: but if it be properly trained in early life, it will gradually extend from our nearest relations to the persons with whom we associate, and to the place which not only gave us birth, but also furnished our youthful and most innocent enjoyments. It is thus that the *amor patrie* is generated (see PASSION and PATRIOTISM), which in minds unfeuduced by false principles is exceedingly strong; and, though a partial affection, is of the most general utility. It is this prejudice which reconciles the Laplander to his freezing snows, and the African to his burning sun; which attaches the native of the Highlands or of Wales as much to his mountains and rocks, as the apparently happier inhabitant of the southern counties of England is to the more fertile and delightful spot where he drew his first breath. And we find in fact, that when a native of Kent and a Scotch Highlander have in some distant corner of the world gained a competent fortune without being corrupted by luxury, they return, the one to his hop-gardens, and the other to his mountains. Were this prejudice, for such it surely is, wholly eradicated from the human mind, it is obvious that large tracts of country which are now full of inhabitants would be totally deserted; and that the hungry barbarians, to make room for themselves, would exterminate the proprietors of more favourable climes. From an affection to our friends and to our country, we naturally contract an affection for that mode of government under which we live; and unless it be particularly oppressive to our-

Prejudice. selves or any order of citizens, we come as naturally to prefer it to all other modes, whether it deserve that preference or not. This no doubt is prejudice, but it is a beneficial prejudice; for were the multitude, who are wholly incapable of estimating the excellencies and defects of the various modes of government, to become dissatisfied with their own, and rise in a mass to change it for the better, the most horrible consequences might justly be dreaded. Of this truth the present state of Europe affords too melancholy and convincing a proof. The man therefore who, under the pretence of enlightening the public mind and extirpating prejudices, pants to the illiterate vulgar, in aggravated colours, the abuse of that government which has hitherto protected them from the ferocity of each other, is one of the greatest criminals if his views be selfish, and one of the worst reasoners if they be disinterested, that human imagination can easily conceive.

7
Danger of
improper
attempts to
remove
them.

With the selfish patriot we have at present no concern; but we may with propriety ask the disinterested lover of truth, whether he thinks it possible, that in a large community, of which nine-tenths of the members are necessarily incapable of taking comprehensive views of things, or feeling the force of political reasonings, any form of government can be acceptable to the people at large, which does not gain their affections through the medium of prejudice? It has been shown by Mr Hume with great strength of argument, that government is founded on *opinion*, which is of two kinds, viz. opinion of interest, and opinion of right. By opinion of interest, he understands the sense of the general advantage which is reaped from government, together with the persuasion that the particular government which is established is equally advantageous with any other that could easily be settled. The opinion entertained of the *right* of any government is always founded in its antiquity; and hence arises the passionate regard which under ancient monarchies the people have for the true heir of their royal family. These opinions, as held by the philosopher conversant with the history of nations, are founded upon reasoning more or less conclusive; but it is obvious, that in the minds of the multitude they can have no other foundation than prejudice. An illiterate clown or mechanic does not *see how* one form of government promotes the general interest more than another; but he may *believe* that it does, upon no other evidence than the declamation of a demagogue, who, for selfish purposes, contrives to flatter his pride. The same is the case with respect to the rights of hereditary monarchy. The anatomist finds nothing more in the greatest monarch than in the meanest peasant, and the moralist may perhaps frequently find less; but the true philosopher acknowledges his right to the sovereignty: and though he be weak in understanding, or infirm in years, would, for the sake of public peace and the stability of government, maintain him in his throne against every competitor of the most shining talents. The vulgar, however, who would act with this philosopher, are influenced by no such views, but merely by their prejudices in favour of birth and family; and therefore it is ridiculous to think of changing the public mind with respect to any form of government by pure reasoning. In France a total change in the minds of the people has indeed been effected, and from the most violent prejudices in favour of royalty, they have now become more violently prejudiced

Prejudice. died in favour of republicanism. Bad as their government unquestionably was, the change that has now taken place is not the effect of calm reasoning and accurate inquiry (for that the bulk of mankind appears to be incapable), nor are their prejudices less violent than they were before. They are changed indeed; but no one will deny that prejudice, and that of the most violent kind, leads them on at present; nor can any one assert that their new prejudices have rendered them more happy, or their country more flourishing, than their former ones, which made them cry *Vive le Roi* under the tyrannic government of Louis XIV.

The influence of prejudice is not more powerful in fixing the political opinions of men, than in dictating their religious creed. Every child of a religious father receives his faith by inheritance long before he be capable of judging whether it be agreeable or disagreeable to the word of God and the light of reason. This experience shews to be the fact; and sound philosophy declares that it cannot be otherwise. Parents are appointed to judge for their children in their younger years, and to instruct them in what they should believe, and what they should practise in the civil and religious life. This is a dictate of nature, and doubtless would have been so in a state of perfect innocence. It is impossible that children should be capable of judging for themselves before their minds are furnished with a competent number of ideas, and before they are acquainted with any *principles* and *rules* of just reasoning; and therefore they can do nothing better than run to their parents, and receive their directions what they should believe and what they should practise.

3
Absurdity of keeping children ignorant of religion from the dread of prejudice.

This mode of tutoring the infant mind, and giving to our instructions the force of prejudice, before reason can operate with much effect, will, we know, be highly displeasing to many who challenge to themselves alone the epithet of liberal. With them it will be cramping the genius and perverting the judgement: but we cannot help thinking that such an objection, if it should be made, would be the offspring of ignorance; for it requires but very little knowledge of human nature to be able to see, that if children be not restrained by authority, and if we do not insinuate a love of good principles into their minds, bad ones will insinuate themselves, and a little time will give them the force of inveterate prejudice, which all the future efforts of reason and philosophy will find it difficult to eradicate. The idea of keeping a child ignorant of the being of a God, and the grand duties of morality and religion, till he shall come to years of discretion, and then allowing him to reason them out for himself, is an absurd chimera; it is an experiment which never has been tried, which to us it appears impossible to try, and which, if it could be tried, could not possibly produce any good effect. For suppose we had a youth just arrived at years of discretion, totally ignorant of all these things, and unbiassed to any system of opinions, or rather possessed of no opinions at all—it would, in the first place, we suspect, be absolutely necessary to direct his thoughts into a particular train, and for some person to lead him on from one idea to another, till he should arrive at some conclusion: but in all this there is the influence of authority, association, and of prejudice.

9
Origin of bigotry.

It being therefore absolutely necessary that sentiments of religion be insilled into the minds of children before

they be capable of discovering by the use of their reason whether those sentiments be just or not, it need not excite wonder, nor is it any reflection upon religion, that most men adhere with bigotry to the creed of their fathers, and support that creed by arguments which could carry conviction to no minds but their own. The love and veneration which they bear to the memory of those from whom they imbibed their earliest opinions, do not permit them to perceive either the falsehood of those opinions, or their little importance, supposing them true. Hence the many frivolous disputes which have been carried on among Christians; and hence the zeal with which some of them maintain tenets which are at once contrary to scripture, to reason, and to common sense. A due reflection, however, on the source of all prejudices ought to moderate this zeal; for no man is wholly free from that bias which he is so ready to condemn in others: and indeed a man *totally free from prejudice*, would be a more unhappy being than the most violent bigot on earth. In science, he would admit nothing which he could not himself demonstrate; in business, he would be perpetually at a stand for want of motives to influence his conduct: he could have no attachment to a particular country; and therefore must be without patriotism, and without the solaces of friendship; and his religion, we are afraid, would be cold and lifeless.

10
An objection answered.

What, it will be said, are the authors of a work which professes to enlighten the public mind by laying before it a general view of science and literature, become at last the advocates of *prejudice*, which is the bane of science, and the prop of *superstition*? No, we are advocates for no prejudice which is either inimical to science or friendly to absurdity; but we do not think that the moralist would act wisely who should desert his proper business to make himself master of the higher mathematics, merely that he might not be obliged to trust occasionally to the demonstrations of others. The writer of this article is not skilled in trade; but it is not his opinion that the merchant would soon grow rich, who should never make a bargain till he had previously calculated with mathematical exactness all the probabilities of his gain or loss. That to dissolve all the associations which are the source of partial attachments of kindred, affection, and private friendship, would tend to promote the public happiness, we cannot possibly believe. And we think, that the experience of the present eventful day abundantly confirms Mr Hume's opinion, that far from endeavouring to extirpate the people's prejudices in favour of birth and family, we should cherish such sentiments, as being absolutely requisite to preserve a due subordination in society. That men would be better Christians if they were to receive no religious instruction till they should be able by their own reason to judge of its truth, daily observation does not warrant us to conclude; for we see those who have seldom heard of God when children, "live without him in the world" when they are men.

Pernicious prejudices we have traced to their source elsewhere, and shown how they may be best prevented by proper attention in the education of children. (See METAPHYSICS, N^o 98). We shall only add here, that the earlier such attention is paid, the more effectual it will be found; and that it is much easier to keep prejudices out of the mind than to remove them after they

Prejudice. they have been admitted. This however must be sometimes attempted; and where prejudices are strong, several methods have been recommended for rendering the attempt successful. The following are taken mostly from Dr Watts's Improvement of the Mind.

11
Proper methods of removing prejudices.

1. Never attack the prejudice *directly*, but lead the person who is under its influence step by step to the truth. Perhaps your neighbour is under the influence of *superstition and bigotry in the simplicity of his soul*; you must not immediately run upon him with violence, and show him the absurdity or folly of his own opinions, though you might be able to set them in a glaring light; but you must rather begin at a distance, and establish his assent to some familiar and easy propositions, which have a tendency to refute his mistakes, and to confirm the truth; and then silently observe what impression this makes upon him, and proceed by slow degrees as he is able to bear, and you must carry on the work perhaps at distant seasons of conversation. The tender or diseased eye cannot bear a deluge of light at once.

Overhastiness and vehemence in arguing is oftentimes the effect of *pride*; it blunts the poignancy of the argument, breaks its force, and disappoints the end. If you were to convince a person of the falsehood of the doctrine of *transubstantiation*, and you take up the consecrated bread before him and say, "You may see, and taste, and feel, *this is nothing but bread*; therefore whilst you assert that God commands you to believe *it is not bread*, you most wickedly accuse God of commanding you to tell a lie." This sort of language would only raise the indignation of the person against you, instead of making any impressions upon him. He will not so much as think at all on the argument you have brought, but he rages at you as a *profane wretch*, setting up your own sense and reason above sacred authority; so that though what you affirm is a truth of great evidence, yet you lose the benefit of your whole argument by an ill management, and the unreasonable use of it.

2. Where the prejudices of mankind cannot be conquered at once, but will rise up in arms against the evidence of truth, there we must make some allowances, and yield to them for the present, as far as we can safely do it without real injury to truth; and if we would have any success in our endeavours to convince the world, we must practise this complaisance for the benefit of mankind. Take a student who has deeply imbibed the principles of the *Peripatetics*, and imagines certain immaterial beings, called *substantial forms*, to inhabit every herb, flower, mineral, metal, fire, water, &c. and to be the spring of all its properties and operations; or take a Platonist, who believes an *anima mundi*, "an universal soul of the world," to pervade all bodies, to act in and by them according to their nature, and indeed to give them their nature and their special powers; perhaps it may be very hard to convince these persons by arguments, and constrain them to yield up those fancies. Well then, let the one believe his *universal soul*, and the other go on with his notion of *substantial forms*, and at the same time teach them how by certain original laws of motion, and the various sizes, shapes, and situations of the parts of matter, allowing a continued divine concurrence in and with all, the several appearances in nature may be solved, and the variety of effects produced, according to the corpuscular

philosophy, improved by *Descartes*, *Mr Boyle*, and *Sir Isaac Newton*; and when they have attained a degree of skill in this science, they will see these airy notions of theirs, these imaginary powers, to be so useless and unnecessary, that they will drop them of their own accord. The *Peripatetic forms* will vanish from the mind like a dream, and the *Platonic soul of the world will expire*.

We may give another instance of the same practice, where there is a prejudicate fondness of particular words and phrases. Suppose a man is educated in an *unhappy form of speech*, whereby he explains some *great doctrine of the gospel*, and by the means of this phrase he has imbibed a very false idea of that doctrine; ye he is so bigotted to his form of words, that he imagines if those words are omitted the form is lost. Now, if we cannot possibly persuade him to part with his improper terms, we will indulge them a little, and try to explain them in a scriptural sense, rather than let him go on in his mistaken ideas. A person who has been bred a *Papist*, knows but little of religion, yet he resolves never to part from the *Roman Catholic faith*, and is obstinately bent against a change. Now it cannot be unlawful to teach such an one the true Christian, i. e. the *Protestant religion* out of the *Epistle to the Romans*, and show him that the same doctrine is contained in the *Catholic Epistles of St Peter, James, and Jude*; and thus let him live and die a good Christian in the belief of the religion taught him out of the New Testament, while he imagines he is a *Roman Catholic* still, because he finds the doctrine he is taught in the *Catholic Epistles* and in that to the *Romans*. Sometimes we may make use of the very prejudices under which a person labours, in order to convince him of some particular truth, and argue with him upon his own professed principles as though they were true. Suppose a *Jew* lies sick of a fever, and is forbidden flesh by his physician; but hearing that rabbits were provided for the dinner of the family, desired earnestly to eat of them; and suppose he became impatient, because his physician did not permit him, and he insisted upon it that it could do him no hurt—surely rather than let him persist in that fancy and that desire, to the danger of his life, we might tell him that these animals were strangled, a sort of food forbidden by the Jewish law, though we ourselves might believe that law to be abolished.

Where we find any person obstinately persisting in a mistake in opposition to all reason, especially if the mistake be very injurious or pernicious, and we know this person will hearken to the sentiment or authority of some favourite name; it is needful sometimes to urge the *opinion and authority* of that favourite person, since that is likely to be regarded much more than *reason*. We are almost ashamed indeed to speak of using any *influence of authority* in reasoning or argument; but in some cases it is better that poor, silly, perverse, obstinate creatures, should be persuaded to judge and act right, by a veneration for the sense of others, than to be left to wander in pernicious errors, and continue deaf to all argument, and blind to all evidence. They are but children of a larger size; and since they persist all their lives in their minority, and reject all true reasoning, surely we may try to persuade them to practise what is for their own interest by such childish reasons as they will hearken to. We may overawe them from pursuing

Prejudice
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puruing their own ruin by the terrors of a solemn shadow, or allure them by a sugar plum to their own happiness. But after all, we must conclude, that wheresoever it can be done, it is best to *remove and root out those prejudices* which obstruct the entrance of truth into the mind, rather than to palliate, humour, or indulge them; and sometimes this must necessarily be done, before you can make a person part with some beloved error, and lead him into better sentiments.

12
Mutual
forbearance
recom-
mended.

On the whole, we would recommend more mutual forbearance and less acrimony than is commonly found among writers on disputed subjects, as the only means by which our differences in religion, politics, and science, ever can be healed, and truth certainly discovered. If men were less violent in defending their particular opinions, they would always gain a more patient hearing, they would be less suspected of, and less liable to, prejudice, and of course more apt either to convince or to be convinced. They would likewise by so doing show, in the most unequivocal manner, their attention to sound philosophy, and above all to genuine Christianity; which, though it is far from encouraging scepticism, or a temporizing spirit, recommends in the strongest terms, among all its professors, *universal charity and mutual forbearance*. See PROBABILITY, TRUTH, and SUPERSTITION.

PRELATE, an ecclesiastic raised to some eminent and superior dignity in the church; as bishops, archbishops, patriarchs, &c.

PRELIMINARY, in general, denotes something to be examined and determined before an affair can be treated of to the purpose.

PRELUDE, in *Music*, is usually a flourish or irregular air, which a musician plays off-hand, to try if his instrument be in tune, and so lead him into the piece to be played.

PREMISES, in *Logic*, an appellation given to the two first propositions of a syllogism. See LOGIC.

PREMISES, in *Law*, properly signifies the land, &c. mentioned in the beginning of a deed.

PREMIUM, or PRÆMIUM, properly signifies a reward or recompense: but it is chiefly used in a mercantile sense for the sum of money given to an insurer, whether of ships, houses, lives, &c. See INSURANCE.

PREMNA, a genus of plants belonging to the didymia class. See BOTANY Index.

PRÆMONSTRANTES, or PRÆMONSTRATENSES, a religious order of regular canons instituted in 1120, by S. Norbert; and thence also called *Norbertines*.

The first monastery of this order was built by Norbert in the Isle of France, three leagues to the west of Laon; which he called *Præmonstre*, *Præmonstratum*, and hence the order itself derived its name; though as to the occasion of that name, the writers of that order are divided. At first the religious of this order were so very poor, that they had only a single ass, which served to carry the wood they cut down every morning, and sent to Laon in order to purchase bread. But they soon received so many donations, and built so many monasteries, that in 30 years after the foundation of the order, they had above 100 abbeys in France and Germany: and in process of time the order so increased, that it had monasteries in all parts of Christendom, amounting to 1000 abbeys, 300 provostships, a vast number of priories, and 500 nunneries. But they are now greatly di-

minished. The rule they followed was that of St Augustine, with some slight alterations, and an addition of certain severe laws, whose authority did not long survive their founder.

The order was approved by Honorius II. in 1126, and again by several succeeding popes. At first the abstinence from flesh was rigidly observed. In 1245 Innocent IV. complained of its being neglected to a general chapter. In 1288, their general, William, procured leave of Pope Nicholas IV. for those of the order to eat flesh on journeys. In 1460, Pius II. granted them a general permission to eat meat, excepting from Septuagesima to Easter. The dress of the religious of this order is white, with a scapulary before the cassock. Out of doors they wear a white cloak and white hat; within, a little camail; and at church, a surplice, &c.

In the first monasteries built by Norbert, there was one for men and another for women, only separated by a wall. In 1137, by a decree of a general chapter, this practice was prohibited, and the women removed out of those already built, to a greater distance from those of the men.

The Præmonstratenses, or monks of Premontre, vulgarly called *white canons*, came first into England, A. D. 1146. Their first monastery, called *New-houfe*, was erected in Lincolnshire, by Peter de Saulia, and dedicated to St Martial. In the reign of Edward I. this order had 27 monasteries in England.

PRENANTHES, a genus of plants belonging to the syngenesia class; and in the natural method ranking under the 49th order, *Compositæ*. See BOTANY Index.

PRENOMEN, PRÆNOMEN, among the ancient Romans, a name prefixed to their family name, and answering to our Christian name: such are Caius, Lucius, Marcus, &c.

PRENOTION, PRÆNOTIO, or *Præcognitio*, is a notice or piece of knowledge preceding some other in respect of time. Such is the knowledge of the antecedent, which must precede that of the conclusion. It is used by Lord Bacon for breaking off an endless search, which he observes to be one of the principal parts of the art of memory. For when one endeavours to call any thing to mind, without some previous notion or perception of what is sought for, the mind exerts itself and strives in an endless manner: but if it hath any short notion before-hand, the infinity of the search is presently cut off, and the mind hunts nearer home, as in an inclosure. Thus verse is easier remembered than prose; because if we stick at any word in a verse, we have a previous notion that it is such a word as must stand in a verse. Hence also, order is a manifest help to memory; for here is a previous notion, that the thing sought for must be agreeable to order. Bacon's *Works Abr.* vol. i. p. 136. and vol. ii. p. 473.

PREPARATION, in a general sense, the act of disposing things in such a manner as to render any foreseen event more advantageous or less hurtful according to its nature.

PREPARATION of *Dissonances*, in music, is their disposition in harmony in such a manner, that, by something congenial in what precedes, they may be rendered less harsh to the ear than they would be without that precaution: according to this definition, every discord ought to be prepared. But when, in order to prepare

Præmon-
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Prepara-
tion.

Preparation.

prepare a dissonance, it is exacted that the sound which forms it should before have formed a consonance, then there is fundamentally but one single dissonance which is prepared, viz. the seventh. Nor is even this preparation necessary in the chord which contains the sensible note, because then the dissonance being characteristic, both in its chord and in its mode, the ear has sufficient reason to expect it: it accordingly does expect it, and recognise it; nor is either deceived with respect to its chord nor its natural progress. But when the seventh is heard upon a fundamental sound which is not essential to the mode, it ought then to be prepared, in order to prevent all ambiguity; to prevent the ear, whilst listening to this note, from losing its train: and as this chord of the seventh may be inverted and combined in several different manners, from this arise likewise a number of different ways by which it may seem to be prepared, which, in the main, always issue however in the same thing.

In making use of dissonances, three things are to be considered; viz. the chord which precedes the dissonance, that in which it is found, and that which is immediately subsequent to it. Preparation only respects the two first; for the third, see RESOLUTION.

When we would regularly prepare a discord in order to arrive at its chord, we must choose such a career of the fundamental bass, that the sound which forms the dissonance may be a protraction into the perfect time of the same note which formed a consonance formerly struck in the imperfect in the preceding chord; this is what we call *syncopation*. See SYNCOPATION.

From this preparation two advantages result; viz. 1. That there is necessarily an harmonical connection between the two chords, since that connection is formed by the dissonance itself; and, 2. That this dissonance, as it is nothing else but the continuation of the same sound which had formed a consonance, becomes much less harsh to the ear than it would have been with any sound recently struck. Now this is all that we expect to gain by preparation. See CADENCE, DISCORD, and HARMONY.

By what has been just said, it will appear that there is no other part peculiarly destined for preparing the dissonance, except that in which it is heard; so that if the treble shall exhibit a dissonance, that must be syncopated; but if the dissonance is in the bass, the bass must be syncopated. Though there is nothing here but what is quite simple, yet have masters of music miserably embroiled the whole matter.

Some dissonances may be found which are never prepared: such is the sixth superadded: some which are very unfrequently prepared; such is the diminished seventh.

PREPARATIONS, in *Pharmacy*, the medicines when mixed together in such a manner as to be fit for the use of the patient. See PHARMACY, under MATERIA MEDICA.

PREPARATIONS, in *Anatomy*, the parts of animal bodies prepared and preserved for anatomical uses.

The manner of preserving anatomical preparations, is either by drying them thoroughly in the air, or putting them into a proper liquor.

In drying parts which are thick, when the weather

is warm, care must be taken to prevent putrefaction, fly-blows, insects, &c. This is easily done by the use of a solution of corrosive sublimate in spirit of wine, in the proportion of two drams of sublimate to a pound of spirit: the part should be moistened with this liquor as it dries, and by this method the body of a child may be kept safe even in summer. Dried preparations are apt to crack and moulder away in keeping; to prevent this, their surface should be covered with a thick varnish, repeated as often as occasion requires.

Though several parts prepared dry are useful, yet others must be so managed as to be always flexible, and nearer a natural state. The difficulty has been to find a proper liquor for this purpose. Dr. Monro says, the best he knows is a well rectified colourless spirit of wine, to which is added a small quantity of the spirit of vitriol or nitre. When these are properly mixed, they neither change their colour nor the consistence of the parts, except where there are serous or mucous liquors contained in them. The brain, even of a young child, in this mixture grows so firm as to admit of gentle handling, as do also the vitreous and crystalline humours of the eye. The liquor of the sebaceous glands and the semen are coagulated by this spirituous mixture; and it heightens the red colour of the injection of the blood-vessels, so that after the part has been in it a little time, several vessels appear which were before invisible. If you will compare these effects with what Ruysch has said of his balsam, you will find the liquor above mentioned to come very near to it.

The proportion of the two spirits must be changed according to the part prepared. For the brain and humours of the eye, you must put two drams of spirit of nitre to one pound of spirit of wine. In preserving other parts which are harder, 30 or 40 drops of the acid will be sufficient; a larger quantity will make bones flexible, and even dissolve them. The part thus preserved should be always kept covered with the liquor: therefore great care should be taken to stop the mouth of the glass with a waxed cork and a bladder tied over it, to prevent the evaporation of the spirit; some of which, notwithstanding all this care, will fly off; therefore fresh must be added as there is occasion. When the spirits change to a dark tincture, which will sometimes happen, they should be poured off, and fresh put in their room; but with somewhat less acid than at first.

The glasses which contain the preparations should be of the finest sort, and pretty thick; for through such the parts may be seen very distinctly, and of a true colour, and the object will be so magnified as to show vessels in the glass which out of it were not to be seen.

As the glass when filled with the liquor has a certain focus, it is necessary to keep the preparation at a proper distance from the sides of it, which is easily done by little sticks suitably placed, or by suspending it by a thread in a proper situation. The operator should be cautious of putting his fingers in this liquor oftener than is absolutely necessary; because it brings on a numbness on the skin, which makes the fingers unfit for any nice operation. The best remedy for this is to wash them

Preparation.

Prepara-
tion

Preogative.

them in water mixed with a few drops of oil of tartar per deliquium.

Dr Christ. Jac. Trew prefers the rectified spirit of grain for preserving anatomical preparations to spirit of wine, or to compositions of alcohol, amber, camphor, &c. because these soon change into a brown colour, whereas the spirit from malt preserves its limpid appearance. When any part is to be preserved wet, wash it with water till it is no more tintured. The water is next to be washed away with spirits, and then the preparation is to be put among spirits in a glass, the mouth of which is to be closely covered with a glass head, over which a wet bladder and leaf tin are to be tied. *Com. Lit. Norimb. 1731, semest. 1. specim. 9.* See also *Pole's Anatomical Instructor*, and *American Transactions*, vol. ii. pag. 66.

PREPENSED, in *Law*, denotes fore-thought. In which sense we say *prepens'd malice*, &c. If, when a man is slain upon a sudden quarrel, there were malice prepensed formerly between them, it makes it murder; and, as it is called in some statutes, *prepens'd murder*.

PREPOSITION, in *Grammar*, one of the parts of speech, being an indeclinable particle which yet serves to govern the nouns that follow it; such as *per*, *pro*, *propter*; and through, for, with, &c.

F. Buffier allows it to be only a modificative of a part of speech, serving to circumstantiate a noun.

PREPUCE, in *Anatomy*, the foreskin, being a prolongation of the cutis of the penis, covering the glans. See **PENIS**, *ANATOMY Index*.

PREROGATIVE, an exclusive or peculiar privilege.

Royal PREROGATIVE, that special pre-eminence which the king hath over and above all other persons, and out of the ordinary course of the common law, in right of his regal dignity. It signifies in its etymology (from *præ* and *rogo*) something that is required or demanded before, or in preference to, all others. And hence it follows, that it must be in its nature singular and eccentric; that it can only be applied to those rights and capacities which the king enjoys alone in contradistinction to others, and not to those which he enjoys in common with any of his subjects: for if once any one prerogative of the crown could be held in common with the subject, it would cease to be prerogative any longer. And therefore Finch lays it down as a maxim, that the prerogative is that law in case of the king, which is law in no case of the subject.

Prerogatives are either *direct* or *incidental*. The *direct* are such positive substantial parts of the royal character and authority, as are rooted in, and spring from, the king's political person, considered merely by itself, without reference to any other extrinsic circumstance; as, the right of sending ambassadors, of creating peers, and of making war or peace. But such prerogatives as are *incidental* bear always a relation to something else, distinct from the king's person; and are indeed only exceptions, in favour of the crown, to those general rules that are established for the rest of the community: such as, that no costs shall be recovered against the king; that the king can never be a joint tenant; and that his debt shall be preferred before a debt to any of his subjects.

These substantive or direct prerogatives may again be divided into three kinds: being such as regard, first, the king's royal character or dignity; secondly, his royal authority or power; and, lastly, his royal income. These are necessary, to secure reverence to his person, obedience to his commands, and an affluent supply for the ordinary expences of government; without all of which it is impossible to maintain the executive power in due independence and vigour. Yet, in every branch of this large and extensive dominion, our free constitution has interposed such seasonable checks and restrictions, as may curb it from trampling on those liberties which it was meant to secure and establish. The enormous weight of prerogative, if left to itself, (as in arbitrary governments it is), spreads havock and destruction among all the inferior movements: but, when balanced and bridled (as with us) by its proper counterpoise, timely and judiciously applied, its operations are then equable and regular; it invigorates the whole machine, and enables every part to answer the end of its construction.

1. Of the *royal dignity*. Under every monarchical establishment, it is necessary to distinguish the prince from his subjects, not only by the outward pomp and decorations of majesty, but also by ascribing to him certain qualities as inherent in his royal capacity, distinct from, and superior to, those of any other individual in the nation. For though a philosophical mind will (says Sir William Blackstone) consider the royal person merely as one man appointed by mutual consent to preside over many others, and will pay him that reverence and duty which the principles of society demand; yet the mass of mankind will be apt to grow insolent and refractory, if taught to consider their prince as a man of no greater perfection than themselves. The law therefore ascribes to the king, in his high political character, not only large powers and emoluments, which form his prerogative and revenue, but likewise certain attributes of a great and transcendent nature; by which the people are led to consider him in the light of a superior being, and to pay him that awful respect which may enable him with greater ease to carry on the business of government. This is what we understand by the royal dignity; the several branches of which we shall now proceed to enumerate.

1. And, first, the law ascribes to the king the attribute of *sovereignty*, or pre-eminency. See **SOVEREIGNTY**.

2. "The law also (according to Sir William Blackstone) ascribes to the king, in his political capacity, absolute perfection. 'The king can do no wrong.' Which ancient and fundamental maxim (says he) is not to be understood as if every thing transacted by the government was of course just and lawful; but means only two things. First, that whatever is exceptionable in the conduct of public affairs, is not to be imputed to the king, nor is he answerable for it personally to his people: for this doctrine would totally destroy that constitutional independence of the crown, which is necessary for the balance of power, in our free and active, and therefore compounded, constitution. And, secondly, it means that the prerogative of the crown extends not to do any injury; it is created for the benefit of the people, and therefore cannot be exerted to their prejudice.

Preogative.

Preroga-
tive.

prejudice.—“The king, moreover, (he observes), is not only incapable of *doing* wrong, but even of *thinking* wrong: he can never mean to do an improper thing: in him is no folly or weakness. And, therefore, if the crown should be induced to grant any franchise or privilege to a subject contrary to reason, or in anywise prejudicial to the commonwealth or a private person, the law will not suppose the king to have meant either an unwise or an injurious action, but declares that the king was deceived in his grant; and thereupon such grant is rendered void, merely upon the foundation of fraud and deception, either by or upon those agents whom the crown has thought proper to employ. For the law will not cast an imputation on that magistrate whom it entrusts with the executive power, as if he was capable of intentionally disregarding his trust: but attributes to mere imposition (to which the most perfect of sublunary beings must still continue liable) those little inadvertencies, which, if charged on the will of the prince, might lessen him in the eyes of his subjects.”

But this doctrine has been exposed as ridiculous and absurd, by Lord Abingdon, in his *Dedication to the collective Body of the People of England*. “Let us see (says he) how these maxims and their comments agree with the constitution, with nature, with reason, with common sense, with experience, with fact, with precedent, and with Sir William Blackstone himself; and whether, by the application of these rules of evidence thereto, it will not be found, that (from the want of attention to that important line of distinction which the constitution has drawn between the *king* of England and the *crown* of England) what was attributed to the *monarchy* has not been given to the *monarch*, what meant for the *kingship* conveyed to the *king*, what designed for the *thing* transferred to the *person*, what intended for *theory* applied to *practice*; and so in consequence, that whilst the premises (of the perfection of the monarchy) be true, the conclusion (that the king can do no wrong) be not false.

“And, first, in reference to the constitution: to which if this matter be applied (meaning what it expresses, and if it do not it is unworthy of notice), it is subversive of a principle in the constitution, upon which the preservation of the constitution depends; I mean the principle of *resistance*; a principle which, whilst no man will now venture to gainsay, Sir William Blackstone himself admits, ‘is justifiable to the person of the prince; when the being of the state is endangered, and the public voice proclaims such resistance necessary;’ and thus, by such admission, both disproves the maxim, and oversets his own comment thereupon; for to say that ‘the king can do no wrong,’ and that ‘he is incapable even of thinking wrong,’ and then to admit that ‘resistance to his person is justifiable,’ are such jarring contradictions in themselves, that, until reconciled, the necessity of argument is suspended.

“With respect then, in the next place, to the agreement of this maxim, and its comment, with nature, with reason, and with common sense, I should have thought myself sufficiently justified in appealing to every man’s own reflection for decision, if I had not been made to understand that nature, reason, and common sense, had had nothing to do with either. Sir William Blackstone says, ‘That though a philosophical mind will con-

sider the royal person merely as one man appointed by mutual consent to preside over others, and will pay him that reverence and duty which the principles of society demand, yet the mass of mankind will be apt to grow insolent and refractory if taught to consider their prince as a man of no greater perfection than themselves; and therefore the law ascribes to the king, in his high political character, certain attributes of a great and transcendent nature, by which the people are led to consider him in the light of a superior being, and to pay him that awful respect which may enable him with greater ease to carry on the business of government.’ So that, in order to govern with greater ease (which by the bye is mere assertion without any proof), it is necessary to deceive the mass of mankind, by making them believe, not only what a philosophical mind cannot believe, but what it is impossible for any mind to believe; and therefore, in the investigation of this subject, according to Sir William, neither nature, reason, nor common sense, can have any concern.—

“It remains to examine in how much this maxim and its comment agree with experience, with fact, with precedent, and with Sir William Blackstone himself. And here it is matter of most curious speculation, to observe a maxim laid down, and which is intended for a rule of government, not only without a single case in support of it, but with a string of cases, that may be carried back to Egbert the first monarch of England, in direct opposition to the doctrine. Who is the man, that, reading the past history of this country, will show us any king that has done no wrong? Who is the reader that will not find that all the wrongs and injuries which the free constitution of this country has hitherto suffered, have been solely derived from the arbitrary measures of our kings? And yet the mass of mankind are to look upon the king as a superior being; and the maxim, that ‘the king can do wrong,’ is to remain as an article of belief. But, without pushing this inquiry any farther, let us see what encouragement Sir William Blackstone himself has given us for our credulity. After stating the maxim, and presenting us with a most lively picture, ‘of our sovereign lord thus *all perfect* and *immortal*,’ what does he make this all-perfection and immortality in the end to come to? His words are these: ‘For when King Charles’s deluded brother attempted to *enslave* the nation,’ (*no wrong this, to be sure*), ‘he found it was beyond his power: the people both *could*, and *did*, resist him; and in consequence of such resistance, obliged him to quit his enterprise and his throne together *.”

The sum of all is this: That the crown of England and the king of England are distinguishable, and not synonymous terms: that allegiance is due to the crown, and through the crown to the king: that the attributes of the crown are sovereignty, perfection, and perpetuity; but that it does not therefore follow that the king can do no wrong. It is indeed to be admitted, that in high respect for the crown, high respect is also due to the wearer of that crown; that is, to the king: but the crown is to be preferred to the king, for the first veneration is due to the constitution. It is likewise to be supposed that the king will do no wrong: and as, to prevent this, a privy council is appointed by the constitution to assist the king in the execution of the government; so if any wrong be done, ‘these men,’ as

Montesquieu

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* Comment.

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Montesquieu expresses it, 'may be examined and punished (A).'

"But if any future king shall think to screen these evil counsellors from the just vengeance of the people, by becoming *his own minister*; and, in so doing, shall take for his sanction *the attribute of perfection*, shall trust to the deception of his being *a superior being*, and cloak himself under the maxim that *the king can do no wrong*; I say, in such a case, let the appeal already made to the constitution, to nature, to reason, to common sense, to experience, to fact, to precedent, and to Sir William Blackstone himself, suffice; and preclude the necessity of any further remarks from me (B)."

To proceed now to other particulars: The law determines, that in the king can be no negligence or LACHES; and therefore no delay will bar his right. *Nullum tempus occurrit regi*, is the standing maxim upon all occasions: for the law intends that the king is always busied for the public good, and therefore has not leisure to assert his right within the times limited to subjects. In the king also can be no stain or corruption of blood: for if the heir to the crown were attainted of treason or felony, and afterwards the crown should descend to him, this would purge the attainder *ipso facto*. And therefore, when Henry VII. who as earl of Richmond stood attainted, came to the crown, it was not thought necessary to pass an act of parliament to reverse this attainder; because, as Lord Bacon in his history of that prince informs us, it was agreed that the assumption of the crown had at once purged all attainders. Neither can the king, in judgement of law, as king, ever be a minor or under age; and therefore his royal grants and assents to acts of parliament are good, though he has not in his natural capacity attained the legal age of 21. By a statute, indeed, 28 Hen. VIII. c. 17. power was given to future kings to rescind and revoke all acts of parliament that should be made while they were under the age of 24: but this was repealed by the statute 1 Edw. VI. c. 11. so far as related to that prince, and both statutes are declared to be determined by 24 Geo. II. c. 24. It hath also been usually thought prudent, when the heir-apparent has been very young, to appoint a protector, guardian, or regent, for a limited time: but the very necessity of such extraordinary provision is sufficient to demonstrate the truth of that maxim of common law, that in the king is no minor.

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Prerogative. rity; and therefore he hath no legal guardian. See REGENT.

3. A third attribute of the king's majesty is his *perpetuity*. The law ascribes to him, in his political capacity, an absolute immortality. The king never dies. Henry, Edward, or George, may die; but the king survives them all. For, immediately upon the decease of the reigning prince in his natural capacity, his kingship or imperial dignity, by act of law, without any *interregnum* or interval, is vested at once in his heir; who is, *eo instanti*, king to all intents and purposes. And so tender is the law of supposing even a possibility of his death, that his natural dissolution is generally called his *demise*; *dimissio regis vel coronae*: an expression which signifies merely a transfer of property; for, as is observed in Plowden, when we say the demise of the crown, we mean only, that, in consequence of the disunion of the king's body-natural from his body-politic, the kingdom is transferred or demised to his successor, and so the royal dignity remains perpetual. Thus, too, when Edward IV. in the tenth year of his reign, was driven from his throne for a few months by the house of Lancaster, this temporary transfer of his dignity was denominated his *demise*; and all process was held to be discontinued, as upon a natural death of the king.

II. We are next to consider those branches of the royal prerogative which invest this our sovereign lord with a number of *authorities* and *powers*; in the exertion whereof consists the executive part of government. This is wisely placed in a single hand by the British constitution, for the sake of unanimity, strength, and despatch. Were it placed in many hands, it would be subject to many wills: many wills, if disunited and drawing different ways, create weakness in a government; and to unite those several wills, and reduce them to one, is a work of more time and delay than the exigencies of state will afford. The king of England is therefore not only the chief, but properly the sole, magistrate of the nation; all others acting by commission from, and in due subordination to, him: in like manner as, upon the great revolution in the Roman state, all the powers of the ancient magistracy of the commonwealth were centered in the new emperor; so that, as Gravina expresses it, *in ejus unius persona veteris rei publicae vis atque majestas per cumulas magistratuum potestates exprimebatur*.

P p

In

(A) Except the parliament, which is the great council of the nation, the judges, and the peers, who, being the hereditary counsellors of the crown, have not only a right, but are bound *in foro conscientiae* to advise the king for the public good, the constitution knows of no other counsel than the privy-council. Any other counsel, like Clifford, Arlington, Buckingham, Ashley, Lauderdale, and, as the initial letters of these names express, is a CABAL, and as such should be suppressed. Nat. Bacon, speaking of the loss of power in the grand council of lords, says, "The sense of state once contracted into a privy-council, is soon recontracted into a cabinet-council, and last of all into a *favourite* or two; which many times brings damage to the public, and both *themselves* and *kings* into extreme *precipices*; partly for want of maturity, but principally through the providence of God overruling irregular courses to the hurt of such as walk in them." *Pol. Disc.* part ii. p. 201.

(B) For experience, fact, and precedent, see the reigns of King John, Henry III. Edward II. Richard II. Charles I. and James II. See also *Mirror of Justices*; where it is said, "that this grand assembly (meaning the now parliament, or then Wittena-gemotte) is to confer the government of God's people, how they may be kept from sin, live in quiet, and have right done them, according to the customs and laws; and more especially of *wrong done by the king*, queen, or their children: to which Nat. Bacon adds this note: "At this time *the king might do wrong*, &c. and so say Bracton and Fleta of the *kings* in their time." *Disc.* part i. p. 37. Lond. 1739.

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tive.

In the exertion of lawful prerogative the king is held to be absolute; that is, so far absolute, that there is no legal authority that can either delay or resist him. He may reject what bills, may make what treaties, may coin what money, may create what peers, may pardon what offences, he pleases: unless where the constitution hath expressly, or by evident consequence, laid down some exception or boundary; declaring, that thus far the prerogative shall go and no farther. For otherwise the power of the crown would indeed be but a name and a shadow, insufficient for the ends of government, if, where its jurisdiction is clearly established and allowed, any man or body of men were permitted to disobey it, in the ordinary course of law: we do not now speak of those *extraordinary* recourses to the first principles, which are necessary when the contracts of society are in danger of dissolution, and the law proves too weak a defence against the violence of fraud or oppression. And yet the want of attending to this obvious distinction has occasioned these doctrines, of absolute power in the prince and of national resistance by the people, to be much misunderstood and perverted, by the advocates for slavery on the one hand, and the demagogues of faction on the other. The former, observing the absolute sovereignty and transcendent dominion of the crown laid down (as it certainly is) most strongly and emphatically in our law-books as well as our homilies, have denied that any case can be excepted from so general and positive a rule; forgetting how impossible it is, in any practical system of laws, to point out beforehand those eccentric remedies, which the sudden emergence of national distress may dictate, and which that alone can justify. On the other hand, over-zealous republicans, feeling the absurdity of unlimited passive obedience, have fancifully (or sometimes factiously) gone over to the other extreme: and, because resistance is justifiable to the person of the prince when the being of the state is endangered, and the public voice proclaims such resistance necessary, they have therefore allowed to every individual the right of determining this expedience, and of employing private force to resist even private oppression. A doctrine productive of anarchy, and (in consequence equally fatal to civil liberty as tyranny itself. For civil liberty, rightly understood, consists in protecting the rights of individuals by the united force of society: society cannot be maintained, and of course can exert no protection, without obedience to some sovereign power; and obedience is an empty name, if every individual has a right to decide how far he himself shall obey.

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In the exertion, therefore, of those prerogatives which the law has given him, the king is irresistible and absolute, according to the forms of the constitution. And yet, if the consequence of that exertion be manifestly to the grievance or dishonour of the kingdom, the parliament will call his advisers to a just and severe account. For prerogative consisting (as Mr Locke has well defined it) in the discretionary power of acting for the public good where the positive laws are silent, if that discretionary power be abused to the public detriment, such prerogative is exerted in an unconstitutional manner. Thus the king may make a treaty with a foreign state, which shall irrevocably bind the nation; and yet, when such treaties have been judged pernicious, impeachments

have pursued those ministers by whose agency or advice they were concluded.

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tive.

The prerogatives of the crown (in the sense under which we are now considering them) respect either this nation's intercourse with foreign nations, or its own domestic government and civil polity.

With regard to *foreign concerns*, the king is the delegate or representative of his people. It is impossible that the individuals of a state, in their collective capacity, can transact the affairs of that state with another community equally numerous as themselves. Unanimity must be wanting to their measures, and strength to the execution of their counsels. In the king, therefore, as in a centre, all the rays of his people are united, and form by that union a consistency, splendor, and power, that make him feared and respected by foreign potentates; who would scruple to enter into any engagement, that must afterwards be revised and ratified by a popular assembly. What is done by the royal authority, with regard to foreign powers, is the act of the whole nation: what is done without the king's concurrence, is the act only of private men. And so far is this point carried by our law, that it hath been held, that should all the subjects of England make war with a king in league with the king of England, without the royal assent, such war is no breach of the league. And, by the statute 2 Hen. V. c. 6. any subject committing acts of hostility upon any nation in league with the king, was declared to be guilty of high treason: and, though that act was repealed by the statute 20 Hen. VI. c. 11. so far as relates to the making this offence high treason, yet still it remains a very great offence against the law of nations, and punishable by our laws, either capitally or otherwise, according to the circumstances of the case.

1. The king, therefore, considered as the representative of his people, has the sole power of sending ambassadors to foreign states, and receiving ambassadors at home.

2. It is also the king's prerogative to make treaties, leagues, and alliances, with foreign states and princes. For it is, by the law of nations, essential to the goodness of a league, that it be made by the sovereign power; and then it is binding upon the whole community: and in Britain the sovereign power, *quoad hoc*, is vested in the person of the king. Whatever contracts therefore he engages in, no other power in the kingdom can legally delay, resist, or annul. And yet, lest this plenitude of authority should be abused to the detriment of the public, the constitution (as was hinted before) hath here interposed a check, by the means of parliamentary impeachment, for the punishment of such ministers as from criminal motives advise or conclude any treaty, which shall afterwards be judged to derogate from the honour and interest of the nation.

3. Upon the same principle the king has also the sole prerogative of making war and peace. For it is held by all the writers on the law of nature and nations, that the right of making war, which by nature subsisted in every individual, is given up by all private persons that enter into society, and is vested in the sovereign power: and this right is given up, not only by individuals, but even by the entire body of people that are under the dominion of a sovereign. It would indeed be extremely improper,

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improper, that any number of subjects should have the power of binding the supreme magistrate, and putting him against his will in a state of war. Whatever hostilities, therefore, may be committed by private citizens, the state ought not to be affected thereby; unless that should justify their proceedings, and thereby become partner in the guilt. And the reason which is given by Grotius, why, according to the law of nations, a denunciation of war ought always to precede the actual commencement of hostilities, is not so much that the enemy may be put upon his guard (which is matter rather of magnanimity than right), but that it may be certainly clear that the war is not undertaken by private persons, but by the will of the whole community; whose right of willing is in this case transferred to the supreme magistrate by the fundamental laws of society. So that, in order to make a war completely effectual, it is necessary with us in Britain that it be publicly declared and duly proclaimed by the king's authority; and then, all parts of both the contending nations, from the highest to the lowest, are bound by it. And wherever the right resides of beginning a national war, there also must reside the right of ending it, or the power of making peace. And the same check of parliamentary impeachment, for improper or inglorious conduct, in beginning, conducting, or concluding a national war, is in general sufficient to restrain the ministers of the crown from a wanton or injurious exertion of this great prerogative.

4. But, as the delay of making war may sometimes be detrimental to individuals who have suffered by depredations from foreign potentates, our laws have in some respects armed the subject with powers to impel the prerogative; by directing the ministers of the crown to issue letters of marque and reprisal upon due demand: the prerogative of granting which is nearly related to, and plainly derived from, that other of making war; this being indeed only an incomplete state of hostilities, and generally ending in a formal denunciation of war. These letters are grantable, by the law of nations, whenever the subjects of one state are oppressed and injured by those of another, and justice is denied by that state to which the oppressor belongs. In this case, letters of marque and reprisal (words in themselves synonymous, and signifying a taking in return) may be obtained, in order to seize the bodies or goods of the subjects of the offending state, until satisfaction be made, wherever they happen to be found. And indeed this custom of reprisals seems dictated by nature herself; for which reason we find in the most ancient times very notable instances of it. But here the necessity is obvious of calling in the sovereign power, to determine when reprisals may be made; else every private sufferer would be a judge in his own cause. In pursuance of which principle, it is with us declared by the statute 4 Hen. V. c. 7. that if any subjects of the realm are oppressed in time of truce by any foreigners, the king will grant marque in due form to all that feel themselves grieved. See MARQUE.

5. Upon exactly the same reason stands the prerogative of granting safe-conducts; without which, by the law of nations, no member of one society has a right to intrude into another. And therefore Puffendorf very justly resolves, that it is left in the power of all states to take such measures about the admission of strangers as they think convenient; those being ever excepted who

are driven on the coasts by necessity, or by any cause that deserves pity or compassion. Great tenderness is shown by our laws, not only to foreigners in distress (see WRECK), but with regard also to the admission of strangers who come spontaneously: for so long as their nation continues at peace with ours, and they themselves behave peaceably, they are under the king's protection; though liable to be sent home whenever the king sees occasion. But no subject of a nation at war with us can, by the law of nations, come into the realm, nor can travel himself upon the high seas, or send his goods and merchandise from one place to another, without danger of being seized by our subjects, unless he has letters of safe-conduct; which, by divers ancient statutes, must be granted under the king's great seal and enrolled in chancery, or else they are of no effect; the king being supposed the best judge of such emergencies, as may deserve exception from the general law of arms. But passports under the king's sign-manual, or licenses from his ambassadors abroad, are now more usually obtained, and are allowed to be of equal validity.

These are the principal prerogatives of the king respecting this nation's intercourse with foreign nations; in all of which he is considered as the delegate or representative of his people. But in domestic affairs, he is considered in a great variety of characters, and from thence there arises an abundant number of other prerogatives.

1. He is a constituent part of the supreme legislative power; and, as such, has the prerogative of rejecting such provisions in parliament as he judges improper to be passed. The expediency of which constitution has before been evinced at large under the article PARLIAMENT. We shall only farther remark, that the king is not bound by any act of parliament, unless he be named therein by special and particular words. The most general words that can be devised (any person or persons, bodies politic, or corporate, &c.) affect not him in the least, if they may tend to restrain or diminish any of his rights or interests. For it would be of most mischievous consequence to the public, if the strength of the executive power were liable to be curtailed, without its own express consent, by constructions and implications of the subject. Yet, where an act of parliament is expressly made for the preservation of public rights and the suppression of public wrongs, and does not interfere with the established rights of the crown, it is said to be binding as well upon the king as upon the subject: and, likewise, the king may take the benefit of any particular act, though he be not especially named.

2. The king is considered, in the next place, as the generalissimo, or the first in military command, within the kingdom. The great end of society is to protect the weakness of individuals by the united strength of the community; and the principal use of government is to direct that united strength in the best and most effectual manner, to answer the end proposed. Monarchical government is allowed to be the fittest of any for this purpose: it follows therefore, from the very end of its institution, that in a monarchy the military power must be trusted in the hands of the prince.

In this capacity, therefore, of general of the kingdom, the king has the sole power of raising and regulating fleets and armies. The manner in which they are raised and regulated is explained under the article MI-

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LITARY State. We are now only to consider the prerogative of enlisting and of governing them: which indeed was disputed and claimed, contrary to all reason and precedent, by the long parliament of King Chas. I.; but, upon the restoration of his son, was solemnly declared by the statute 13 Charles II. c. 6. to be in the king alone: for that the sole supreme government and command of the militia within all his majesty's realms and dominions, and of all forces by sea and land, and of all forts and places of strength, ever was and is the undoubted right of his majesty, and his royal predecessors, kings and queens of England; and that both or either house of parliament cannot, nor ought to, pretend to the same.

This statute, it is obvious to observe, extends not only to fleets and armies, but also to forts and other places of strength within the realm; the sole prerogative, as well of erecting, as manning and governing of which, belongs to the king in his capacity of general of the kingdom: and all lands were formerly subject to a tax, for building of castles wherever the king thought proper. This was one of the three things, from contributing to the performance of which no lands were exempted, and therefore called by the Anglo-Saxons the *trinoda necessitas*; *sc. pontis reparatio, arcis constructio, et expeditio contra hostem.* And this they were called upon to do so often, that, as Sir Edward Coke from M. Paris assures us, there were in the time of Henry II. 1115 castles subsisting in England. The inconveniencies of which, when granted out to private subjects, the lordly barons of those times, were severely felt by the whole kingdom; for, as William of Newburgh remarks in the reign of King Stephen, *erant in Anglia quodammodo tot reges, vel potius tyranni, quot domini castellorum*; but it was felt by none more sensibly than by two succeeding princes, King John and King Henry III. And therefore, the greatest part of them being demolished in the barons wars, the kings of after times have been very cautious of suffering them to be rebuilt in a fortified manner: and Sir Edward Coke lays it down, that no subject can build a castle, or house of strength unbattled, or other fortrefs defensible, without the license of the king; for the danger which might ensue, if every man at his pleasure might do it.

It is partly upon the same, and partly upon a fiscal foundation, to secure his marine revenue, that the king has the prerogative of appointing *ports* and *havens*, or such places only, for persons and merchandise to pass into and out of the realm, as he in his wisdom sees proper. By the feudal law, all navigable rivers and havens were computed among the regalia, and were subject to the sovereign of the state. And in England it hath always been held, that the king is lord of the whole shore, and particularly is the guardian of the ports and havens, which are the inlets and gates of the realm: and therefore, so early as the reign of King John, we find ships seized by the king's officers for putting in at a place that was not a legal port. These legal ports were undoubtedly at first assigned by the crown; since to each of them a court of portmote is incident, the jurisdiction of which must flow from the royal authority: the *great ports* of the sea are also referred to, as well known and established, by statute 4 Hen. IV. c. 20. which prohibits the landing elsewhere under pain of confiscation: and the statute 1 Eliz. c. 11. recites, that

the franchise of lading and discharging had been frequently granted by the crown.

But though the king had a power of granting the franchise of havens and ports, yet he had not the power of resumption, or of narrowing and confining their limits when once established; but any person had a right to load or discharge his merchandise in any part of the haven: whereby the revenue of the custom was much impaired and diminished, by fraudulent landings in obscure and private corners. This occasioned the statutes of 1 Eliz. c. 11. and 13 and 14 Car. II. c. 11. § 14. which enable the crown by commission, to ascertain the limits of all ports, and to assign proper wharfs and quays in each port, for the exclusive landing and loading of merchandise.

The erection of beacons, light-houses, and sea-marks, is also a branch of the royal prerogative: whereof the first was anciently used in order to alarm the country, in case of the approach of an enemy; and all of them are signally useful in guiding and preserving vessels at sea by night as well as by day. See BEACON.

3. Another capacity in which the king is considered in domestic affairs, is as the fountain of justice and general conservator of the peace of the kingdom. See the article *Fountain of JUSTICE.*

4. The king is likewise the fountain of honour, of office, and of privilege: and this in a different sense from that wherein he is stiled the *fountain of justice*; for here he is really the parent of them. See the articles *Fountain of JUSTICE* and *Fountain of HONOUR.*

5. Another light, in which the laws of England consider the king with regard to domestic concerns, is as the arbiter of commerce. By commerce, we at present mean domestic commerce only; for the king's prerogative with regard to which, see *Regulation of WEIGHTS and Measures, MONEY, &c.*

6. The king is, lastly, considered by the laws of England as the head and supreme governor of the national church.

To enter into the reasons upon which this prerogative is founded is matter rather of divinity than of law. We shall therefore only observe, that by statute 26 Hen. VIII. c. 1. (reciting that the king's majesty justly and rightfully is and ought to be the supreme head of the church of England; and so had been recognized by the clergy of that kingdom in their convocation) it is enacted, that the king shall be reputed the only supreme head on earth of the church of England; and shall have, annexed to the imperial crown of this realm, as well the title and style thereof, as all jurisdictions, authorities, and commodities, to the said dignity of supreme head of the church appertaining. And another statute to the same purport was made, 1 Eliz. c. 1.

In virtue of this authority the king convenes, prorogues, restrains, regulates, and dissolves, all ecclesiastical synods or convocations. This was an inherent prerogative of the crown long before the time of Henry VIII. as appears by the statute 8 Hen. VI. c. 1. and the many authors, both lawyers and historians, vouched by Sir Edward Coke. So that the statute 25 Hen. VIII. c. 19. which restrains the convocation from making or putting in execution any canons repugnant to the king's prerogative, or the laws, customs, and statutes of the realm, was merely declaratory of the old common law: that part of it only being new, which makes the king's royal

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assent actually necessary to the validity of every canon. The convocation or ecclesiastical synod, in England, differs considerably in its constitution from the synods of other Christian kingdoms: these consisting wholly of bishops; whereas in England the convocation is the miniature of a parliament, wherein the archbishop presides with regal state; the upper house of bishops represents the house of lords; and the lower house, composed of representatives of the several dioceses at large, and of each particular chapter therein, resembles the house of commons with its knights of the shire and burgesses. This constitution is said to be owing to the policy of Edward I. who thereby at one and the same time let in the inferior clergy to the privileges of forming ecclesiastical canons (which before they had not), and also introduced a method of taxing ecclesiastical benefices, by consent of convocation.

From this prerogative also, of being the head of the church, arises the king's right of nomination to vacant bishoprics, and certain other ecclesiastical preferments.

As head of the church, the king is likewise the *dernier resort* in all ecclesiastical causes; an appeal lying ultimately to him in chancery from the sentence of every ecclesiastical judge: which right was restored to the crown by statute 25 Hen. VIII. c. 9.

III. The king's fiscal prerogatives, or such as regard his revenue. See the article REVENUE.

PREROGATIVE-COURT, an English court established for the trial of all testamentary causes, where the deceased hath left *bona notabilia* within two different dioceses. In which case the probate of wills belongs to the archbishop of the province, by way of special prerogative. And all causes relating to the wills, administrations, or legacies of such persons, are originally cognizable herein, before a judge appointed by the archbishop, called the *judge of the prerogative-court*; from whom an appeal lies by statute 25 Hen. VIII. c. 19. to the king in chancery, instead of the pope as formerly.

PRESAGE, in *Antiquity*, denotes an augury, or sign of some future event; which was chiefly taken from the flight of birds, the entrails of victims, &c. See AUGURY and ARUSPICES.

PRESBURG, the capital of the kingdom of Lower Hungary, called by the inhabitants *Pofony* and *Presporan*, situated on the Danube, about 46 miles east from Vienna, and 75 from Buda. The castle, in which the regalia are kept, stands on a hill above the town. Here the states assemble; and in the cathedral, dedicated to St Martin, the king is crowned. The town is not very large, or well built; but is very ancient, pleasantly situated, and enjoys a good air. The population is computed at 27,000. Its fortifications are only a double wall and ditch. In the lower suburbs is a hill, where the king, after his coronation, goes on horseback, and brandishes St Stephen's sword towards the four cardinal points, intimating, that he will defend his country against all its enemies. Besides the cathedral, there are several other Popish and one Lutheran church, with a Jesuits college, three convents, and two hospitals. It gives name to a county; and is the residence of the archbishop of Gran, who is primate, chief secretary, and chancellor of the kingdom, *legatus natus* of the Papal see, and prince of the holy Roman empire. E. Long. 17. 30. N. Lat. 48. 20.

PRESBYTÆ, persons whose eyes are too flat to re-

fract the rays sufficiently, so that unless the object is at some distance, the rays coming from it will pass through the retina before their union, consequently vision is confused; old people are usually the subjects of this disease. In order to remedy, or at least to palliate, this defect, the person should first use glasses which do not magnify, and from them pass gradually to more convex spectacles, which shorten the focus.

PRESBYTER, in the primitive Christian church, an elder, one of the second order of ecclesiastics; the other two being bishops and deacons. See the article BISHOP and DEACON.

Presbyter, or elder, is a word borrowed from the Greek translation of the Old Testament, where it commonly signifies ruler or governor; it being a note of office and dignity, not of age; and in this sense bishops are sometimes called *presbyters* in the New Testament. The presbyters might baptize, preach, consecrate, and administer the eucharist in the bishop's absence, or in his presence if he authorized and deputed them; and the bishops did scarce any thing in the government of the church without their advice, consent, and amicable concurrence.

The grand dispute between the followers of the Geneva and Roman discipline, is about the sameness and difference of presbyters and bishops at the time of the apostles. See EPISCOPACY, INDEPENDENTS, and the following article.

PRESBYTERIANS, Protestants so called from their maintaining that the government of the church appointed in the New Testament was by Presbyteries, that is, by associations of ministers, and ruling elders, possessed all of equal powers, without any superiority among them either in office or in order.

The Presbyterians believe, that the authority of their ministers to preach the gospel, to administer the sacraments of baptism and the Lord's supper, and to feed the flock of Christ, is derived from the Holy Ghost by the imposition of the hands of the presbytery; and they oppose the independent scheme of the common rights of Christians by the same arguments which are used for that purpose by the Episcopalians, (see EPISCOPACY). They affirm, however, that there is no order in the church as established by Christ and his apostles superior to that of presbyters; that all ministers being ambassadors of Christ, are equal by their commission; that *presbyter* and *bishop*, though different words, are of the same import; and that prelacy was gradually established upon the primitive practice of making the *moderator* or speaker of the presbytery a permanent officer.

These positions they maintain against the Episcopalians by the following scriptural arguments. They observe, that the apostles planted churches by ordaining bishops and deacons in every city; that the ministers which in one verse are called bishops, are in the next perhaps denominated presbyters; that we nowhere read in the New Testament of bishops, presbyters, and deacons, in any one church; and that therefore we are under the necessity of concluding *bishop* and *presbyter* to be two names for the same church officer. This is apparent from Peter's exhortation to the *elders* or *presbyters* who were among the Jewish Christians, "The *elders* (presbyters) which are among you I exhort, who am also an *elder*, and a witness of the sufferings of Christ, and also a partaker of the glory that shall be revealed;

Presbyter
||
Presbyterians.

Discriminating principle of the Presbyterians.

Scriptural arguments against Episcopacy.

Presby-
terians.

* 1. Peter
v. 1, 2, 3.

3
Reasons for
supposing
bishops and
presbyters
of the same
order.

† Chap. v.
14.

vealed: Feed the flock of God which is among you, taking the oversight thereof (ἐπισκοποῦντες acting as *bishops* thereof), not by constraint, but willingly; not for filthy lucre, but of a ready mind; neither as being LORDS over God's heritage, but being ensamples to the flock *." From this passage it is evident, that the presbyters not only fed the flock of God, but also governed that flock with episcopal powers; and that the apostle himself, as a church officer, was nothing more than a presbyter or elder. The identity of the office of bishop and presbyter is still more apparent from Heb. xiii. 7. 17. and 1 Theff. v. 12.; for the bishops are there represented as governing the flock, speaking to them the word of God, watching for their souls, and discharging various offices, which it is impossible for any man to perform to more than one congregation.

From the last cited text it is evident, that the bishops (ἐπισκοπεύοντες) of the Thessalonian churches had the pastoral care of no more souls than they could hold personal communion with in God's worship; for they were such as all the people were to know, esteem, and love, as those that not only were over them, but also "closely laboured among them, and admonished them." But diocesan bishops, whom ordinarily the hundredth part of their flock never hear nor see, cannot be those bishops by whom that flock is admonished, nor can they be, what Peter requires the bishops of the Jewish converts to be, *ensamples to the flock*. It is the opinion of Dr Hammond, who was a very learned divine, and a zealot for episcopacy, that the *elders* whom the apostle James desires † the sick to call for, were of the highest permanent order of ecclesiastical officers; but it is self-evident that those elders cannot have been diocesan bishops, otherwise the sick must have been often without the reach of the remedy proposed to them.

There is nothing in Scripture upon which the Episcopalian is more ready to rest his cause than the alleged episcopacy of Timothy and Titus; of whom the former is said to have been bishop of Ephesus, and the latter bishop of Crete; yet the Presbyterian thinks it as clear as the noon-day sun, that the presbyters of Ephesus were supreme governors under Christ of the Ephesian churches, at the very time that Timothy is pretended to have been their proper diocesan.

In Acts xx. 17, &c. we read, that "from Miletus Paul sent to Ephesus, and called the elders (presbyters) of the church. And when they were come to him, he said unto them, Ye know, from the first day that I came into Asia, after what manner I have been with you, at all seasons. And now I know that ye all, among whom I have gone preaching the kingdom of God, shall see my face no more. Wherefore I take you to record this day, that I am pure from the blood of all men. For I have not shunned to declare unto you all the counsel of God. Take heed therefore unto yourselves, and to all the flock over which the Holy Ghost hath made you overseers (ἐπισκοπους, *bishops*), to feed the church of God, which he hath purchased with his own blood. For I know this, that after my departure shall grievous wolves enter in among you, not sparing the flock. Also of your own selves shall men arise, speaking perverse things, to draw away disciples after them. Therefore watch, and remember, that by the space of three years, I ceased not to warn every one night and day with tears.

And now, brethren, I recommend you to God, and to the word of his grace," &c.

From this passage, it is evident that there was in the city of Ephesus a plurality of pastors of equal authority without any superior pastor or bishop over them; for the apostle directs his discourse to them all in common, and gives them equal power over the whole flock. Dr Hammond indeed imagines, that the elders whom Paul called to Miletus were the *bishops of Asia*, and that he sent for them to Ephesus, because that city was the metropolis of the province. But were this opinion well-founded, it is not conceivable that the sacred writer would have called them the elders of the church of Ephesus, but the elders of the church in general, or the elders of the churches in Asia. Besides, it is to be remembered, that the apostle was in such haste to be at Jerusalem, that the sacred historian measures his time by *days*; whereas it must have required several months to call together the bishops or elders of all the cities of Asia; and he might certainly have gone to meet them at Ephesus in less time than would be requisite for their meeting in that city and proceeding thence to him at Miletus. They must therefore have been either the joint pastors of one congregation, or the pastors of different congregations in one city; and as it was thus in Ephesus, so was it in Philippi; for we find the apostle addressing his epistle "to all the saints in Christ Jesus which are at Philippi, with the bishops and deacons." From the passage before us it is likewise plain, that the presbyters of Ephesus had not only the name but the whole power of bishops given to them by the Holy Ghost; for they are enjoined to do the whole work of bishops—ποιμαίνειν τὴν ἐκκλησίαν τοῦ Θεοῦ.—which signifies, to rule as well as feed the church of God. Whence we see, that the apostle makes the power of governing inseparable from that of preaching and watching; and that according to him, all who are preachers of God's word, and watchmen of souls, are necessarily rulers or governors of the church, without being accountable for their management to any prelate, but only to their Lord Christ from whom their power is derived.

It appears, therefore, that the apostle Paul left in the church of Ephesus, which he had planted, no other successors to himself than *presbyter-bishops*, or Presbyterian ministers, and that he did not devolve his power upon any prelate. Timothy, whom the Episcopalian alleges to have been the first bishop of Ephesus, was present when this settlement was made *; and it is surely not to be supposed, that had he been their bishop, the apostle would have devolved the whole episcopal power upon the presbyters before his face. If ever there was a season fitter than another for pointing out the duty of this supposed bishop to his diocese, and his presbyters duty to him, it was surely when Paul was taking his final leave of them, and discoursing so pathetically concerning the duty of overseers, the coming of ravenous wolves, and the consequent hazard of the flock. In this farewell discourse, he tells them that "he had not shunned to declare unto them all the counsel of God." But with what truth could this have been said, if obedience to a diocesan bishop had been any part of their duty either at the time of the apostle's speaking or at any future period? He foresaw that ravenous wolves would enter in among them, and that even some of themselves should arise

Presbyterians.
4
The pastors of Ephesus of equal authority.

5
Timothy no bishop

* Acts xx.

Presbyterians.

Presbyterians.

arise speaking perverse things; and if, as the Episcopalian allege, diocesan episcopacy was the remedy provided for those evils, is it not strange, passing strange, that the inspired preacher did not foresee that Timothy, who was standing beside him, was destined to fill that important office; or if he did foresee it, that he omitted to recommend him to his future charge, and to give him proper instructions for the discharge of his duty?

thing more than presbyters or parish ministers. This being the case, the dispute, which in the early part of the passing century was so warmly agitated concerning the validity of Presbyterian ordination, may be soon decided; for if the ceremony of ordination be at all essential, it is obvious that such a ceremony performed by presbyters must be valid, as there is no higher order of ecclesiastics in the church by whom it can be performed. Accordingly we find, that Timothy himself, though said to be a bishop, was ordained by the laying on of the hands of a presbytery. At that ordination indeed St Paul presided, but he could preside only as *primus in paribus*; for we have seen that, as permanent officers in the church of Christ, the apostles themselves were no more than presbyters. If the apostles hands were imposed for any other purpose, it must have been to communicate those *charismata* or miraculous gifts of the Holy Spirit, which were then so frequent; but which no modern presbyter or bishop will pretend to give, unless his understanding be clouded by the grossest ignorance, or perverted by the most frantic enthusiasm.

6
but an evangelist.

* 2 Tim. iv. 5.

† Phil. ii. 19.
I. Cor. iv. 17. xvi. 10. 11.

† 1 Tim. i. 3.

But if Timothy was not bishop of Ephesus, what, it may be asked, was his office in that city? for that he resided there for some time, and was by the apostle invested with authority to ordain and rebuke presbyters, are facts about which all parties are agreed, and which indeed cannot be controverted by any reader of Paul's epistles. To this the Presbyterian replies with confidence, that the power which Timothy exercised in the church of Ephesus was that of an evangelist*, and not a fixed prelate. But, according to Eusebius, the work of an evangelist was, "to lay the foundations of the faith in barbarous nations, and to constitute among them pastors; after which he passed on to other countries." Accordingly we find, that Timothy was resident for a time at Philippi and Corinth † as well as at Ephesus, and that he had as much authority over those churches as over that of which he is said to have been the fixed bishop. "Now, if Timotheus come, see that he may be with you without fear, for he worketh the work of the Lord, as I also do. Let no man therefore despise him." This text might lead us to suppose, that Timothy was bishop of Corinth as well as of Ephesus; for it is stronger than that upon which his episcopacy of the latter church is chiefly built. The apostle says, "I besought thee † to abide still at Ephesus, when I went into Macedonia, that thou mightest charge some that they teach no other doctrine." But had Timothy been the fixed bishop of that city, there would surely have been no necessity for *beseeching* him to abide with his flock. It is to be observed, too, that the first epistle to Timothy, which alone was written to him during his residence at Ephesus, was of a date prior to Paul's meeting with the elders of that church at Miletus; for in the epistle he hopes to come to him shortly, whereas he tells the elders at Miletus, that they should see his face no more. This being the case, it is evident that Timothy was left by the apostle at Ephesus only to supply his place during his temporary absence at Macedonia, and that he could not possibly have been constituted fixed bishop of that church, since the episcopal powers were afterwards committed to the presbyters by the Holy Ghost in his presence.

But if the office of bishop and presbyter was originally the same, how, it will be asked, came diocesan episcopacy to prevail so universally as it is confessed to have done before the conversion of Constantine and the civil establishment of Christianity in the Roman empire? To give a satisfactory answer to this question is certainly the most arduous task which the advocate for presbytery has to perform; but it is a task not insurmountable.

From many passages in the New Testament*, it is evident, that when the apostles planted churches in different cities, they generally settled more than one pastor in the same church, to feed and govern it with joint authority. The propriety of this constitution is obvious. In those days, when the disciples of Christ were persecuted for their religion, and often obliged to meet in the "night for fear of the Jews," they could not with any degree of prudence assemble in large numbers; and therefore, had there been no more than one pastor in a city, the Christian converts, though, when assembled, they might have amounted to but a small congregation, could not all have enjoyed the benefit of public worship on the same day; at least it is obvious that they could not possibly have assembled for this purpose so often as their want of instruction, and the duty of "breaking of bread and of prayer," required them to meet. It was therefore with great wisdom that the apostles ordained several presbyters in the same church; but as these presbyters would have occasion to meet frequently, and to deliberate on the state of the flock which it was their duty to feed, and over which they had all equal authority, they would be under the necessity of electing one of their own number to be president or *moderator* of the presbytery, that order might be preserved, and all things done with decency. At first there is reason to believe that those presidents held their office no longer than while the presbyteries sat in which they were elected. Among the apostles themselves there was no fixed president. Peter indeed appears to have been most frequently admitted to that honour; but there is one very memorable occasion on record †, when James the Lord's brother presided in an assembly of apostles, elders, and brethren, held at Jerusalem, to determine the question

7
Presbyterate the highest permanent office in the church.

The identity of the office of bishop and presbyter being thus clearly established, it follows, that the presbyterate is the highest permanent office in the church, and that every faithful pastor of a flock is successor to the apostles in every thing in which they were to have any successors. In the apostolic office there were indeed some things peculiar and extraordinary, such as their immediate call by Christ, their infallibility, their being witnesses of our Lord's resurrection, and their unlimited jurisdiction over the whole world. These powers and privileges could not be conveyed by imposition of hands to any successors, whether called presbyters or bishops; but as rulers or office-bearers in particular churches, we have the confession of "the very chiefest apostles," Peter and John, that they were no

8
Life of E.
episcopacy.
* Acts xi. 29. xiii. 14.
2, 3. xv. Tit. i. 5.

† Acts 21.

Presbyterians.

tion concerning the necessity of circumcising the Gentiles, and commanding them to keep the law of Moses.

Upon this model were the primitive presbyteries formed. They consisted of several presbyters possessed of equal powers, who at their meetings appointed one of their own number to discharge the office of moderator or temporary president; but to this president they gave no prelatical powers or negative voice over the deliberations of his brethren; for, as Jerome informs us, the church was then governed *communī presbyterorum concilio*, "by a common council of presbyters." It appears, however, that when an apostle, an apostolical man, or an evangelist, fixed his residence in any city, and took upon himself the pastoral care of part of the flock, his co-presbyters, from respect to his singular gifts, made him their constant and fixed moderator. Hence Timothy, during his abode at Ephesus, was moderator of the presbytery; and hence too Mark the evangelist, who resided many years in Alexandria, has been called the first bishop of that church, though he appears to have been nothing more than permanent moderator. We advance this upon the authority of Jerome, one of the most learned fathers of the Christian church, who informs us, that upon the death of the evangelist, the presbyters of Alexandria, for more than 200 years, chose their bishops from their own number, and placed them in the episcopal chair, without dreaming that they ought to be raised to a higher order by a new consecration;—*Presbyteri unum ex se electum in excellentiori gradu collocatum, episcopum nominabant*. As this practice of making the moderator of the presbytery of Alexandria a permanent officer, was thought a good expedient to guard the infant churches against schisms and divisions, those churches gradually adopted it. For, as Jerome tells us, *Postquam unusquisque eos quos baptizaverat, suos putabat esse, non Christi, in toto orbe decretum est, ut unus de presbyteris electus, superponeretur cæteris, ad quem omnis ecclesie cura pertineret, et schismatum semina tollerentur*.

The advantages which, in displaying his talents and authority, the perpetual president or speaker of any assembly has over his colleagues in office, are so obvious, that when the practice of electing their moderators for life became universal among the presbyteries of the primitive church, it is easy to conceive how ambitious men might so magnify the difficulties and importance of their station, as to introduce the custom of filling it by a new consecration of the bishop elect. But when this was done, diocesan episcopacy, with all its powers and prerogatives, would follow as a thing of course, until "by little and little (as Jerome expresses himself) the whole pastoral care of the flock was devolved upon one man."

Our limits will not permit us to trace more minutely the rise and progress of this ecclesiastical usurpation, as the Presbyterian calls it; but the reader who wishes for fuller information, after studying the remains of the four first centuries of the Christian church, may consult *An Inquiry into the Constitution, Discipline, and Worship, of the Primitive Church*, said to have been written by Sir Peter King, afterwards lord chancellor of England. As an impartial lover of truth, he will do well to consult also a book entitled, *An original Draught of the Primitive Church*, which was published as an answer to the Inquiry; and he may read with much advantage to himself *A Letter from a parochial bishop to a prelatical gentleman, with An apology for the church of Scotland*,

both written by Mr Willison some time minister in Dundee, and both evincing considerable learning and great ingenuity in their pious author.

Of the churches at present formed upon this model, we believe, that without incurring the imputation of national prejudice, we may safely affirm the church of Scotland to be by much the most respectable. Her mode of worship is simple and solemn; her established faith agreeable to the confessions of most other Protestant churches; her judicatories are calculated to maintain the rights of the people; and her pastors are confessedly men of liberal and enlightened minds. On these accounts it appears to us, that we cannot more properly conclude this article than with a short view of her constitution, as being that in which our Presbyterian readers are undoubtedly most interested.

No one is ignorant, that from the first dawn of reformation among us, till the era of the revolution, there was a perpetual struggle between the court and the people for the establishment of an Episcopal or a Presbyterian form of church government: The former model of ecclesiastical polity was patronised by the house of Stuart on account of the support which it gave to the prerogatives of the crown; the latter was the favourite of the majority of the people, perhaps not so much on account of its superior claim to apostolical institution, as because the laity are mixed with the clergy in church judicatories, and the two orders, which under episcopacy are kept so distinct, incorporated, as it were, into one body. In the Scottish church, every regulation of public worship, every act of discipline, and every ecclesiastical censure, which in other churches flows from the authority of a diocesan bishop, or from a convocation of the clergy, is the joint work of a certain number of clergymen and laymen acting together with equal authority, and deciding every question by a plurality of voices. The laymen who thus form an essential part of the ecclesiastical courts of Scotland, are called *ruling elders*; and hold the same office, as well as the same name, with those brethren* who joined with the apostles and elders at Jerusalem in determining the important question concerning the necessity of imposing upon the Gentile converts the ritual observances of the law of Moses. These lay-elders Paul enjoined Timothy † to account worthy of double honour, if they should rule well, and discharge the duties for which they were separated from the multitude of their brethren. In the church of Scotland every parish has two or three of those lay-elders, who are grave and serious persons, chosen from among the heads of families, of known orthodoxy and steady adherence to the worship, discipline, and government of the church. Being solemnly engaged to use their utmost endeavours for the suppression of vice and the cherishing of piety and virtue, and to exercise discipline faithfully and diligently, the minister, in the presence of the congregation, sets them apart to their office by solemn prayer; and concludes the ceremony, which is sometimes called ordination, with exhorting both elders and people to their respective duties.

The kirk-session, which is the lowest ecclesiastical judicatory, consists of the minister and those elders of the congregation. The minister is *ex officio* moderator, but has no negative voice over the decision of the session; nor indeed has he a right to vote at all, unless when the voices of the elders are equal and opposite. He

may

9
According to Jerome.

Presbyterians.

10
The church of Scotland

11
by clergymen and laymen.

* Acts xv.

† 1 Tim. v.

12
The kirk-session.

Presby-
terians.

may indeed enter his protest against their sentence, if he think it improper, and appeal to the judgement of the presbytery; but this privilege belongs equally to every elder, as well as to every person who may believe himself aggrieved by the proceedings of the session. The deacons, whose proper office it is to take care of the poor, may be present in every session, and offer their counsel on all questions that come before it; but except in what relates to the distribution of alms, they have no decisive vote with the minister and elders.

13
The pres-
bytery.

The next judicatory is the *presbytery*, which consists of all the pastors within a certain district, and one ruling elder from each parish, commissioned by his brethren to represent, in conjunction with the minister, the session of that parish. The presbytery treats of such matters as concern the particular churches within its limits; as the examination, admission, ordination, and censuring of ministers; the licensing of probationers, rebuking of gross or contumacious sinners, the directing of the sentence of excommunication, the deciding upon references and appeals from kirk-sessions, resolving cases of conscience, explaining difficulties in doctrine or discipline; and censuring, according to the word of God, any heresy or erroneous doctrine which hath either been publicly or privately maintained within the bounds of its jurisdiction. Partial as we may be thought to our own church, we frankly acknowledge that we cannot altogether approve of that part of her constitution which gives an equal vote, in questions of heresy, to an illiterate mechanic and his enlightened pastor. We are persuaded that it has been the source of much trouble to many a pious clergyman; who, from the laudable desire of explaining the scriptures and declaring to his flock all the counsel of God, has employed a variety of expressions of the same import, to illustrate those articles of faith which may be obscurely expressed in the established standards. The fact however is, that, in presbyteries, the only prerogatives which the pastors have over the ruling elders, are the power of ordination by imposition of hands, and the privilege of having the moderator chosen from their body.

14
The provin-
cial syn-
od.

From the judgement of the presbytery there lies an appeal to the provincial synod, which ordinarily meets twice in the year, and exercises over the presbyteries within the province a jurisdiction similar to that which is vested in each presbytery over the several kirk-sessions within the bounds. Of these synods there are in the church of Scotland fifteen, which are composed of the members of the several presbyteries within the respective provinces which give names to the synods.

15
The gene-
ral assem-
bly.

The highest authority in the church of Scotland is the general assembly, which consists of a certain number of ministers and ruling elders delegated from each presbytery, and of commissioners from the universities and royal boroughs. A presbytery in which there are fewer than twelve parishes, sends to the general assembly two ministers and one ruling elder: if it contain between 12 and 18 ministers, it sends three of the same, and one ruling elder: if it contains between 18 and 24 ministers, it sends four ministers and two ruling elders: and of 24 ministers, when it contains so many, it sends five with two ruling elders. Every royal borough sends one ruling elder, and Edinburgh two: whose election must be attested by the kirk-sessions of their respective boroughs. Every university sends one commissioner from its own

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body. The commissioners are chosen annually six weeks before the meeting of the assembly; and the ruling elders are often men of the first eminence in the kingdom for rank and talents. In this assembly, which meets once a year, the king presides by his commissioner, who is always a nobleman; but he has no voice in their deliberations. The order of their proceedings is regular, though sometimes the number of members creates a confusion, which the moderator, who is chosen from among the ministers, to be, as it were, the speaker of the house, has not sufficient authority to prevent. Appeals are brought from all the other ecclesiastical courts in Scotland to the general assembly; and in questions purely religious no appeal lies from its determinations.—In the subordination of these assemblies, parochial, presbyterial, provincial, and national, the less unto the greater, consists the external order, strength, and steadfastness of the church of Scotland.

PRESCIENCE, in theology, prevision or foreknowledge; that knowledge which God has of things to come.—The doctrine of predestination is founded on the prescience of God, and on the supposition of all future's being present to him. See PREDESTINATION.

PRESCRIPTION, in law, is a title acquired by use and time, and allowed by law; as when a man claims any thing, because he, his ancestors, or they whose estate he hath, have had or used it all the time whereof no memory is to the contrary: or it is where for continuance of time, *ultra memoriam hominis*, a particular person hath a particular right against another.

There is a difference between prescription, custom, and usage. *Prescription* hath respect to a certain person, who *by intendment* may have continuance *for ever*; as for instance, he and all they *whose estate he hath* in such a thing; this is a prescription: but *custom* is *local*, and always applied to a *certain place*; as, *time out of mind there has been such a custom in such a place*, &c. And *prescription* belongeth to *one* or a *few* only; but *custom* is common to *all*. *Usage* differs from both, for it may be either to *persons* or *places*; as to *inhabitants of a town to have a way*, &c.

A custom and prescription are in the *right*; usage is in the *possession*; and a prescription that is good for the matter and substance, may be had by the manner of setting it forth: but where that which is claimed as a *custom*, in or for many, will be good, that regularly will be so when claimed by *prescription* for one. *Prescription* is to be *time out of mind*; though it is not the length of time that begets the right of prescription, nothing being done by time, although every thing is done in time; *but it is a presumption in law, that a thing cannot continue so long quiet, if it was against right, or injurious to another*.

PRESCRIPTION, in Scotch law. See LAW, p. 675. and 702.

PRESCRIPTION, in theology, was a kind of argument pleaded by Tertullian and others in the 3d century against erroneous doctors. This mode of arguing has been despised by some, both because it has been used by Papists, and because they think that truth has no need of such a support. But surely in disputed points, if it can be shown that any particular doctrine of Christianity was held in the earliest ages, even approaching the apostolic, it must have very considerable weight; and indeed that it has so, appears from the universal appeals

Presby-
terians
||
Prescrip-
tion.

Prescrip-
tions.

of all parties to those early times in support of their particular opinions. Besides, the thing is in itself natural; for if a man finds a variety of opinions in the world upon important passages in scripture, where shall he be so apt to get the true sense as from cotemporary writers or others who lived very near the apostolic age? and if

such a man shall find any doctrine or interpretation to have been universally believed in the first ages, or as Vincentius Lirinensis words it, *semper ubique et ab omnibus*, he will unquestionably be disposed to think such early and universal consent, or such prescription, of very considerable weight in determining his opinion.

Prescrip-
tions.

EXTEMPORANEOUS PRESCRIPTIONS.

Introduc-
tion.

1
Nature of
a medical
prescrip-
tion.

A PRESCRIPTION, in a medical sense, signifies much the same with what in common language is called a *receipt*, being "a form of direction for the preparation and administration of some compound medicine." These *medical receipts* are commonly called *formule* by physicians; and the term *prescription* is applied to what is written by a physician on seeing his patient, instructing the apothecary what medicines are to be prepared, how they are to be composed, and how administered to the patient. In this sense, a prescription may contain two or more *formule*.

These prescriptions are almost always written in Latin, and are expressed in a peculiar style, which, though well known to physicians and apothecaries, may require the illustration of an example. The following is a specimen of a modern prescription, as it would be written by an Edinburgh and a London physician, according to the nomenclature of their respective college Pharmacopœias.

Edinburgh Prescription.

For Mr ———.

2
Examples.

℞ Pulv. Rad. Rhei palmati gr. xxv.
Tartritis Potassæ ʒij.
Tincturæ Sennæ compositæ,
Syrupi Rosæ centifoliæ āā ʒij.
Aquæ Menthæ piperitæ ʒiss.
M. f. *Potio summo mane sumenda.*
Jan. 31. 1809.

G. F.

London Prescription.

℞ Pulv. Rhei gr. xxv.
Kali Tartarisati ʒij.
Tincturæ Senæ
Syrupi Rosæ āā ʒij.
Aquæ Menthæ piperitidis ʒiss.
M. &c.

3
Parts of a
prescrip-
tion.

From the above examples, it will be seen that a prescription, properly so called, contains several circumstances beside the *formule* or *receipts*, as the name of the *patient*, for whom the prescription is written; the signature of the *physician*, as G. F. for George Fordyce, &c. and the *date of prescribing*; none of which should be omitted, as the prescriptions are carefully preserved by the apothecary, for future reference.

4
Parts of a
formula.

It may be proper to explain some circumstances respecting the *formula* given in the above prescription. The ℞ with which it commences signifies *recipe* or *take*; and is prefixed to all medical receipts. Then follow the several ingredients of which the medicine is to be composed, with the quantities of each. These quantities are usually marked by peculiar characters or symbols, which

will be examined hereafter; and the numbers employed are usually the Roman numerals. After the ingredients have been enumerated, and their quantities specified, there follows the title of the medicine, as *Potio* in the present instance, signifying *potion* or *purging draught*, with M. f. prefixed to it, which stand for *misce fiat*, or *misce ut fiat*, mix to make; and lastly the direction how the medicine is to be taken or administered; *summo mane sumenda*; to be taken early in the morning. In England, these directions are always written in Latin, but in Scotland it is, we believe, more common to write them in English. We shall consider the propriety of this latter mode in a future part of this article.

The ingredients of which a formula is composed have been, by writers on medical prescriptions, arranged under four heads: 1. The *basis* of the formula, which in the present instance is the rhubarb, constituting the principal ingredient, on whose action, modified where necessary, the chief success of the medicine, in fulfilling the required indication, is to depend. 2. The *adjuvant* or auxiliary, added to the basis, for the purpose of increasing its power, expediting its action, or rendering it more easily soluble in the juices of the stomach; in the above formula the *tartrate of potash* is the principal adjuvant. 3. The *correcter*, added to the basis, when we wish to moderate or delay its action, to correct some unpleasant or injurious property of it, such as its odour, taste, acrimony, &c. or to prevent it from acting on the body in a different manner from that which the indication requires: thus, in the present formula, the warm *tincture of senna* is added, rather to correct the griping quality of the rhubarb, than to increase its action, and the *syrup of roses* to correct the unpleasant taste of the medicine; and the *essential oil* in the peppermint water contributes to both these purposes: these, therefore, are to be considered as the correctors. 4. The *constituent*, or that ingredient which serves to reduce the rest into the form which is considered as most convenient for the exhibition of the medicine; in the present case the *peppermint water* is the constituent, serving to reduce the medicine to the form of a potion or draught.

Medical *formule* are either *officinal*, or *extemporaneous*; Division of the former being such as are directed by authority of some public medical college to be kept in the shops of apothecaries, and the preparation of which is described in their *pharmacopœias* or dispensatories; the latter such as are prescribed by the physician or surgeon as occasion may require.

Having explained the nature of a prescription, and enumerated the several circumstances which are usually comprised in it, we propose, in the present article, to consider the importance of acquiring the habit of writing prescriptions with ease, elegance, and scientific accuracy;

Importance of the Subject.

Importance of the Subject.

7 Advantages of composition.

cy; the previous information required by a physician, to enable him to prescribe properly in the several cases which come under his care; the general rules which we deem it necessary to lay down for attaining the art of prescribing with neatness and accuracy; and lastly, we propose to give a brief historical view of the progress of pharmacy from the revival of literature to the present time, with a critical examination of some of the best writings on this subject.

I. Before considering the importance of learning the art of prescribing, it may be proper to explain why such an art is required, or to point out the advantages to be expected from the composition of several simples in the same medicine. There are indeed a few drugs, which cannot be more efficacious in the generality of cases than when in their most simple state. Thus, crude *opium* in a pill, *cinchona bark* or *ipecaquan* in powder, mixed with some ordinary liquid, afford the most effectual, as well as the most simple remedies. The same may be remarked of *mustard seeds*, *white pepper*, and *garlic* swallowed whole, and so of a few others. In general, however, it is much more convenient, and in many cases it is absolutely necessary, to have recourse to composition. Many remedies cannot be taken or applied in their simple state, especially such as are used externally; while others are rendered more certain, safe, or expeditious, by being combined with others. Thus *opium* and *tartrate of antimony and potash* are both *diaphoretics*, or sweating medicines; but when combined, their effect, in this way, is considerably increased. (See Kirby's Tables, formula 27. and 28.). So of *jallap* and *calomel* as purgatives (Ibid. form. 49.). *Opium* with many patients produces headach; but if *citric acid* (lemon juice) be added, this unpleasant symptom seldom takes place. (Tables, formula 137.). Chemical medicines are for the most part compound from their very nature; but even such of these as are contained in the catalogues of the *materia medica* can seldom be employed except in composition. Mercury in its native state is nearly inert, and yet how many valuable and powerful remedies are formed by its union with other bodies. *Sulphuric acid* and *alcohol* form *æther*, but *æther* cannot be swallowed except in combination. Thus we see, that independently of neatness and convenience, which, though they ought to have their weight, are secondary considerations, there are many positive arguments to prove the utility of composition; and if composition be of use, it must surely be of some consequence to know the scientific principles on which this is to be founded.

8 Importance of the subject.

The importance of acquiring a readiness at writing a neat and scientific prescription, seems not to be generally understood. Indeed few parts of a medical education have been more neglected than this department of pharmacy, especially in Britain. In many of the continental medical schools, there is a professor appointed to give lectures on the art of writing prescriptions, while in our colleges this subject is at most confined to a single lecture from the professor of *materia medica*, and the student is left to learn the art as he can, by copying the prescriptions of the physicians whose clinical practice he has an opportunity of witnessing, or by attendance in an apothecary's shop.

9 General courses of medicine insufficient for practice.

When a gentleman has passed through the usual course of education at a medical school, and has received a di-

ploma, it is supposed that he is fully qualified to enter on his career with confidence, and proceed with success. Let us for a moment consider what are his usual qualifications. He has, we shall suppose, acquired a tolerably accurate knowledge of the structure and functions of the human body; he has been made acquainted with the nature, properties, and, so far as known, the mode of action of the various simple and compound bodies, which, as medicines, food, and poisons, exert an influence on the animal economy; he has been instructed in the general nature of disease, the various symptoms or appearances by which its presence is indicated, and the general means to be employed for their removal. He has more particularly taken a view of many of the maladies to which the human frame is subject; has seen them exerting their influence on patients, and has frequently witnessed the effects of remedies in expelling them from the system, or in alleviating the distress which they occasioned. Here, it will be said, is a complete physician, and such, to a superficial observer, he may appear. With all this knowledge, however, (and without all this) no man is qualified for the active duties of the profession) many gentlemen are still deficient in a most important point, the capacity of applying this knowledge to actual practice. A physician may be able to distinguish a disease at a glance; he may be prompt and accurate in forming his indications of cure, and may be well acquainted with the general nature of the remedies by which these indications are to be fulfilled, and still, if he be not master of the form and method in which these are to be exhibited; if he be not familiar with the practice of writing prescriptions, he will often be placed in a most unpleasant predicament, and will not unfrequently expose himself to the ridicule of those who are far his inferiors in knowledge and abilities, by writing prescriptions which, though they contain the essential means of cure, yet, wanting the mode and fashion of the day, will be read with a smile, or perhaps be imperfectly understood, by the apothecary or the druggist to whom they are presented.

This, however, is an inconvenience which, as it may not be attended with serious effects, is trifling in comparison of some which he will encounter.

10 Necessity of acquiring a habit of writing prescriptions.

From a want of habit in prescribing, or from a want of some medical or chemical information, which we shall presently explain, he will be often liable to jumble together substances which, though when single, they are possessed of similar medical properties, may when combined, exert an action greater or less than he had intended to produce, or even altogether of an opposite nature.

By way of illustration let us suppose a young practitioner, at his first outset, called to a patient labouring under *tetanus*, or that disease of which a locked jaw is one of the most obvious symptoms. The patient is in the most distressing situation, and it is expected that every renewal of the spasm will end in those convulsions which most frequently bring on the fatal termination of this formidable disease. How is he to act? The remedies to be employed are evidently antispasmodics, and of these he has heard *opium* and *mercury* highly recommended in this disease. Which of these is he to employ, or is he to make a trial of both? He determines to give *opium*: in what form is he to order its administration? That of pill is the most obvious; but perhaps the patient cannot, in the ordinary state of his health, swallow pills, and every effort of the muscles of deglutition increases

11 Illustration.

Importance
of the
Subject.

the disease. He must then prescribe it in a liquid form. Shall he order it in the form of laudanum to be given by the attendants, or shall he prescribe draughts or a mixture, with a certain proportion of *tinctura opii*? What is the dose of the opium? He knows that a person affected with this disease can bear a large dose. Is he to give this large dose at once, or is he gradually to increase it? In a short time the patient can perhaps no longer swallow even liquids. Can he administer opium in any other form? He has heard of opiate clysters. What is the best formula for them? Is the same quantity of opium as when taken by the mouth, sufficient for a clyster? Again, if the patient cannot swallow, how is he to be supported? By nutritive injections. How is the physician to prescribe a nutritive injection? Should it be large or small in quantity? and is there any mode of making the bowels retain it for a sufficient time, to draw from it the proper nourishment? We might carry this illustration, simple as it is, to a much greater length; but we forbear, that we may not be thought tedious. We need say little to persuade those who are at all acquainted with the practice of physic, that it is the duty of every physician who values the comfort and safety of his patient, or who has any regard for his own reputation and respectability, to spare no pains in enabling himself to write a prescription with facility, perspicuity, and neatness.

72
Attendance
in a shop
necessary,
but not al-
one suffi-
ent.

To those who, previous to their attending medical lectures, have been for some time in an apothecary's shop, instructions for the writing of prescriptions may be thought useless or impertinent. In the daily habit of perusing and copying formulæ from the hands of various physicians, it may be thought "custom hath made it in them a property of easiness." Certainly, with respect to form and method, doses and proportions, they can require but little information. But after all, this knowledge is merely imitative; they have learned to write prescriptions as a parrot learns to speak, and unless they have added considerable chemical knowledge to their practical information, they can only copy what they have seen, and will often find themselves very much at a loss.

This is considering the matter in the fairest point of view, taking it for granted that they have been under a master who had abilities, leisure, and inclination to give them all the necessary information; to point out to them how particular formulæ were suited to particular indications; to shew them why one is preferable to another, and how they should distinguish a scientific from an empirical prescription.

How seldom this is the case, and how easy it is for a young man to be several years in an apothecary's shop, and learn but little, we leave to the judgement of others to decide. We trust it would not be difficult to show, that many of the formulæ which they have witnessed, may be simplified or improved; that many of them are unscientific, and not a few absurd.

We would, however, by no means be understood to consider attendance on a shop as an unnecessary part of a medical education; far from it. We are of opinion that every one who intends to practise medicine, whether it be as surgeon, apothecary, or physician, should for some time accustom himself to the preparing of medicines, and the keeping of an apothecary's day-book; and we conceive that a young practitioner without this experience, will commence practice under considerable

disadvantages. By perusing, copying, and preparing the formulæ of various practitioners, the student certainly acquires a readiness at prescription which he cannot so easily and imperceptibly attain in any other way. To those who have had little opportunity of profiting in this way, and their number is by no means small, the instruction intended to be conveyed in the following observations will be peculiarly adapted; and probably such as have passed some time behind a counter, will learn something which had before escaped their notice, or will at least be convinced that the subject admits of considerable improvement by the application of recent chemical discoveries.

Previous
Requisites.

It may be thought, that such as have, during their residence at college, given diligent attention to hospital practice, will there have received all the information on the subject of prescription which is necessary to qualify them for private practice. But those who are familiar with both will readily agree, that what is sufficient for the one, is by no means calculated for the other. The unexperienced physician, accustomed to the hospital routine, thinks it sufficient if he prescribe the proper quantities of the proper medicines in the most simple form. Is an emetic required? He will order gr. xv. or ℥i of powdered ipecacuanha. Is a gentle diaphoretic indicated? He would prescribe ℥ij of *missura salina* to be taken every four hours. Were his future practice to be confined to an infirmary, to the negroes of a West India plantation, or the crew of a man of war, this might be sufficient; but if he aim at extensive or genteel practice, he will find it necessary to take a much wider range.

73
Hospital
routine in-
sufficient for
private
practice.

II. The subject of extemporaneous prescription may be considered as constituting the finishing part of a physician's education; so far, at least, as we can say, that the study of a profession, for the perfect attainment of which the father of medicine has declared life too short, may admit of a completion. This is truly the practical part of a physician's duty; it is this for which all his previous studies are intended to prepare him. Having acquired a knowledge of diseases and their remedies, he is, when entering on the active duties of his profession, to apply that knowledge to the best advantage, so as to cure or relieve his patient in the easiest, safest, and most expeditious manner. It is not merely the mechanical business of penning a medical receipt, which he might copy from his memory or his *vade mecum*, that we are here considering as the practical duty of a physician. It is the adapting of the means which he possesses to the peculiar case that is under his care; the modifying his prescription according to the circumstances of the patient; the age, sex, temperament, peculiarity of constitution, season, climate, and many other circumstances; the choice of remedies, and the necessary variation of them; it is these which constitute the duty of a practical physician, so far as relates to the business of prescription.

74

Before a physician can attempt to prescribe for his patient, it is requisite that he possess much previous in-formation.

75
Previous re-
quisites.

In the first place, he must be well acquainted with the nature and seat of the disease, the cure or alleviation of which he is about to attempt; with the symptoms which usually appear in similar cases, and the variations which are likely to take place; with the causes, so far as known,

76
Knowledge
of diseases.

EXTEMPORANEOUS PRESCRIPTIONS.

Previous
Requisites.

known, which predispose to the disease, or which remotely or immediately have a tendency to produce it; with the probable termination of such a case, and the general indications of cure. This knowledge presupposes an acquaintance with anatomy, physiology, and pathology, without a competent share of which a physician can no more effect a cure of a disease, than an algebraist can accomplish the solution of an equation, while he is ignorant of its terms.

17
Materia
Medica.

The prescriber must also be familiar with the Materia Medica and pharmacy, from which he learns the natural history, the chemical and medical properties of the various simple substances employed in medicine; their usual doses and their officinal compounds, as contained in the pharmacopœia of the country in which he resides; as it is these articles that are to form the ingredients of which the medicines he prescribes are to be composed. As without considerable practical experience few men are able to retain all the requisite information respecting each article of the Materia Medica, it would be of great advantage to the young prescriber to have by him a tabular sketch, which might, within a small compass, contain the information more immediately necessary for writing a prescription. Nothing is found to assist the memory, or to facilitate the attainment of knowledge, more than these tabular views; and so much is the learned world convinced of this, that such

views are daily becoming more fashionable, and are now applied to almost every branch of science. It was with the intention of assisting the young practitioner in writing prescriptions, that Dr Kirby, a few years ago, published his tables of the Materia Medica, containing a concise view of the most material circumstances respecting the various simple and compound medicines admitted into the catalogues of the London, Edinburgh, and Dublin Pharmacopœias. In this volume the articles are arranged under 18 classes; the titles and order of which are much the same with those given in our article MATERIA MEDICA; and of each article are given the systematic name, the synonymous pharmaceutical name, the country in which it is produced, or from which it is brought; the part employed in medicine; the form in which it is commonly administered, and the usual doses of the simple, and of the several officinal compounds. In the original draught of these tables, the circumstances above mentioned were arranged in columns; but it was found, that the difficulty and consequent expence of printing the work in that form would be so great, as nearly to counterbalance the advantage which might be derived from it. We are, however, of opinion, that the arrangement in columns is better adapted to strike the eye, and we shall here give a specimen of such an arrangement, taken from one of the shortest classes in the above work (A).

Previous
Requisites.
18
Utility of
tabular
view.

TABLE OF EXPECTORANTS.

SIMPLES.					OFFICINAL PREPARATIONS.		
I. VEGETABLES.	COUNTRY.	PART.	FORM.	DOSE.	DOSE.	CASES.	
5. CEPHAELIS IPECACUANHA. <i>Ipecacuanha.</i> Ed. Lond. Dub.	E. Indies & Brazil.	Root.	Powder.	gr. j. every 3 or 4 hours.	Vinum Ipecacuanhæ. Ed. Lond. Dub.	Dr. 1 or 2.	Peripneumonia and asthma. Consumption.
6. NICOTIANA TABACUM. Ed. <i>Nicotiana.</i> Lond. Dub.	America.	Leaves.	Smoke and extract.	- - -	- - - - -	- - - - -	
8. SCILLA MARITIMA. Ed. <i>Scilla.</i> Lond. Dub.	South of Europe.	Root fresh or dried.	Conserve, powder, pill, &c.	Grs. 1 to 2.	a. Acetum Scillæ Maritimæ. Ed. Acetum Scillæ. Lond. Dub. b. Syrupus Scillæ Maritimæ. Ed. c. Oxymel Scillæ. Lond. Dub. d. Conserva Scillæ. Lond. e. Tinctura Scillæ. Lond. f. Pilule Scilliticæ. Ed. <i>Pilule Scillæ.</i> Lond. Dub. Syrupus Allii. Dub.	Dr. 2 to 4. In compo- sition. Gts. 30 to 40. Gts. 10 to dr. 1. Gr. 10 to 15. About a table spoonful.	Peripneumonia, asthma.
13. ALLIUM SATIVUM. Ed. <i>Allium.</i> Lond. Dub.	Do.	Fresh root.	Substance.	Dr. 1 to 2	Lac Ammoniaci. Lond.	Cr. 1 to 2.	
14. AMMONIACUM. Ed. Lond. Dub.	India.	Gum resin.	Pill, mix- ture.	Grs. 10 to 20.	Conserva Ari. Lond.	Dr. ½ to 1.	
15. ARUM MACULATUM. Ed. <i>Arum.</i> Lond.	Britain.	Fresh root.			a. Syrupus Colchici autumnalis. Ed. b. Oxymel Colchici. Lond. Dub.	Dr. 2 to 10z.	
16. COLCHICUM AUTUMNALE. Ed. <i>Colchicum.</i> Lond. Dub.	Britain.	Fresh root.				Do.	

(A) The simples in the first columns of the above table have numbers prefixed to them. To explain why these do not follow each other in a regular series, it is necessary to mention, that the articles marked 5, 6, 8, 11, and 12, are, in the tables of Materia Medica from which this specimen is altered, inserted in a former class, viz. emetics.

EXTEMPORANEOUS PRESCRIPTIONS.

TABLE continued.

SIMPLES.					OFFICINAL PREPARATIONS.		
I. VEGETABLES.	COUNTRY.	PART.	FORM.	DOSE.		DOSE.	CASES.
17. FERULA ASA FOETIDA. Ed. <i>Asa foetida.</i> Lond. Dub.	Perfia.	Gum refin.	Pill, mixture.	Gr. 10 to 15.	Lac Afæ foetidæ. Lond.	1oz. to 2.	Hooping cough.
18. HYSSOPUS OFFICINALIS. <i>Hyssopus.</i> Dub.	Britain.	Herb.	Tea.				
19. MARRUBIUM VULGARE. Lond.	Do.	Leaves.	Domestic fyrup.				
20. MYRRHA. Ed. Lond. Dub.	Arabia.	Gum refin.	Powder or pill.	10 grs. to 1 dr.			
21. PIMPINELLA ANISUM. Ed. <i>Anifum.</i> Lond. Dub.	Asia.	Seeds.	Infusion, oil.		Oleum Volatile Pimpinellæ Anifi. Ed. <i>Ol. Essentiale Anifi.</i> Lond. Dub.	Gt. 2 to 6.	Croup and pneumonia.
22. POLYGALA SENECA. Ed. <i>Seneka.</i> Lond. Dub.	America.	Root.	Decoc-tion.	- -	Decoctum Polygalæ Senegæ Ed.	1oz. to 1½oz.	
23. STYRAX BENZOÏN. Ed. <i>Benzoinum.</i> Dub. <i>Benzoo.</i> Lond.	Sumatra.	Balfam.	Pill.		a. Acidum Benzoicum. Ed. <i>Sal. Benzoini.</i> Dub. <i>Flores Benzoes.</i> Lond.	Gr. 1 to 2.	
24. ALCOHOL. Ed. Spt. Vinofus Rectificatus. Lond. Dub.					b. Tinctura Benzoes Composi-ta. Lond. Æther Sulphuricus. Ed. Dub. <i>Æther Vitriolicus.</i> Lond.	Gt. 15 to 30.	Catarrh. Asthma.
II. MINERAL PRODUCTIONS.					a. Tartris Antimonii. Ed. <i>Tartarum Antimoniatum.</i> Dub. <i>Antimonium Tartarifatum.</i> Lond.	Gr. ¼ to ½ re-peated.	
11. SULPHURETUM ANTIMONII. Ed. Dub. <i>Antimonium.</i> Lond.	Britain.	- -	- -	- -	b. Vinum Tartritis Antimonii. Ed. <i>Vinum Antimonii Tartarifatu.</i> Lond.	Dr. 1 to 2. Dr. ½ to 1.	
25. SULPHUR SUBLIMATUM. Ed. Dub. <i>Flores Sulphuris.</i> Lond.					c. Sulphuretum Antimonii Pre-cipitatum. Ed. <i>Sulphur Antimonii Precipita-tum.</i> Lond. <i>Sulph. Ant. Fufcum.</i> Dub	Gr. 3—5.	
12. Zincum. Ed. Lond. Dub.	- -	- -	- -	- -	a. Sulphur Sublimatum Lotum. Ed. Dub. <i>Flores Sulphuris.</i> Lond.	Gr. 15 to dr. ½.	Asthma.
					b. Trochifci Sulphuris. Lond. c. Oleum Sulphuratum. Ed. Lond. Dub.	Ad libitum. Gt. 10—20.	
					Sulphas Zinci. Ed. Dub. <i>Zincum Vitriolatum.</i> Lond.	Gr. ½ to 1 three times a day.	Confumption and hooping cough.

19
Explan-
ation.

The above table contains eight columns. In the first are written the scientific and corresponding pharmaceutical names of the several simple substances, distributed into departments, according as they are taken from the vegetable or the mineral kingdom, and arranged alphabetically; in the second is written the name of the country where the article is found, or from which it is procured; in the third the part of the simple usually employed in medicine; in the fourth the form in which it is usually administered; in the fifth the dose of the simple. In the sixth column are arranged all the officinal preparations of each simple which properly belong to the class

of expectorants, and named according to the nomenclature of the Edinburgh Pharmacopœia, with the corresponding synonymous names of the other two colleges; in the seventh are given the usual doses of these compound medicines, and in the eighth are noted the diseases to which the simple or its compound is more peculiarly adapted.

The use of such tables is pretty obvious. Having Ufe. before him all the remedies that are suited to answer any particular indication, as in the present instance, that of promoting expectoration, the prescriber can select such articles as are best suited to the particular case in hand,

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Previous Requisites.

or which can be most easily procured; and he has at once before him the circumstances respecting it which it is most necessary he should know.

21 Therapeutics.

It is next required of a prescriber, that he be thoroughly acquainted with therapeutics, a part of the institutions or principles of medicine which instructs him in the nature and effects of the various classes of medicines as suited to different indications of cure.

22 Chemistry.

An extensive acquaintance with the elementary parts of chemistry is also necessary, as the subject of extemporaneous prescription forms a part of pharmacy, which is essentially a chemical art. It is therefore as impossible for a physician to be a scientific prescriber without a competent share of chemical knowledge, as for the captain of a ship to be a scientific sailor, without a knowledge of astronomy and navigation. It is certainly possible for a physician to write a prescription without having studied chemistry, and for a sailor to conduct a vessel to the West Indies without being acquainted with the mathematical principles of navigation: but these men are both empirics; they have a certain mechanical way of proceeding, which they have learned by long experience, and much more severe labour than it would have cost them to acquire a knowledge of the scientific principles of the arts which they profess.

23 Rational prescription depends chiefly on chemical principles.

It is of the utmost importance that a physician should be able to assign a reason for every article which he inserts in his prescriptions; that he should, as correctly as possible, know what part each will act in the composition of the medicine, and what effect the whole compound will produce on his patient; in short, that he should not prescribe a certain formula merely because he has seen it prescribed by others in similar cases, but should form his prescription on scientific principles, and from the result of reason and reflection. In the present improved state of chemistry this is more peculiarly necessary, and it is also become much more easy. Not many years ago physicians had scarcely a clue to guide them in their prescriptions, except that of experience; they saw certain results take place, and certain effects produced, but why these results took place, or how these effects were brought about, they were almost entirely ignorant. The reasoning employed by old writers on pharmacy concerning the preparation and operation of compound medicines, is to a modern chemist highly entertaining. We shall not swell this article by specimens of such reasonings, but shall refer those who wish to amuse themselves in this way, to Strother's *Lectures on the Rationale of Medicine*; Quincy's *Complete Dispensatory*; Fuller's *Pharmacopœia Extemporanea*, and the *Pharmaceutical works of Dr Willis*.

24 Chemical affinity.

When a physician sits down to write a prescription, he should imagine the preparation going on under his eye, and should know whether or not the materials which he is ordering will act chemically on each other; and if they do, what changes will be produced. It very frequently happens that from the union of two or more substances there arises a compound possessed of very different properties, and which is likely to produce very different effects from any of the component articles. The result will sometimes be advantageous, sometimes inert, and sometimes injurious. It is the business of the prescriber to be acquainted with the advantages and disadvantages of these combinations, that he may avail himself of the former, and avoid the latter. This de-

firable object is to be attained only by a correct and extensive knowledge of chemical affinity. This will teach what substances are capable of combining together, or of decomposing what are already united; and will inform us whether we can derive any advantage from their action.

Previous Requisites.

For want of this chemical knowledge many of the formulæ prescribed by some of our best practical writers, are much less simple and scientific than they might be made by an attention to chemical principles. The famous tonic remedy, commonly called *Griffith's myrrh mixture*, so much, and we believe, so justly extolled in cases of general debility, was originally composed in the following manner.

25

Common errors in this point.

R Myrrhæ dr. j. *Solve terendo in mortario cum*
Aquæ Alexeteriæ ꝑ. unc. vi. fs.
— cujuslibet Spirituosæ dr. vi. vel. unc. j.

Dein adde

Salis Absynthii, dr. fs.

— Martis, gr. xii.

Syrupi simplicis, dr. ij. m*.

26 Griffith's Myrrh mixture.

* Griffith on Hæctic Fevers.

From the gravity with which the author speaks of this composition, and the various proportions he allows of the salt of wormwood and the salt of steel, together with the different methods of mixing the ingredients, it is pretty clear that he had no idea that any of them were superfluous or unnecessary, nor probably was he aware that the two salts act on each other, and undergo a mutual decomposition. It seems therefore to be quite an empirical prescription. Analysing it according to our present chemical knowledge, we know that the principal part of it consists of an emulsion of myrrh, containing in suspension a quantity of carbonate of iron, and having dissolved in it a small quantity of sulphate of potash, and perhaps a little subcarbonate of potash. Now, as there is no reason to believe that the two last are of any consequence in the medicine, it would surely be much more scientific to form a medicine of myrrh and carbonate of iron, with the addition of such cordials and syrups as may add to its tonic power, and render it palatable. A medicine of this kind is the following.

R Pulv. Myrrh. dr. i.

Carbonat. Ferri præcip. dr. $\frac{1}{2}$.

Syrup. Citri Aurant. unc. $\frac{1}{2}$. *Simul tere, et adde.*

Aquæ Menth. piper. unc. 6.

Tinctur. Cinchon. compos. unc. i. M †.

† Kirby's Tables, Formul. 106.

27

In Dr Strother's 19th lecture there is noticed a medicine which was then considered as a valuable nostrum in the cure of smallpox. The principal ingredients are, spirit of salt (*muratic acid*), and salt of hartshorn (*impure carbonate of ammonia*). A tyro in modern chemistry need not be told that this medicine contains muriate of ammonia, produced by the combination of the acid with the alkali. If, therefore, such a medicine is useful in smallpox, it would surely be much less laborious, and much more scientific, to employ the muriate of ammonia, commonly called *sal ammoniac*, which we have prepared to our hands.

As the secondary salts form a class of bodies which constitutes a considerable part of the materia medica, it is proper for the physician to be intimately acquainted with their nature and chemical properties. Here he will again find the advantage of systematic tables, containing

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EXTEMPORANEOUS PRESCRIPTIONS.

Previous Requisites. taining the principal circumstances respecting the composition and decomposition of such of these salts as are employed in medicine. A table of this kind is printed in Dr Kirby's Tables, and we shall here give a similar

view, only divided, for the sake of convenience, into two tables, the first containing the composition of the salts, and the second the substances employed in medicine, by which they may be decomposed. Previous Requisites.

TABLE I.

SALT.	SOLUBILITY.	COMPOSITION.		
		BASE.	ACID.	WATER.
1. SUPERSULPHATE of ALUMINA and POTASH.	At 60° 20. 212° 1.	Cryst. 12. Dry 63,75.	17.66 36.25	70.24 0.
2. SULPHATE of MAGNESIA.	60°, 1. .75	17.	29.35	53.65
3. SULPHATE of POTASH.	60°, 16 212° 4.5	54.8	45.2	0.
4. SULPHATE of SODA.	60°, 2.6 212° .8 Efflorescent.	Cryst. 18.48 Dry 44.	23.52 56.	58. 0.
5. SULPHATE of COPPER.	60°, 4. 212°, 2.	32.	33.	35.
6. GREEN SULPHATE of IRON.	60°, 2. 212°, .75	28.	26.	46.
7. SULPHATE of ZINC.	60°, 2.5	20.	40.	40.
8. SUBSULPHATE of MERCURY.	60°, 2000	87.	10.	3.
9. NITRATE of POTASH.	60°, 7. 212°, 1.	51.8	44.	4.2
10. NITRATE of SILVER.	60°, 1.			
11. MURIATE of BARYTES.	60°, 5.	Cryst. 57.	32.	11.
12. MURIATE of LIME.	Deliquescent. 60°, .5	Red hot; 50.	42.	8.
13. MURIATE of SODA.	60°, 2.8	Dried 53.	38.88	8.12
14. MURIATE of AMMONIA.	60°, 3. 212°, 1.	Sublimed. 25.	42.75	32.25
15. MILD MURIATE of MERCURY, or CALOMEL.	Insoluble.	88.5	11.5	
16. COROSIVE MURIATE of MERCURY.	60°, 20. 212°, 2.	82.	18.	0.
17. MURIATE of ANTIMONY.	Deliquescent.			
18. PHOSPHATE of LIME.	Insoluble.	49.	51.	0.
19. PHOSPHATE of SODA.	60°, 4. 212°, 2.	19.	15.	66.
20. CARBONATE of BARYTES.	Insoluble.	22.	78.	0.
21. CARBONATE of LIME.	Insoluble.	55.	45.	0.

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SALT.	SOLUBILITY.	COMPOSITION.		
		BASE.	ACID.	WATER.
22. CARBONATE of MAGNESIA.	Infoluble.	45.	34.	21.
23. CARBONATE of POTASH.	60°, 4. 212°, 1.5	40.	43.	17.
24. SUBCARBONATE of POTASH.	Deliquescent.	Dry 64.	30.	6.
25. CARBONATE of SODA.	Efflorescent.	Cryt. 21.58 Dried 59.85	14.42 40.05	64. 0.
26. CARBONATE of AMMONIA.	60°, 2.			
27. CARBONATE of IRON.	Infoluble.			
28. CARBONATE of ZINC.	Infoluble.			
29. ACETATE of POTASH.	Deliquescent.			
30. ACETATE of LEAD. Ph. Ed.	60°, 4.	58.	26.	16.
31. SUBBORATE of SODA.	60°, 18. 212°, 6.	17.	39.	44.
32. SUPERTARTRATE of POTASH.	60°, 60. 212°, 13.	33.	67.	0.
33. TARTRATE of POTASH.	60°, 4. Deliquescent.			
34. TARTRATE of POTASH and SODA.	60°, 5. Efflorescent.	Tart. Pot. 54.	Tart. of Soda. 46.	0.
35. TARTRATE of ANTIMONY and POTASH, or EMETIC TARTAR.	60°, 15. 212°, 3.	Ox. of Ant. 38. Potash 16.	34.	12.

29
Explanation.

In this first part of the table of secondary salts there are five columns, in the first of which are set down the names of most of the secondary salts employed in medicine, according to the most approved chemical nomenclature. The second column shews the degree of attraction which subsists between each salt and water, namely, how many parts of water at the temperatures of 60° and 212° of Fahrenheit are required to dissolve one part of the salt, in the state in which it is usually employed,

and whether the salt be deliquescent or efflorescent. The three remaining columns point out, as far as has been ascertained, the proportional quantities of the component parts of each salt, the third column shewing how many parts in the 100 consist of base; the fourth how many of acid, and the fifth how many of water of composition. In some cases two proportions are given, and it is expressed in the third column under what state of the salt these proportions exist.

TABLE II.

DECOMPOSITION BY SINGLE AFFINITY.	SALT.	DECOMPOSITION BY DOUBLE AFFINITY.
Barytes. Potash. Soda. Lime. Magnesia. Ammonia. Tannin. Gallic Acid. Oxalic Acid. Tartaric Acid.	SUPERSULPHATE of ALUMINA and POTASH.	Nitrate of Potash. ———— Silver. Muriate of Barytes. ———— Lime. ———— Soda. ———— Ammonia. Carbonate of Barytes. ———— Lime. ———— Magnesia. ———— Potash. ———— Soda. ———— Ammonia. Acetate of Lead. Subborate of Soda.

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DECOMPOSITION BY SINGLE AFFINITY.	SALT.	DECOMPOSITION BY DOUBLE AFFINITY.
Barytes. Potash. Soda. Lime. Ammonia.	SULPHATE of MAGNESIA.	Nitrate of Silver. Muriate of Barytes. ——— Lime. Corrosive Muriate of Mercury. Red Muriate of Iron. Carbonate of Lime. ——— Potash. ——— Soda. ——— Ammonia. Acetate of Mercury. ——— Lead. Subborate of Soda. Tartrate of Potash.
Barytes.	SULPHATE of POTASH.	Nitrate of Silver. Muriate of Barytes. ——— Lime. ——— Soda. ——— Ammonia. Corrosive Muriate of Mercury. Phosphate of Soda. Carbonate of Barytes. Acetate of Mercury. ——— Lead. Tartrate of Potash, partially.
Barytes. Potash.	SULPHATE of SODA.	Nitrate of Potash. ——— Silver. Muriate of Barytes. ——— Lime. Corrosive Muriate of Mercury. Acetate of Mercury. ——— Lead. Tartrate of Potash.
Barytes. Potash. Soda. Lime. Magnesia. Ammonia. Tartaric Acid. Muriatic Acid. Zinc. Iron. Tin.	SULPHATE of COPPER.	Subsulphate of Mercury. Nitrate of Potash. ——— Silver. Muriate of Barytes. ——— Lime. ——— Soda. ——— Ammonia. Corrosive Muriate of Mercury. Phosphate of Soda. Carbonate of Potash. ——— Soda. Acetate of Mercury. ——— Lead. Subborate of Soda.
Barytes. Potash. Soda. Lime. Magnesia. Ammonia.	GREEN SULPHATE of IRON.	Nitrate of Silver. Muriate of Barytes. ——— Lime. Corrosive Muriate of Mercury. Acetate of Mercury. ——— Lead. Subborate of Soda.
Same as the last.	SULPHATE of ZINC.	Nitrate of Silver. Muriate of Barytes. Acetate of Lead.

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DECOMPOSITION BY SINGLE AFFINITY.	SALT.	DECOMPOSITION BY DOUBLE AFFINITY.
Barytes. Sulphuric Acid. Heat.	NITRATE of POTASH.	Superfulphate of Alumina and Potash. Sulphate of Magnesia. Soda. Muriate of Barytes. Lime.
Barytes. Potash. Soda. Lime. Magnesia. Ammonia. Zinc. Muriatic Acid. Tin. Phosphoric Acid. Copper. Mercury.	NITRATE of SILVER.	All the Sulphates employed in Medicine. Muriate of Barytes. Lime. Soda. Ammonia. Corrosive Muriate of Mercury. Red Muriate of Iron. Antimony. Phosphate of Soda. All the Carbonates employed in Medicine. Subborate of Soda.
Sulphuric Acid.	MURIATE of BARYTES.	All Sulphates more or less. Nitrate of Silver. Phosphate of Soda. Carbonate of Potash, Soda. Ammonia. Subborate of Soda.
Barytes. Potash. Magnesia. Sulphuric Acid. Nitric Acid. Boracic Acid. Phosphoric Acid.	MURIATE of LIME.	All Sulphates. Nitrate of Silver. Phosphate of Soda. Carbonate of Ammonia.
Barytes. Potash. Sulphuric Acid. Nitric Acid.	MURIATE of SODA.	Superfulphate of Alumina and Potash. Sulphate of Potash. Copper. Nitrate of Silver. Acetate of Mercury. Lead.
Barytes. Potash. Soda. Lime. Sulphuric Acid. Nitric Acid.	MURIATE of AMMONIA.	Superfulphate of Alumina and Potash. Sulphate of Potash. Copper. Nitrate of Silver. Carbonate of Barytes. Potash. Soda. Acetate of Potash. Subborate of Soda. Tartrate of Potash.
Barytes. Potash. Soda. Lime. Magnesia. Ammonia. Copper.	CORROSIVE MU- RIATE of MER- CURY.	Most Sulphates. Carbonate of Barytes. Lime. Magnesia. Potash. Soda. Ammonia.

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DECOMPOSITION BY SINGLE AFFINITY.	SALT.	DECOMPOSITION BY DOUBLE AFFINITY.
Barytes. Potash. Soda. Phosphoric Acid. Nitric Acid. Muriatic Acid.	PHOSPHATE of SODA.	Sulphate of Potash. ————— Copper. Nitrate of Silver. Muriate of Barytes. ————— Lime.
Sulphuric Acid.	CARBONATE of BARYTES.	Superfulphate of Alumina and Potash. Sulphate of Magnesia. ————— Potash. ————— Soda. Nitrate of Silver. Muriate of Ammonia. Corrosive Muriate of Mercury. Supertartrate of Potash.
Barytes. Oxalic Acid. Sulphuric Acid. Tartaric Acid. Phosphoric Acid. Nitric Acid. Muriatic Acid. Citric Acid. Boracic Acid Acetic Acid.	CARBONATE of LIME.	Superfulphate of Alumina and Potash. Sulphate of Magnesia. Nitrate of Silver. Corrosive Muriate of Mercury. Supertartrate of Potash.
Barytes. Potash. Soda. Lime. Oxalic Acid. Sulphuric Acid. Nitric Acid. Muriatic Acid. Tartaric Acid. Citric Acid. Boracic Acid. Acetic Acid.	CARBONATE of MAGNESIA.	Superfulphate of Alumina and Potash. Nitrate of Silver. Corrosive Muriate of Mercury. Carbonate of Iron. Supertartrate of Potash.
Barytes. Lime. Oxalic Acid. Sulphuric Acid. Nitric Acid. Muriatic Acid. Tartaric Acid. Citric Acid. Boracic Acid. Acetic Acid.	CARBONATE of POTASH.	All the Sulphates except those of Potash and Soda. Nitrate of Silver. Muriate of Barytes. ————— Ammonia. Corrosive Muriate of Mercury. Supertartrate of Potash.
Barytes. Potash. Lime. Oxalic Acid. Sulphuric Acid. Nitric Acid, &c. as before.	CARBONATE of SODA.	Sulphates as in the last. Nitrate of Silver. Muriate of Barytes. ————— Soda. Supertartrate of Potash.
Barytes. Potash. Soda. Lime. Oxalic Acid. Sulphuric Acid, &c. as above.	CARBONATE of AMMONIA.	Supertartrate of Alumina and Potash. Sulphate of Magnesia. Nitrate of Silver. Muriates of Barytes and Lime. Supertartrate of Potash.

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DECOMPOSITION BY SINGLE AFFINITY.	SALT.	DECOMPOSITION BY DOUBLE AFFINITY.
Acids as in the last.	CARBO- NATE of IRON.	Supertartrate of Potash.
Acids as in the last, and, beside, Phosphoric Acid.	CARBO- NATE of ZINC.	
Sulphuric, Nitric, Muriatic, and Phosphoric Acids. Oxalic, Tartaric, Boracic, and Citric Acids.	ACETATE of POTASH.	Muriate of Ammonia. Tartrate of Potash and Soda.
Barytes. Potash. Soda. Lime. Ammonia. Magnesia. Gallic Acid. Muriatic Acid. Oxalic Acid. Phosphoric Acid. Sulphuric Acid. Tartaric Acid. Citric Acid. Boracic Acid.	ACETATE of MERCURY.	Sulphate of Magnesia. ———— Potash. ———— Soda. ———— Copper. ———— Iron. Muriate of Soda.
Substances as above, and nearly in the same or- der.	ACETATE of IRON.	
Five first substances as before. Tin. Gallic, Sulphuric, Oxalic, and Tartaric Acids. Benzoic, Muriatic, Nitric, and Citric Acids.	ACETATE of LEAD.	Sulphates of Alumina, Magnesia, Potash, Soda, Copper, and Iron. Muriate of Soda.
Lime. Barytes. Magnesia. Gallic Acid. Sulphuric, Nitric, and Muriatic Acids. Phosphoric Acid. Oxalic and Tartaric Acids. Citric and Acetic Acids.	SUBBORATE of SODA.	Superfulphate of Alumina and Potash. Sulphate of Magnesia. ———— Copper. ———— Iron. Nitrate of Silver. Muriate of Barytes. ———— Lime.
Lime. Barytes. Magnesia. Potash. Soda. Ammonia.	SUPERTAR- TRATE of POTASH.	Carbonates of Barytes, Lime, Magnesia, Potash, Soda, Ammonia, and Iron.
Almost all other Acids. Lime. Barytes. Magnesia.	TARTRATE of POTASH.	Sulphates of Magnesia, Potash, and of Soda. Muriate of Ammonia.

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DECOMPOSITION BY SINGLE AFFINITY.	SALT.	DECOMPOSITION BY DOUBLE AFFINITY.
Barytes. Lime. Sulphuric, Muriatic, and Nitric Acids.	TARTRATE of POTASH and SODA.	
Soda. Lime. Ammonia. Gallic, Sulphuric, Nitric, and Muriatic Acids.	TARTRATE of ANTIMONY and POTASH.	Carbonate of Soda. — Ammonia.

30
Explanation.

This second part of the table of secondary salts consists of three columns. In the middle column are set down the names of the secondary salts employed in medicine, in the same order as in the former table; and in the adjoining columns on each side are noted those substances employed in medicine which are capable of effecting a decomposition of each salt; those in the left-hand column being such as decompose the salt by what is called *single affinity*, in consequence of that substance having a superior attraction for the acid or the base of the salt; while the substances in the right-hand column are secondary salts, between which and the opposite salt in the middle column such an action may take place as to effect their mutual decomposition.

31
Uses of the
tables.

With tables of this kind before him, a prescriber will avoid several mistakes into which he might be betrayed from a deficiency of chemical knowledge. Thus, knowing the solubility of any salt, he will not prescribe a greater quantity of it than is capable of being retained in solution in the watery part of any draught or mixture which he is to order. For instance, knowing that *sulphate of potash* requires sixteen parts of water at 60° for its solution, he will, if he proposed to prescribe a draught containing two drams of this salt, be aware that such a quantity would require at least four ounces of water; but this making the draught too large is a great objection to giving the medicine in that form. Or suppose that he wished to give half an ounce of *super-tartrate of potash* (*crystals of tartar*), by way of laxative; he sees, that to dissolve this quantity it would require at least two pounds of water, and therefore that he cannot order it in the form of solution, though, when mixed up with syrup into an electuary, it affords a good and efficacious cooling laxative. Again, knowing that *sulphate of soda* effloresces in the air, and thereby loses nearly half its weight, he will take care always to prescribe it in the form of crystals; and if he is to order a laxative draught containing one ounce of this salt, he must prescribe at least three ounces of liquid.

The information conveyed in the second column respecting the deliquescence or efflorescence of certain salts, or the readiness with which they imbibe water from the atmosphere, or part with their water of crystallization, is extremely useful in pointing out the proper forms of exhibition. Seeing, for instance, that *acetate of potash* (*diuretic salt*) is a deliquescent salt, no one would think of prescribing it in the form of pills; while, on the other hand, *carbonate of soda* being efflorescent, is well adapted to that form, and accordingly has been

so prescribed by Dr Beddoes; (see *Kirby's Tables, formula 153*).

Knowing the proportional quantities of the component part of any salt, we can, by calculation, ascertain pretty nearly how much of the one is required to decompose the other, and thus employ no more of either than is necessary. Thus, suppose it were required to decompose 100 grains of *green sulphate of iron* by *carbonate of soda*, in order to procure the greatest possible quantity of *carbonate of iron*. We find by the first table, that 100 grains of the *sulphate* contain 28 grains of *oxide of iron*, and to saturate this, we find by computation, that there are required 9 grains of *carbonic acid*. Now, on examining the composition of *carbonate of soda*, we find that 100 grains of this salt contain about 14½ grains of *carbonic acid*, and consequently, that about 60 grains of *carbonate of soda* are sufficient to decompose 100 grains of *green sulphate of iron*.

Further, knowing the substances that are capable of decomposing any particular salt, a prescriber will not order any of these substances in the same formula with that salt, unless some manifest advantage were to be the result of their mutual action. He knows that *sulphate of zinc* and *acetate of lead* decompose each other, and that the *acetate of zinc* formed by their mixture, is a better remedy in cases of ophthalmia than either of the former salts. Here then is an advantage. *Tartrate of antimony and potash* is a good remedy in fever, so is *decoction of Peruvian bark*; but we find by the tables, that this salt is decomposable by *gallic acid*, and we know that *decoction of cinchona* contains this acid, especially after having stood for some time. It would therefore be improper to prescribe these remedies in conjunction, as has sometimes been recommended, because the salt would be so much altered by the decomposition as to be no longer the medicine we propose to administer. A similar instance of unscientific prescription, arising from a want of chemical knowledge, occurs in a formula attributed to Mr Coleman, and published in the fifth edition of the *Pharmacopœia Chirurgica*, p. 58. under the title of *Collyrium hydrargyri muriati cum calce*. It is composed of a scruple of *muriate of mercury* dissolved in an English pint of boiling distilled water, with the addition of two drams of *quicklime*, and after the whole is completely mixed, we are directed to filter the clear liquor through paper. The author of this Pharmacopœia seems aware that "the different elective attractions operating in the mixture of the lime with the solution of muriate of mercury, are such as produce

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produce a new chemical arrangement, in which the activity of the ingredients is mutually diminished. The fact is, that the large quantity of lime here directed will completely decompose the muriate of mercury, so that the clear liquor will contain nothing but uncombined lime, and muriate of lime. Hence the muriate of mercury is an unnecessary ingredient, and if the medicine be efficacious as a collyrium, it would be better to form it at once by the addition of a small quantity of muriate of lime to limewater.

32
Dover's
powder.

A physician who is familiar with the principles of chemistry will not direct a chemical medicine to be prepared of more ingredients, or in a more operose manner, than is requisite to produce the desired effect. When Dr Dover first gave to the public the composition of his sudorific powder, he ordered it to be prepared in the following manner. Four ounces of nitre, and the same quantity of virriolated tartar (sulphate of potash), are to be thrown into a red-hot crucible, and kept stirring till the deflagration ceases. To the mixture, while hot, is to be added an ounce of sliced opium. The whole is then to be reduced to powder and well mixed with an ounce of powdered ipecacuanha, and the same quantity of powdered liquorice root. It is well known to the chemists of the present day, that nitrate of potash, when thrown on an ignited combustible body, deflagrates, and is decomposed; but that it does so when thrown into an ignited crucible, with an incombustible body, such as the sulphate of potash, we can scarcely conceive. If it does, the effect must be, that the nitric acid is carried off, and there remains the potash, which is an unnecessary ingredient in the composition. Again, the only use of heating the salt, would be to dry the opium and thus render it more easily pulverised; but as dried opium is always kept in the shops, and by means of sulphate of potash, is very easily reduced to powder, that part of the operation is superfluous. Accordingly, a powder equally efficacious, and much less operose, is prepared by rubbing together sulphate of potash, opium, and ipecacuanha, forming the present pulvis ipecacuanhæ et opii, Ed. or pulvis ipecacuanhæ compositus, Lond.

33
Burnt
sponge.

From the same want of chemical knowledge, some medicines have been extolled as efficacious remedies, from not knowing their real nature. Thus burnt sponge has long been celebrated for the cure of scrofula. We do not altogether deny its efficacy in this complaint; but as burnt sponge is composed almost entirely of charcoal, with the addition of a little carbonate of soda, a powder composed of these ingredients must be equally efficacious.

34.
Errors in re-
spect to con-
sistence.

Under this head we may notice an error which is frequently made by prescribers who have not been accustomed to see and prepare the remedies which they prescribe. We have often seen a mass for pills ordered to be prepared of such ingredients as are naturally too hard to form into pills, as for instance, extract of cinchona, and extract of liquorice, and yet there has been directed a quantity of liquorice powder, to form the mass of a proper consistence. Sometimes again, the matters directed are already too soft, or become too soft by mixture, as when aloes and extract of gentian are directed to be beaten together with a proper quantity of syrup, to form a mass for pills. See the *Edin. Phar. edit. 1783.*

35
Water.

We shall conclude this part of our subject with re-

marking, that it is of consequence in a chemical point of view, to prescribe as the constituent of a liquid medicine, such water as will not decompose any of the other ingredients. It is common to order the water by the name of *aqua pura*, or *aqua fontana*. Now, if this water be hard, i. e. impregnated with sulphate of lime, &c. it will decompose many of the secondary salts, and thus diminish their efficacy. *Acetate of lead*, for instance, is always decomposed by hard water, and a turbid liquor is thus formed; which by standing deposits a sediment. It would therefore be better in all cases to prescribe distilled water, or where this is not likely to be found, as in small country towns, soft water.

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III. We have thus considered at some length the previous knowledge required by a practitioner before he can pretend to prescribe for his patient in a scientific manner. We shall now endeavour to apply the observations that have been made, and from the application deduce some general rules for extemporaneous prescription.

36

When a practitioner is called to a patient, he will first examine into the symptoms and causes of the malady under which the patient labours, and attend to the age, sex, and peculiar habit of the patient. He will then consider whether or not a cure is probable, or whether it may be in his power only to relieve the distressing symptoms. If a cure appears to be practicable, he will proceed to form his indications, and in conformity with these he will prescribe the remedies that seem best adapted to the case. It is this method of procedure that distinguishes the scientific practitioner from the ignorant empiric. The latter, from a superficial view of the most obvious symptoms, hastily determines the nature of the complaint, which he probably contrives shall be some one of which he has witnessed many cases, or for the cure of which he is in possession of some favourite remedy. Having resolved what the disease shall be, he has nothing to do but apply his remedy, and this he does without considering whether existing circumstances may not render the administration of it improper.

37
Practical
hints.

To return from this digression, we shall endeavour to give an example as simple as will answer our purpose, to illustrate the above method of procedure. We shall suppose that a practitioner is sent for to a middle-aged man, in moderate circumstances, who has been for some days labouring under a tertian intermittent fever, with which he had never before been affected, but had commonly been strong and healthy. The practitioner sees nothing in the circumstances of the case which can lead to an unfavourable prognosis, and he therefore has little hesitation in pronouncing, that the fever will probably soon be removed. Considering the indications usually laid down in practical writers on intermittents, he proceeds to prescribe the remedies which appear best suited to the case in point. Thus the indications given by Dr Cullen are,

1. In the time of intermission to prevent the recurrence of paroxysms.
2. In the time of paroxysms to conduct these so as to obtain a final solution of the disease.
3. To take off certain circumstances which might prevent the fulfilling of the two first indications *.

In considering the first indication, the practitioner reflects on the effect of the usual exciting cause of an in-

* Cullen's
First Lines,
§ 228.

intermittent,

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tions.

intermittent, *marsh miasmata*, which he sees to be a debilitated state of the system. This he learns is to be removed by tonics; and of those the bark of the *cinchona officinalis* is justly celebrated in the cure of intermittents. This then he would immediately prescribe; but that experience has shewn it to be better to begin the administration of this medicine as soon as possible after a *paroxysm*. We shall suppose, however, that the last paroxysm took place the day before he saw the patient, and consequently may be expected to return the next day. He finds also that the patient is costive, a circumstance which must be removed according to the third indication. Now, attending to the second indication, he knows that this is generally best fulfilled by the exhibition of an emetic at the commencement of the cold fit, and of an opiate at the commencement of the hot fit; but the costiveness of the patient contraindicating the use of opium, he must endeavour to find for it a substitute which has not a tendency to excite or increase constipation. He will perhaps prescribe as follows:

38
Example of
prescrip-
tion.

℞. Vini ipecacuanhæ, unc. 1.
—— Tartritis antimonii (*Edin.*) unc. $\frac{1}{2}$. M. fiat
haustus.

Signetur. *The emetic to be taken just as the next cold fit is coming on.*

℞. Pulveris Rhei Palmati, gr. 25.
Submuriatis Hydrargyri, gr. 3.
Succi Spissati Hyoscyami, gr. 4.
Syrupi q. s. Fiat bolus.

Signetur. *To be taken just as the next hot fit is coming on.*

R. Pulveris Cinchonæ officinalis, scr. 2.
—— Croti Elutheriæ, gr. 10. M. f. pulvis.

Signetur. *One to be taken in a little wine and water as soon as the hot fit has gone off, and repeated every two hours till the expected return of the next cold fit.*

The analysis of this prescription will afford us some useful practical observations.

39
Arrange-
ment of
formulæ.

1. It will be observed that *the formulæ are arranged in the order in which the medicines are to be exhibited*, a circumstance to which it is always proper to attend, when the prescription is to contain more than one formula or circumstance to be directed by the practitioner. Thus when any thing is required immediately, as *bleeding*, the *application of leeches*, or of a blister, this should form the first clause in the prescription, in the following manner.

Mittatur sanguis è brachio STATIM ad unc. 12.; or,

Applicentur quamprimum temporibus hircudines sex; or,

Applicetur statim emplastrum vesicatorium capite raso.

40
Arrange-
ment of in-
gredients.

2. *The ingredients directed in each formula should be arranged in the order in which they are to be mixed by the compounder.* This may be thought a matter of slight importance, but it is more deserving of notice than is generally supposed. For the most part, indeed, in whatever order the practitioner may arrange the ingredients in his formula, a skilful apothecary will combine them in that order which experience has shewn him to be the most convenient; but it is surely much neater that the order of preparation should be preserved

in the prescription, this being considered as the guide by which the compounder is to direct his operations. Suppose we were to prescribe a medicine containing *castor oil*, *distilled water*, *mucilage of gum arabic*, *syrup of rhubarb*, and *tincture of senna*. In the preparation of this medicine the apothecary will first rub together the oil and *mucilage*; he will then add the *syrup*, and perhaps the *tincture*, and lastly the *water*. In this order then it would be best to express the formula. See Kirby's *Tables*, formula 54. In this manner the neatness of the medicine is injured, and the preparation of it rendered more easy and expeditious. It is very usual for prescribers to begin with the article that is to be most abundant in the medicine, as the water, and to gradually descend to that of least quantity; and particular care is generally taken to place in succession those ingredients that are employed in equal quantities, with the sign (*āā singularum*, of each) after the last. This seems rather a puerile method, and is commonly inconsistent with the practice of composition.

There are other reasons for arranging the ingredients in the order of composition. In some cases a very volatile substance forms a part of the medicine, as aether, or ammonia; and it is proper that this should be the last ingredient in the composition of the medicine, that as little as possible of it may be dissipated. It is proper, therefore, that it should stand last in the formula (see Kirby's tables, formulæ 126, 129 and 130). There is a formula given in the Pharmacopœia Chirurgica for an embrocation, to be composed of 2 drams of *tincture of camphor* (*camphorated spirit*), 1 dr. of *water of acetated litharge* (*Goulard's extract*) and a pound of *distilled water*. We are told that the mixture of these ingredients is to take place in the order in which they are set down, otherwise the camphor will be separated*.

* Pharm.

We have already mentioned (N^o 3) the names of the several parts of which a compound medicine may be formed, as the *basis*, the *adjuvant*, the *corrector*, and *constituent*; and have explained the reasons for the addition of the three latter. There are some rules respecting these, which it will be proper to consider in this place.

3. *The basis should always be single, unless some manifest advantage is expected to arise from the employment of two or more remedies of the same kind.* The reason of this rule is sufficiently obvious, as the effect of a single remedy is much more easily determined and proportioned than that of two or more employed together. The advantages of simplicity in prescription will be considered presently.

4. *If more than one basis be employed, they should be of the same nature, or such as produce the same effects.* This needs no illustration.

5. With respect to the *adjuvant*, we shall remark only that one use generally assigned to it, viz. that of facilitating the solution of the basis in the stomach, appears equivocal. It is not uncommon to order resinous drugs to be made up into pills with *soap*, which is considered by many as acting in the way of promoting solution. Soap is often a good constituent, but we do not think it can produce the effect above alluded to.

6. The use of the *corrector* requires a little more discussion. One of the first intentions of the corrector is to diminish the too violent action of the principal remedy, or to prevent its exerting an action in an improper part of the body. Thus, *mucilage* may be added to *colocynth*,

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Prescrip-
tions.

* Pharm.

Chirurg.
5th edit.
p. 159.

41
Rules for
the basis;

42
for the ad-
juvant;

43
for the cor-
rector.

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Prescrip-
tions.

colocynth, (*bitter apple*), or given after it, to blunt or lessen the acrimony which this substance is commonly found to possess. So again, *mercury* is often combined with *opium*, when it is required to introduce a considerable quantity of the former into the system, or to speak more properly, to acquire the full benefit of its accumulated stimulus. This can scarcely be effected, if it be allowed to run off by the bowels. *Camphor* is often given after the application of a blister, to obviate the strangury which frequently attends the external application of *cantharides*. In some cases the *cinchona bark* produces sickness or purging, and here the addition of a few drops of *tincture of opium* to each dose is proper.

7. Another use of the corrector is to obviate or disguise the unpleasant taste or odour of the principal remedy. Thus, the emetic in our prescription is ordered to be prepared of the *wine* of *ipecacuanha* instead of the *powder*, as the wine that forms the solvent of that remedy disguises its unpleasant taste. The articles usually employed as correctors of flavour, are *syrups* and *tinctures* of various kinds, *essential aromatic oils*, &c. and the use of these has been often much abused. The addition of a large quantity of sugar, in some cases, especially in *dyspepsia* or indigestion, seldom fails of increasing the symptoms of the disease, as in a debilitated state of the stomach it quickly passes into a state of fermentation, and produces flatulence, pain, and *anorexia* or loss of appetite, the very symptoms which we are to remove. It is a common practice to add syrup to several of the neutral salts, as *sulphate of soda*, *sulphate of iron*, &c. with a view to improve their flavour; but we apprehend that whoever has tasted the nauseous mixture will scarcely agree with the prescriber that he has gained his point.

44
Abuse of
tinctures.

8. The abuse of *alcohol* in the form of tinctures has been sometimes carried to a great, and, we think, a culpable excess. This has arisen sometimes from the desire of the patient to have his medicines made strong and good, and not unfrequently, perhaps, from mercenary views in the practitioner, to induce the patient to swallow a greater quantity of medicine, because it is rendered agreeable to his palate. We have no doubt that many well-meaning practitioners order a considerable dose of tincture from a mistaken complaisance to their patients, without apprehending any ill consequences from it; but in fact, the intemperate use of these tinctures is injurious to the stomach, and has, we believe, not unfrequently drawn some of the most sober persons into a habit of dram-drinking. The propensity to the use of cordials, which is now become so prevalent, has probably arisen from this source. The quantity of alcohol ordered by some prescribers is truly astonishing. A book lately came into our hands, which is called a *translation of elegant medical prescriptions for various disorders*, by the late Dr *Hugh Smith*. For the accuracy of the translation we cannot vouch, not having seen the original; but if it be accurate, the *spirituous cinnamon water* (*Spirit of cinnamon*), seems to have been a very favourite article in Dr *Smith's* catalogue of medicines, as it is no unusual thing to see an ounce, or $1\frac{1}{2}$ ounce of it ordered in a single draught, or four ounces in an eight-ounce mixture. Did not this occur so frequently in the prescriptions of Dr *Smith*, we should suppose it to be some blunder of the translator or transcriber,

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in mistaking the character denoting dram for the symbolical character signifying ounce.

9. A third use of the corrector is to render the medicine more agreeable to the stomach. Thus, *sulphate of soda* is to many persons very nauseous, and is not unfrequently rejected by vomiting; but the addition of a small quantity of *lemon juice*, or of *supertertrate of potash*, is found to correct this unpleasant quality. The bark of *cinchona* does not agree with some stomachs, without the addition of an aromatic; the *cascarilla* ordered in the above powders, affords a useful addition, with the view of rendering it more agreeable to the stomach.

The unpleasant odour of a medicine is more difficult to correct than its flavour. In internal medicines this is usually best effected by regulating the form in which they are exhibited; as, in prescribing the sulphuret of potash, it is better to order it in the form of a powder to be sweetened with sugar, to be swallowed dry (see Kirby's Tables formula 68), than by way of draught or mixture. The odour of external medicines is best corrected by the essential oils and perfumes. Thus, in using sulphur for cutaneous diseases, it is usual to add a quantity of *essence of bergamot* or *oil of lavender*, which, though they do not entirely destroy the odour of the sulphur, have a considerable effect in disguising it.

10. In ordering a corrector, the practitioner should be aware that it is not the quantity of the basis, but its quality that he is to correct. If a dose of *digitalis* or of *squill* makes the patient sick, we should not think of giving *opium* or effervescing draughts to prevent this effect, but we should lessen the quantity of the medicine at its next exhibition. We have been rather minute on the subject of the corrector, as we conceive that much will depend on the adroit management of this part of a formula, in showing the neatness and address of the prescriber. By a proper use of correctors he can often regulate the action of a medicine, and considerably relieve the feelings of his patient.

11. The *constituent* employed in a formula will of course vary with the form of the medicine. In the more solid compositions, as boluses, pills, and electuaries, it is generally syrup, conserve, confection, or extract. In liquid medicines, it is either simple water, or some watery liquid, as *decoctions*, *infusions*, or *water distilled* from some aromatic plant. It is proper to remark, that the prescriber should consider whether a constituent ordered as such, be necessary, for it often happens, that the extracts or pilular masses kept in the shops, are already of a proper consistence for making into pills. It is obvious that the constituent, if it be not simple water, should have similar qualities with the other parts of the medicine, unless when it contains in it the corrector.

12. In the prescription which we have given as an example, the names of the articles are written at length. We do not, however, approve of this being generally done in practice. To an apothecary's apprentice it can answer no other end than to exercise his latinity, and display the erudition of the prescriber. In fact, it may even tend to mislead him; for as the names of the articles kept in his master's shop, are always painted on the labels, or drawers, in an abbreviated form, the words at full length are not better understood by the

S f compounder,

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Prescrip-
tions.

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47
Quantity
of a remedy
to be regu-
lated.

48
Remarks
on the con-
stituent.

49
Names of
ingredients
need not be
written at
length.

Rules for
Prescrip-
tions.

compounder, and indeed they are often more intelligible in the concise form in which he is accustomed to see them. Add to this, that the writing of the words at full length may occasionally betray the practitioner into an unguarded mistake, which may call in question his grammatical accuracy. In Fox's *Formulae Selectae, calomelas* perpetually occurring as the genitive instead of *calomelanos*; and in a work on midwifery, published by Dr Pugh of Chelmsford, grammatical errors both in the names and in the directions are to be detected *passim*. The only advantage that writing at length seems to possess, is that it teaches a beginner to read a prescription, which by the way is often at first no easy matter. But practice soon renders this familiar.

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Symbolical
characters
to be a-
voided.

13. The quantities of the ingredients in the above prescription are not expressed in the usual symbols, but we have employed the contracted forms of the words *uncia* and *drachma*, and the common Arabian figures, as recommended in the preface to Dr Kirby's tables. The directions also are written in English. The reasons assigned in the work above referred to, are as follow. "The characters 5 and 3 are so similar, that they may easily be written for each other, and that they have sometimes been so written cannot be denied. The consequence is obvious; a stroke of the pen too much may kill the patient, and a stroke too little may produce a medicine of little or no efficacy. Strange! that physicians should have been so misled by an affectation of mystery or concealment, (for to what else can be attributed the use of these hieroglyphics?) as to place the safety of their patients at the mercy of a *lapsus pennae*! *Unc.* and *Dr.* can never be written for each other, and we see no good reason why these abbreviations should not be employed for *uncia* and *drachma*, as well as *gr.* and *gtt.* for *granum* and *gutta*." Dr Spens, in his elegant edition of the *Pharmacopœia Nosocomii Edinburgensis*, has employed these contracted words, but has retained the Roman numerals.

"The use of the Arabian figures appears calculated to insure both perspicuity and dispatch. They are more easily written, occupy less room in a prescription, and (by their familiarity) remove all possibility of mistake.

"As to the directions, they should always be written in the vernacular language. In a prescription, perspicuity is always our first object; it is not here that we are called upon to display our learning and classical elegance; and whoever considers that these are properties not always to be met with in the shop of an apothecary or a druggist, will readily wave them, in order to insure the perfect understanding of his prescriptions. It does not indeed require any great knowledge of Latin to translate the directions which usually occur in prescriptions; but as there are cases in which a long and rather complex direction is employed, we should leave nothing to the contingency of the learning or ignorance of the compounder, but by writing the directions ourselves in the received language of the country, put it out of his power to injure our reputation, or endanger the safety of the patient."

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Rules for
the doses of
medicines.

The doses of medicines must, in a great measure, be determined by experience; but after having thus ascertained the medium dose proper for an adult under ordinary circumstances, and of an ordinary constitution, there are certain general considerations, according to

which we may proportion the doses of the same substance to various constitutions and ages. In regulating the doses of medicines, we are to attend chiefly to the following considerations.

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Prescrip-
tions.

a. The circumstances of the disease and the vital powers of the patient.

b. The powers, mode of exhibition, and particular intention of the medicine employed.

c. The age, sex, constitution, and habits of the patient.

14. *The circumstances of the disease to be attended to, its nature, seat, period, and degree of violence.* ⁵² Doses regulated by the disease. There are several diseases that require Herculean remedies, and these in very large doses. It is well known that maniacs require much greater doses to produce the same effect than most other patients. If we are to administer an emetic to a person in this situation, it would be of no use to prescribe 2 or 3 grains of *tartrate of antimony and potash*, or a scruple of *ipecacuanha*, the usual doses in ordinary cases. Less than 6 grs. of the former will scarcely excite vomiting, and it is sometimes necessary to order 10 or 15 grs. If we wish to procure sleep to these wretched beings, a few grains of opium are a trifle. Dr Darwin mentions two cases of insanity, in one of which 2 scruples of solid opium were administered, and four hours after, a third scruple; while in the other, a furious maniac was rendered calm and rational in the space of a few hours by a dose of 400 drops of tincture of opium.

Again, the more violent the disease, the larger doses are generally required for its removal; but on the other hand, the later the period or stages of several diseases, as fever, consumption, and similar affections attended with great debility, the less is the quantity required to produce the same effect; or rather the less able will the patient be to bear the usual doses. When the vital powers are much diminished, a large dose may be attended with very serious consequences. Thus, in cases of suspended animation by drowning, where the vital energy is nearly exhausted, if, when the powers of life are just returning, we were to oblige the patient to swallow a quantity of brandy, or even a glass of pure wine, we should probably smother the glimmering spark. Again, in cases of torpor from cold, if we expose the frozen limb to a sudden considerable heat, a gangrene ensues; whereas, had we in the former case given a little wine and water, and in the latter applied a moderate gradually increasing warmth, attended with gentle friction, we should probably have restored the patient, and preserved the limb.

15. *The powers, form, and intention of the medicine must be considered.* ⁵³ By the nature and intention of the medicines. The more active remedies must be administered with greater caution than such as are of inferior efficacy. Thus, if we are to exhibit the *corrosive muriate of mercury*, the *oxide of arsenic*, the *nitrate of silver*, or other powerful and dangerous remedies, we must begin with a quantity rather below than above the medium dose, and gradually increase it according to the effect produced. On the other hand, however, we must not descend to doses that are trifling and inert. It is as ridiculous to prescribe a *scruple of cinchona* twice or thrice a day, to restore vigour to a debilitated system, as it would be improper to order *half an ounce of rhubarb* for an ordinary cathartic. A prudent practitioner will avoid both extremes of timidity and rashness, and will

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will neither risk the safety of his patient by an excessive dose, nor give him lingering suspense and pain, for want of the due application of the proper remedies.

Much will depend on the form in which the medicine is to be exhibited. Thus, if we are to employ externally, or by way of blister, such medicines as are usually given by the mouth, it is necessary to order them in much larger quantity. The usual dose of tincture of opium is 25 or 30 drops; but if this is to be applied by friction, from 2 drams to half an ounce will sometimes be required for one application; and in a glyster it is usual to prescribe a dram or two. The tincture of cantharides, whether given internally, or applied by friction to the surface, is a powerful remedy; but in the former case, 20 or 30 drops are sufficient, while in the latter a dram or two is usually employed. Similar remarks might be made with respect to the use of mercury, and many other remedies.

The intention with which the medicine is administered must also be taken into consideration, as there are many substances that produce different effects, according to the quantity employed. Thus, *tartrate of antimony and potash* may be given as an *emetic*, a *diaphoretic*, an *expectorant*, or a *cathartic*, according to the magnitude or repetition of the dose. Two or three grains given at once, or a grain every 15 minutes, usually excite vomiting; but from $\frac{1}{2}$ gr. to 1 gr. given every 5 or 6 hours, generally keeps up a constant nausea without vomiting, and thus, by sympathy, the medicine acts as a diaphoretic or antispasmodic. The medicine given in the dose of a third of a grain twice or thrice a day is a good expectorant; and in the dose of $\frac{1}{4}$ gr. every two or three hours, usually operates by the bowels. It is well known that the effect of opium varies considerably, according to the dose and the interval at which it is administered. If we wish to promote sleep, or relieve pain, we give what is called a full dose, that is, a grain or two. It thus acts as a narcotic, and an antispasmodic or a diaphoretic. Given in small repeated doses, it acts as a general stimulus, promotes absorption, and an-

swers the purposes of a diuretic and an astringent. Ten or twelve grs. of aloes exhibited at once, are cathartic; but one or two grs. given twice or thrice a day gently stimulates the rectum and neighbouring parts, and acts in particular cases as an emmenagogue.

We need scarcely remark, that when two or more articles of a similar nature are prescribed in the same formula, the dose of each must be proportionally lessened.

16. *We must regulate our doses according to the age, sex, constitution, and habits of the patient.*

It is evident that various ages must require various proportions; but experience shews that the required doses are not directly proportional to the ages, as might *à priori* be expected, and as the mathematical physicians in the beginning of the 18th century believed (B). Experience has enabled us to construct a table, in which may be shewn the doses proportioned to various ages, adjusted from a certain medium dose for an adult: such a table is the following.

Age.	Proportional dose 1.	Absolute dose, dr. 1.
Weeks, 7	$\frac{1}{73}$	grs. 4
Months, 7	$\frac{1}{73}$	grs. 5
14	$\frac{1}{60}$	grs. 10
28	$\frac{1}{3}$	grs. 12
Years, 3 $\frac{1}{2}$	$\frac{1}{4}$	grs. 15
5	$\frac{1}{3}$	scr. 1
7	$\frac{1}{2}$	dr. $\frac{1}{2}$
14	$\frac{2}{3}$	scr. 2
21	1	dr. 1
63	$\frac{1}{11}$	gr. 55
77	$\frac{5}{6}$	gr. 50
100	$\frac{4}{6}$	scr. 2

S f 2

The

(B) At the time when Newton had by his discoveries rendered the study of mathematics as fashionable as it is useful, medicine partook of the general bias, and several physicians of ingenuity and erudition attempted to reduce its theory and practice under the dominion of their favourite science. Among these Dr Strother read and published a course of lectures on the rationale of medicines, which he entitles *Prelectiones Physico-mathicæ et Medico-practicæ*. In his 21st lecture he treats of the doses of medicine, and after discussing in a very philosophical manner the general mode of regulating these according to the size and shape of the particles of medicines, and their momentum as determined by their celerity multiplied by their quantity of matter, he proceeds to point out how we are to proportion the doses to various ages. He has the following question: *If a person of 30 years of age takes 60 grains of any medicine, how much must a child of 5 years of age take?* This question he of course resolves by the rule of proportion in the following manner.

$$30 : 5 :: 60 : \left(\frac{300}{30} = \right) 10$$

In order to render this generally applicable to every case, he calls in the aid of algebra, and substituting symbols for the above numbers we have

- r = the greater age given
- a = the less age given
- t = the dose given
- e = the dose required.

$$\text{Then } r : a :: t : \left(\frac{a t}{r} = \right) e.$$

54
Age, &c.
of the pa-
tient.

55
Table.

Rules for
Prescrip-
tions.56
Explana-
tion.

The above table may serve as a general guide to the young practitioner. The second column shows the aliquot parts of the medium dose for an adult, that are adapted to different ages from seven weeks to 100 years, supposing this medium dose to be 1; and the third column gives the absolute quantities in grains, &c. taking the medium dose at 1 dr. This table, however, will by no means apply in all cases. Thus, the dose of opium adjusted from this table, for a child of five years old, is $\frac{1}{4}$ gr. and that of sub-muriate of mercury or calomel, 1 gr.; but in cases of *phrenitis hydrocephalica* (water in the head), we may administer half a grain of the former, and three or four of the latter. Females in general require less doses than males; and persons of a robust and vigorous constitution, such as country labourers, the more active mechanics, servants, and those of the melancholic and phlegmatic temperaments, will, all other things being equal, require larger doses than persons of an opposite description.

57
Climate.

The climate also seems to have some influence in this respect. In America and the West Indies we are informed that much larger doses of submuriate of mercury are given than are usually prescribed in Britain. In cases where we would give three or four grains, they would order 10 or 15. We are told, too, that in some parts of India, in order to excite vomiting in a native, it is sometimes necessary to give 20 scruples of ipecacuanha. The Germans, and especially, according to Gaubius, the inhabitants of Saxony and Westphalia, require much larger doses than the inhabitants of any other country in Europe.

58
Idiosyn-
cracy.

Peculiarities of constitution, commonly called *idiosyncrasies*, require attention on the part of the prescriber. It is therefore proper to inquire whether any circumstance of this kind occurs in any individual, especially when called for the first time.

The habits of the patient must also be regarded, as in general medicines lose some of their effect by being often repeated, and therefore require to have their dose increased. Thus, persons who are accustomed to the use of opium, will derive no benefit from the ordinary doses of that medicine, but when labouring under a complaint that requires the exhibition of opium, they must take a quantity somewhat larger than that to which they

are habituated. It is well known what quantities of opium are consumed by some of the eastern nations; and the writer of this article has seen a travelling gypsy who never went to rest without taking more than half a dram of solid opium (c).

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Prescrip-
tions

17. Peripicuity is essentially necessary in writing a prescription, and every thing which can in any degree diminish it ought to be carefully avoided. Many of the observations already made have been directed to this point; and we have yet one or two remarks to complete this part of our subject. A prescriber should be very careful not to introduce into his prescription articles which are obsolete, or which are no longer contained in our pharmacopœias, unless he is certain that the apothecary who is to prepare the medicine keeps such articles beside him; and even then, as it is most likely that they have been long prepared, and have lost much of their efficacy, he cannot depend on their answering the end he proposes. Thus, few would now think of prescribing the *confessio paulina*, the *theriaca Andromachi*, or the *aqua alexiteria simplex*, or many other compounds, which have given place to more simple and convenient forms.

59
Peripicuity,
a principal
considera-
tion.

18. The same cautions will apply, though perhaps with some limitations, to those medicines which are rarely met with, or have been newly introduced into our Pharmacopœias. Before we venture to prescribe an article of this description, we should ascertain whether or not it is to be procured in or near the place where the patient resides, or, where possible, we should give timely notice to the apothecary to provide himself with some of it. Many unpleasant circumstances may arise from not attending to this caution, especially where the patient is apprised that he is about to take a new remedy which has been found very beneficial in cases similar to his own. For instance, the *Rhus Toxicodendron* has lately been much extolled in the cure of palsy. Suppose a physician in a provincial town, at a great distance from the capital, were to prescribe this medicine. The apothecary has none of it, nay, perhaps has never heard of the medicine, and it must be procured from the capital. This occasions a delay for several days, and in the mean time the paralytic person is impatient to try the effect of the new remedy, and probably refuses to take any other. When the medicine arrives, the

60
Obsolete
or uncom-
mon medi-
cines to be
ordered
with cau-
tion.

(c) Before dismissing the subject of the *Doses of Medicine*, we must notice an improvement lately proposed, and which appears likely to be adopted by the London College in the intended new edition of their *Pharmacopœia*, we mean that of abolishing the usual method of measuring small doses or quantities of liquids by drops. There can be no doubt that in many cases this method of *dropping* liquids is liable to great uncertainty; the size of the drops, and of course the quantity of liquid which they contain, varying greatly according to the nature of the liquid, the size and form of the neck of the phial from which they are let fall, and even the state of the atmosphere. The dram, by measure, of *distilled water*, will afford only 60 drops from an ordinary two ounce phial with a neck of the usual diameter; whereas the same bulk of *proof spirit* may be divided into 120 drops, and some tinctures will afford many more. Considering this uncertainty, it is proposed to abolish the very name of drops (*gutt.*) in prescriptions, and to employ the small graduated measures of Lane, in which the dram is divided into 60 equal parts, which may be called *grains*. Thus, instead of ordering *gutt. 30 of tinct. opii*, we shall order *gr. 15. (fifteen grains)* or $\frac{1}{4}$ of a dram, allowing for the difference between *water* and *spirit*. This will certainly be an improvement where moderate doses are to be prescribed, but when the dose does not exceed two or three drops, as in some of the *essential oils*, *arseniate of potash*, &c. so much would be lost in the measure that the dose would be rendered very uncertain.

On the whole, we would recommend that in all cases the medicine shall be so diluted that the dose shall not be less than *half a dram*, and spoons might be made for family use that should contain that quantity, as an ordinary tea-spoon now contains a dram.

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the patient has perhaps, as not unfrequently happens, lost his enthusiasm, and begins to take it with reluctance or disgust, feelings which not a little influence the success of a remedy, and thus disappoint the hopes both of the patient and physician.

Under this head of *avoiding uncommon medicines*, it may be proper to remark, that though a physician in this empire is allowed to prescribe articles from any of the national dispensaries, he should in general confine himself to that which is most used in the part of the empire where he resides, and if he mentions an article from either of the others, he should subjoin to the name of that article the initials *Ph. Ed. Ph. Lond. or Ph. Dub.* to prevent mistakes, thus,

- R. Tincturæ Scillæ (*Ph. Lond.*) dr. 2.
- R. Tincturæ Angusturæ (*Ph. Dub.*) unc. i.
- R. Solutionis muriatis Calcis (*Ph. Ed.*) dr. i.

61
Compounds, not officinal, to be specifically described.

19. With the same view of ensuring perspicuity, we should never prescribe a compound medicine which is not officinal, merely by its usual title, without specifying the component parts, or at least the proportions of these. Thus, if we propose to order an *infusion of quassia*, or a *decoction of oak bark*, it would not be sufficient to write in the formula *infusi quassia*, or *decocti quercus*, but it would be proper, either to prescribe the mode of preparing them at full length, thus—

- R. Rasuræ ligni quassiaæ excelsæ, dr. i.
- Aquæ distillatæ ferventis, lbj
- Infunde per horam, et cola; or,
- R. Quercus contusi, unc. i.
- Aquæ distillatæ lbij.
- Coque ad dimidium, et cola;

And then to prescribe the proper quantity, as,

- R. Infusi hujusce, unc. 7, &c. or,
- R. Decocti supra præscripti, unc. 8, &c.

Or, it would at least be proper to mention within a parenthesis, the proportions to be employed in the composition, in the following manner;

- R. Infusi quassiaæ excelsæ (cum dr. i. ad aquæ lbj. &c.) ; or,
- R. Decocti quercus (cum corticis uncia i ad aquæ lbj.) &c.

Again, it would be absurd in private practice to prescribe the *citrate of potash* or of *ammonia* by the names of *mistura salina*, or *julepum neutrale*; but it would be necessary to introduce into the formula the proper quantities of lemon juice and of carbonate of potash, or carbonate of ammonia, to prepare these secondary salts. See Kirby's Tables, formula 13.

62
Simplicity to be studied.

20. That we may the better avoid mistakes in composition, it is advisable to study simplicity as much as possible: the physician is considered as the assistant of nature, and ought to follow her example in producing effects by the most simple means. Nothing looks so unscientific as a crowded formula; it bears the marks of empiricism in its very face, and always reminds us of those monuments of pharmaceutical folly, the theriaca and the mithridate to be hereafter noticed. It seems as if the prescriber said to himself, "I will put plenty of ingredients into this medicine, and the deuce is in it if some of them do't answer." There are many favourite

recipes of old practitioners handed down from father to son, or from master to apprentice, which seem to owe their celebrity chiefly to the multitude of their ingredients. The Lisbon diet drinks have long been famous in the cure of diseases of the skin. The following is one of these, as taken from the Pharmacopœia Chirurgica.

Rules for Prescriptions.

- R. Decoctum Lusitanicum, No. 2.
- Saraparillæ concisæ,
- Ligni fantali rubri,
- Ligni fantali citrini, *sing.* unc. iis.;
- Radici glycyrrhizæ,
- Radici mezerei, *sing.* drach. ij.;
- Ligni rhodii,
- Ligni guaiaci officinalis,
- Ligni sassafras, *sing.* unc. fs.;
- Antimonii unc. j.
- Aquæ distillata lb v.

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Errors in point of simplicity.

These ingredients are to be macerated for 24 hours, and afterwards boiled till the fluid is reduced to half its original quantity. From one to two pints are given daily*.

Some practitioners adhere to this form; but others, less bigotted to old customs, have recourse to a contracted form of it, retaining only the guaiacum, sassafras, and liquorice, and adding raisins, similar to the decoctum guaiaci compositum of the Pharmacopœias.

The following is given in Fox's Formulæ as a remedy for dropsy.

- R. Succ. limon. rec. unciam,
- Sal abysynth. scrupulos duos,
- corn. cerv. scrupulum,
- Tinct. cinnam. et
- Aceti scillit. *sing.* drachmas duas,
- Tinct. cort. Peruv. semunciam,
- Aq. menth. vulg. simp. et
- puræ *sing.* unciam,
- Vini antim. Huxhami guttas quadraginta,
- Tinct. Theb. guttas viginti.
- Fiat mistura, pro dosibus duabus.

* Pharm. Chirurg. p. 66.

On examining this prescription, we shall find the resulting medicine to be composed of *citrate of potash*, *acetate of ammonia*, a solution of *tartrate of antimony and potash*, and *tincture of opium*, all which are *diaphoretics*; of *squill*, which is *diuretic*; and of *cinnamon*, *Peruvian bark*, *alcohol*, and *mint water*, which are *tonic* and *stimulant*. Now, a diaphoretic, a diuretic, and a stimulant, may not form a bad compound in dropsy, but as they may be given in a much more simple form, the present medicine is absurdly complex and unscientific. It might be reduced as follows.

- R. Aquæ acetitis ammoniæ, unc. i.
- Tincturæ scillæ, dr. i.
- lauri cinnamomi, unc. ½.
- Vini tartritis antimonii, dr. i.
- Tincturæ opii, gt. 40.
- Aquæ distillatæ, unc. vi. M.

We shall quote one other example of a medical farrago, taken from De Gorter's Formulæ. It is for a powder formed of vegetables; and we may remark it is in the vegetable kingdom that prescribers have most exuberantly displayed their talent at composition.

R. Rad.

Rules for
Prescrip-
tions.

- R. Rad. Imperator
Aristolochii utriusque
— zedoar.
Siler. montan. āā dr. 1.
Zinzib. scr. 2.
Flor. Centaur. min. dr. 1.
— Rorifmar. scr. 1.
— Gratfol. German. dr. $\frac{1}{2}$.
Bacca Lauri
— junip. āā dr. 1fs.
Thymi,
Serpylli,
Absinthiæ,
Tanaceti,
Summitat. Santon. āā. dr. 1. M. f. pulv.

Such a powder as this may vie in composition with the theriaca and mithridate of redoubted fame. As this medicine is composed of so many ingredients, possessed of various powers, it must of course be endowed with many virtues, or must be a *pulvis polychrestus*. Accordingly, its author acquaints us, in the margin, that it is resolvent, sudorific, stimulant, roborant, calefacient, aromatic, stomachic, discutient, diaphoretic, diuretic, and aperient; that it is of service in dropsy, *chlorosis*, *paralysis*, apoplexy, fever, delirium, and fifty other diseases and morbid affections, for a full detail of which we must refer our readers to the work itself.

One would think that the absurdity of these complex formulæ would be abundantly evident to every man of common sense; but the empirical prescriber will probably say, such is the medicine which I have frequently seen given with success, and how am I sure that, by omitting one of the materials, I may not destroy the efficacy of the medicine!

The more compounded a medicine is, the more difficult it will be to ascertain and proportion the effects produced by its several parts on the human system. When several articles are employed at the same time, we cannot be certain to which of them we are to attribute the benefit which appears to result, or the noxious qualities which the compound may possess. This rage for composition has been one great obstacle to the improvement of medicine. The effects of various substances on the body have been but little attended to; and indeed the investigation is difficult, and requires a long series of careful and nice experiments, and these made, not on the inferior animals, but on man himself. The administration of medicines to the lower classes of animals, can throw but little light on their action upon the human body. Several substances which are highly injurious to man, are taken by some other animals with impunity. The old story of the origin of the name of antimony is probably well known to many of our readers. See *ANTIMONY*. On the contrary, some substances are poisons to many of the lower animals, but are much less injurious to man. A small quantity of *nux vomica* will destroy a garden mouse, but a man may take five or ten grains with safety, and even advantage. The doses of medicines, too, bear no proportion in the various animals. A few grains of aloes are sufficient to purge a man, but a horse requires from half an ounce to a whole ounce. It is therefore necessary that man himself should be the subject of experiment; and where great nicety is required, the enquirer should make the experiment on

his own person. Innumerable are the dogs, birds, and frogs, that have been sacrificed on the altar of science. Few experimentalists have, like Pelletier and Davy, ventured to operate on themselves; and even where this has been done, the effects of prejudice and previous hypothesis have considerably diminished the value of their researches.

It is advisable that every practitioner should, from the number of his patients, select a few cases to which he may particularly attend, carefully observing and comparing the effects of the medicines prescribed. In this way he will in time collect a body of information, from which he may be able to draw some valuable conclusions. It is more peculiarly requisite to make observations on the effects of compound medicines, and compare them with those produced by the component simples, when given separately.

It would be unfair to dismiss this part of our subject, without admitting that there are some compound medicines, the good effects of which must be acknowledged, though we cannot, in the present state of medical science, explain their action. There are two medicines of this kind, which the writer of this article has often seen prescribed by physicians of whose abilities and experience he has a high opinion, with evident good effect, and which yet have much of the complex empirical air that we have been condemning. One of these is a remedy for the advanced stage of dysentery, and is prescribed nearly in the following manner.

- ℞ Infusi quassia (cum dr. 1. ad aquæ lbj) unc. 6.
Magnesiæ ustæ dr. 2.
Tincturæ fennæ unc. 2.
— opii dr 2.
Electuarii aromatici dr. 1.
Syrupi Rhei dr. 3. M.

Signetur. *Three or four table spoonful to be taken every six hours, shaking the phial, and one spoonful after every loose stool.*

Here are a bitter, an absorbent, a stimulant, a laxative, and a narcotic, combined in the same medicine. To which of these are we to attribute the good effects which have appeared to us to result from the exhibition of the whole? Probably the slight laxative and the absorbent are here of little use, and the chief benefit is to be ascribed to the bitter and the stimuli, considering the opium in this light.

The other medicine to which we allude is considered as an antiseptic, and is frequently ordered in putrid diseases, especially in *cynanche maligna* or *scarlatina anginosæ*. It is as follows.

- ℞ Muriatis sodæ dr. 1 $\frac{1}{2}$.
Succini limonis, dr. 1 $\frac{1}{2}$.
Sacchari purificati, unc. $\frac{1}{2}$.
Spiritus myristic. moschati, dr. 3.
Ætheris sulphurici cum alcohole, dr. 2.
Aquæ menthæ piperitæ, unc. 6. M.

Signetur. *Three table spoonful to be taken every four hours (and in cynanche some of it to be frequently used by way of gargle).*

What an apparent confusion of salt and four, of sweet and strong! It is true that there is here no decomposition, and yet the medicine is certainly unscientific and empirical.

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Prescrip-
tions.

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Disadvan-
tages of
complex
formulæ.

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All com-
plex medi-
cines not to
be con-
demned.

Rules for
Prescriptions.

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21. A prescriber should adapt his prescription, as far as may be, to the worldly circumstances of his patient, directing for the poorer class those forms which are least expensive, such as powders, pills, electuaries, and ingredients for teas and decoctions, with proper directions how to prepare them. To his more wealthy patients he may prescribe those forms which, by uniting neatness with convenience, will both please his patient, and allow an adequate remuneration to the apothecary, who in most places derives from his practice little profit, except what arises from the sale of his medicines. The forms best adapted to such patients are those of draughts, boluses, powders, and julep, &c.

67
Neatness to
be observed.

22. Neatness in prescription should always be regarded; for as the effects of medicines often depend much on the feelings of the patient, we should take care that his taste, sight, and smell, be offended as little as possible, that disgust may not either prevent his taking the medicine at all, or at least prevent him from taking it with confidence. In liquid medicines, we ought as much as possible to avoid powders, and every thing which can render the liquid unpleasant to the eye; and if we prescribe a formula containing oil, we ought to take care that this be intimately mixed with the other ingredients. Thus, suppose, when about to employ opium by friction, we were to order equal parts of tincture of opium and oil of olives. Though, when well shaken together, these ingredients would incorporate sufficiently to answer the purpose of opiate friction, yet when allowed to stand, they would speedily separate, and give the embrocation an unpleasant appearance. It would be better, therefore, to insure their combination by adding a little solution of ammonia.

23. In this respect much will depend on the form of the medicine; and a physician should be perfectly aware what form is best adapted to the articles he is to employ, as well as what is most agreeable to the patient. This subject of forms was sufficiently explained in the article MATERIA MEDICA, Part III. chap. 2.

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Recapitulation.

We have now finished all that appeared most important on the general rules for extemporaneous prescriptions; but it may be proper to bring under one general view the principles which have been laid down. The great object of a practitioner is to cure his patient safely, agreeably, and expeditiously. That he may cure him safely, he is to study perspicuity and simplicity. To insure perspicuity, he should arrange his formulæ in the order of exhibition; write the words so that they may be most intelligible; arrange the articles of each formula in the mode of composition; use abbreviated words for quantities instead of symbols; employ the common numerals; write the directions in English; avoid obsolete or uncommon remedies, and order no article, not officinal, merely by its name. To insure simplicity, he must employ no more ingredients than are necessary. That he may cure his patient agreeably, he must observe neatness in his prescriptions; adapt his forms to the nature of the remedies employed, and not prescribe offensive remedies where those that are agreeable or palatable will answer the same purpose.

That he may cure his patients expeditiously, he should employ the most efficacious remedies in the proper doses, and take care they are administered in such a manner as to be most likely to produce the desired effect.

We shall now conclude these general observations on

prescription with a few practical cautions, for which we are chiefly indebted to Dr Percival.

Rules for
Prescriptions.

1. A practitioner should attend to the feelings and prejudices of his patient. Dr Percival ordered bleeding to a patient labouring under peripneumony, who had a great dread of the operation, and appears to have died in consequence of its having been attempted.

2. A physician, after having ascertained the nature of a disease, in considering the treatment which he means to adopt, should first reflect whether any evacuation be necessary, as bleeding, the application of leeches or of blisters, cupping, vomiting, purging, &c.

3. He should next enquire whether any particular symptom, such as hemorrhage, great pain, excessive vomiting or purging, be so violent or so distressing as to require immediate attention.

4. He is to consider whether the disease under notice is one for the cure of which any specific remedy has been discovered, such as mercury in *siphylis*, cinchona in *intermittents*, &c.

5. In chronic diseases, where the usual remedies fail of success, it is often of consequence to endeavour to rouse the system into a new action by mercury, electricity, opium, &c. This practice appears rather empirical, but the experience of many able physicians has evinced its propriety.

6. In commencing the treatment of any case, it is proper to begin with the simplest and safest method; and if this does not succeed, to try others of a more complex and bolder description.

7. A physician should not change his plan or his remedies too soon or too often.

8. The cases of new born infants require peculiar caution, as a moderate dose of a powerful medicine may prove fatal. Four drops of tincture of opium have been given to a child a few weeks old for gripes. The infant was seized with stupor and convulsions, and died. A practitioner of midwifery gave an infant two tea-spoonful of castor oil by way of purgative; severe vomiting and convulsions came on, and the child sunk under them.

IV. Modern pharmacy may be said to commence about the middle of the 15th century, at which time it appears to have been in a most deplorable state of empirical barbarity. Though it is probable that, among the earlier practitioners of medicine, remedies were employed in their most simple forms, the art of compounding a number of simples together into one medicine had, by the time of which we are now speaking, arrived at a pitch of extravagance which has never been exceeded.

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Origin of
modern
pharmacy.

What carried this ostentation of composition to the highest excess, was the project of framing antidotes, which being previously administered, might defend against any poison whatever, that should afterwards be taken into the body. To this scheme is owing the enormous length of the celebrated mithridate and *theriaca*; for such medicines must of course recommend themselves by the number and variety of their ingredients, as they were to contain a proper antidote for every possible species of poison, and more especially as these compositions were to be farther wrought up into little less than universal remedies for all diseases to which the human body is subject.

The first of these antidotes was said to be composed from

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Account of the mithridate.

from the result of experiments made separately with all kinds of simple antidotes by the famous king whose name it bears; but as no records are left us of any of those particular experiments, we may reasonably consider this tale as fabulous. As it is not likely that this medicine and the theriaca will ever again appear in our Pharmacopœias, we shall, for the amusement of our readers, describe the composition of each, as given in the London Pharmacopœia published in 1746. The mithridate is thus composed.

“ Take of cinnamon 14 drams, of myrrh 11 drams; agaric, spikenard, ginger, saffron, seeds of treacle mustard, or of mithridate mustard, frankincense, chio turpentine, of each 10 drams; camel's hay, costus, or in its stead zedoary, Indian leaf, or in its stead mace, French lavender, long pepper, seeds of hartwort, juice of the rape of cistus, strained storax, opopanax, strained galbanum, balsam of Gilead, or in its stead expressed oil of nutmegs, Russian castor, of each an ounce; poley-mountain, water-germander, the fruit of the balsam tree, or in its stead cubebs, white pepper, seeds of the carrot of Crete, bdellium strained, of each seven drams; Celtic nard, gentian root, leaves of dittany of Crete, red roses, seeds of Macedonian parsley, the lesser cardomom seeds freed from their husks, sweet fennel seeds, gum Arabic, opium strained, of each five drams; root of the sweet flag, root of wild valerian, anise-feed, sagapenum strained, of each three drams; spignel, St John's wort, juice of acacia, or in its stead Japan earth, the bellies of scinks, of each two drams and a half; clarified honey, thrice the weight of all the rest. Dissolve the opium first in a little wine, and then mix it with the honey made hot; in the mean time melt together in another vessel the galbanum, storax, turpentine, and the balsam of Gilead, or the expressed oil of nutmeg, continually stirring them round, that they may not burn; and as soon as these are melted, add to them the hot honey, first by spoonfuls, and afterwards more freely: lastly, when this mixture is nearly cold, add by degrees the rest of the species reduced to powder.

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Account of the theriaca.

The preparation of the *Theriaca andromachi*, or Venice treacle, is thus directed.

“ Take of the troches of squills, half a pound; long pepper, opium strained, dried vipers, of each three ounces; cinnamon, balm of Gilead, or in its stead expressed oil of nutmeg, of each two ounces; agaric, the root of Florentine orris, water germander, red roses, seeds of navew, extract of liquorice, of each an ounce and a half; spikenard, saffron, ammonum, myrrh, costus, or in its stead zedoary, camel's hay, of each an ounce; the root of cinquefoil, rhubarb, ginger, Indian leaf, or in its stead mace, leaves of dittany of Crete, of horehound, and of calamint, French lavender, black pepper, seeds of Macedonian parsley, olibanum, Chio turpentine, root of wild valerian, of each six drams; gentian root, Celtic nard, spignel, leaves of poley-mountain, of St John's wort, of ground pine, tops of creeping germander with the seed, the fruit of the balsam tree, or in its stead cubebs, anisefeed, sweet fennel seed, the lesser cardamom seeds freed from their husks, seed of bishop's-weed, of hartwort, of treacle mustard or mithridate mustard, juice of the rape of cistus, acacia, or in its stead Japan earth, gum Arabic, storax strained, sagapenum strained, Lemnian earth, or in its stead bole Armenic or French

bole, green vitriol calcined, of each half an ounce; root of creeping birthwort, or in its stead of the long birthwort, tops of the lesser centaury, seeds of the carrot of Crete, opopanax, galbanum strained, Russia castor, Jews pitch, or in its stead white amber prepared, root of the sweet flag, of each two drams; of clarified honey thrice the weight of all the rest. The ingredients are to be mixed in the same manner as in the mithridate.

The theriaca may be considered as a modification of the mithridate by Andromachus, though we are not informed what were his reasons for the variations, except that by the addition of the viper's flesh the medicine was rendered more useful against the bite of that animal*. The theriaca was in so great repute before the decline of the Roman empire, that even the wife Marcus Aurelius was induced to make a daily use of it, to the great prejudice of his health; for we are told by Galen, that his head was so much affected, that he dosed in the midst of business; and when on this account he omitted the opium in the composition, he could not sleep at all.

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* Galen de Antidotis, lib. i. cap. 1.

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Origin of the several parts of a formula.

It is not a little amusing to observe the reasons that induced the ancient compounders of medicines to crowd their receipts with such a multitude of ingredients. Medicines were then distributed into four qualities, of heating, cooling, drying, and moistening, by the combination of which, and the structure of the substance in which they adhered, whether consisting of gross or subtle parts, was deduced another head of qualities from consequential effects they were supposed by this means to have on the body, of inciding, attenuating, incrassating, relaxing, astringing, and the like; by a farther prosecution of this speculation was derived from the same source a third arrangement of cephalics, hepatics, stomachics, diuretics, and others; these orders being closed by a fourth head, to comprehend such, whose effects surmounted even the acuteness of this system to explicate; these were said to operate *tota substantia*. The first of these qualities, as well as those which depended on them, were farther divided into four degrees, and each of these into three subdivisions, whereby medicines might be adapted to each case with the nicest subtilty by the rules of arithmetic. Again, when the composition was thus happily adjusted, it was farther to be enquired, whether the medicine after all might not be suspected of some noxious quality, requiring correction; and this, whether real or imaginary, was by the farther addition of some proper accompaniment to be provided for. It was also to be considered, that a medicine might be serviceable to a remote part, but exposed to be destroyed by the powers of digestion before it arrived there; then it was to be assisted by some material, by which it should be defended and conducted safely, so as neither to be acted upon, nor act, till it reached the designed part, and then be left to operate without impediment, its guide and protector being itself there opportunely consumed: some medicines were pretended to run too swiftly through the body, others to move on too sluggishly; the first of these required a curb, the others a spur: often a director was necessary, that the medicine might not stray from its destined course; every medicine was supposed to have its peculiar station, in which, left to itself, its operation would be exerted; if it were required to perform its office sooner, it was to be committed

to

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to the custody of some other, which might fix it to the region desired; if it were designed to proceed farther, it must have an assistant to open it a passage.

How much ingenious men have been perplexed to account for these irregularities and superfluities of the earliest pharmaceutical writers, may in some measure be conceived from Bauderon's comment on the *Aurea Alexandrina*, the first composition in the collection of Nicholaus whom we shall presently notice. Opium, it seems, is the base whose powers are heightened by other ingredients, which require also others to correct their ill qualities. Besides these, one list of ingredients is to direct the operation to the head, another set to the breast, others to the heart, stomach, spleen, liver, kidneys, and other parts; inasmuch, says the author, that this one medicine, in regard to the diseases he enumerates, may very justly be considered as a whole apothecary's shop, contained in a gallypot. Rondelet, in his remarks on the *Syrupus Hyssopi Mesue*, seems less disposed to admire what he did not understand, when he tells us, he long doubted with himself, under what head, whether of attendants or ingredients, it ought to be ranged, it containing so many species of each kind; and at last has recourse to this frank reason for retaining it at all, *erit nobis usui, cum nondum erimus certi, incrassarene, an attenuare oporteat.*

73
Improvements introduced by the alchemists.

When the alchemists had extended the bounds of their art from the mere drudgery of manufacturing gold and silver to the more noble and philosophic employment of composing an universal elixir that should secure its possessor from disease, and prolong his life to an indefinite period, pharmacy derived from their labours considerable and solid advantages. The experiments instituted by these visionaries with the metals, led to the accidental discovery of some of the most efficacious remedies which we at present employ, especially the preparations of antimony and mercury, and most of what are called the neutral or secondary salts. By calling in the aid of fire, they enabled us to produce in bodies, changes which, without the assistance of this powerful agent, we should have been unable to effect. Now, every thing was submitted to *digestion, calcination, fermentation, distillation, and sublimation*; but, as generally happens in cases of innovation or reform, these new methods of obtaining active remedies were carried to an absurd and ridiculous extent. Finding that the healing powers of many substances were eliminated or increased by the application of heat, they seemed to imagine that the simple medicine could in no case possess any medicinal virtue till it had been placed upon the fire, or kept for some hours in a furnace. Hence the immense number of distilled waters and spirits, essential and empyreumatic oils, with which the old pharmacopœias are crowded, and which seem in many cases to possess no other powers than what they derive from the water or the spirit that forms the bulk of the preparation. Not only plants and minerals, but animals and animal matters of all kinds were distilled, digested, or calcined. Thus, we find a *water of snails, a spirit of millipedes, an oil of earth worms, &c. &c.* The absurd and pompous names by which the preparations were distinguished, are truly ridiculous. *Magisterial balsam, hierapicra, Ethiops mineral, ens veneris, flores martis, calomelas, aquila alba*, are a few which long retained their feat, both in public and private dispensaries. As these

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preparations were, from their contrivers, denominated *chemical*; the more ancient medicines which were drawn almost entirely from the animal and vegetable kingdoms, were denominated *Galenical*, because chiefly employed by the followers of Galen. Hence the division of medicines into *Galenical* and *chemical*, a division which obtained for some hundred years, and which only a few years ago was preserved in the sale catalogues of the London druggists.

However amusing to a scientific modern chemist it may be to wander through the labyrinths of the earlier pharmaceutical writers, it is necessary for us to be brief upon the subject. These absurdities are now fast disappearing; and pharmacy, guided by the increasing brightness of her younger but more enlightened sister, has begun to assume a more scientific and a more decided character. The principles and improvements of modern chemistry have been introduced into our pharmacopœias, and the civilized nations of Europe are now vying with each other in the amelioration of these guides to the medical practitioner. In our own country, the Edinburgh college led the way to this reform. They have been followed by the Dublin physicians; and we may soon expect the completion of the revolution in our national pharmacy, by the publishing of a new edition of the London Pharmacopœia, which is, we understand, now under review.

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The progress of our present officinal pharmacy, from the time of its first introduction by the Arabians, so far as we can trace it through the obscurities attending its origin, has been as follows. Saladinus of Ascoli, an author who wrote about the middle of the fifteenth century, while as yet there were no pharmacopœias established by any public authority, informs us, that the books with which the apothecaries were generally furnished, were these: a book of Avicenna and another of Serapion, which treat on simples; Simon Januensis *de synonymis*; a treatise of an Arabian author under the name of *Liber Seruitoris*, containing the preparations of simples, and the chemical medicines then in use; likewise two *Antidotaria*, one of Johannes Damascenus or Mesue, and another of Nicholaus de Salerno.

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Progress of modern pharmacy.

Some time after, Nicholaus Præpositus of Tours wrote a general dispensatory, that might supply the place of all these; in which the compositions are almost entirely taken from Mesue, and the forementioned more ancient Nicholaus. The *Theaurus Aromatariorum* written near the same time, and the *Lumen Apothecariorum*, consist also of similar extracts; and in the *Luminare Majus* published soon after, which contains a more extensive collection, these two authors generally lead each head. The same *Antidotaria* have also been made the general basis of the modern pharmacopœias, though we know little more of their authors than that they were the favourites of those barbarous times in which they lived.

It is probable that Mesue lived about the 12th century, which is all that we can ascertain respecting a writer to whose authority such implicit submission has been paid; and even this circumstance has been disputed: for some have confounded him with a much earlier writer of the same name, who resided at the court of Bagdat.

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Mesue.

Of the other father of pharmacy, Nicholaus, little more is known. From his being styled of Salerno, we might

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Nicholaus.

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imply that he resided in that school. Of his work, Saladin gives the following account: that there were two *Antidotaria* under the name of this Nicholas, the one distinguished by the title of *Nicholaus Magnus*, and the other by that of *Nicholaus Parvus*; that the latter was in most frequent use, and was only an epitome of the former, containing but a part of the compositions, and those reduced to less quantities. Among the collections of pieces often published together as a supplement to Mesue, one is entitled *Antidotarium Nicholai*, and in this are contained the compositions which were delivered by dispensatory writers, under the name of Nicholas. This is the lesser *antidotarium*, and there is also a copy of the greater, published under the name of Nicholas Alexandrinus, as translated from the Greek by Nicholas of Reggio, the first translator of Galen. In this translation, as in the former *antidotarium*, the compositions are arranged in the order of the Latin alphabet; whereas, in the original, the Greek alphabetical order seems to have been followed. Here, beside a much greater number of articles than in the other Nicholas, those which they have in common are in greater quantities.

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Foreign
public
Pharmacopœias.

The first Pharmacopœia which was set forth by public authority, was that of Valerius Cordus, published in 1542, under the sanction of the senate of Nuremberg. This consists almost entirely of collections from the two authors above mentioned, with short notes in relation to such names of plants or drugs in the compositions as were of doubtful signification. Subsequent pharmacopœias, however they might be rendered more copious by additions from other authors, also paid the like regard to Nicholas and Mesue. This Pharmacopœia of Cordus has been made more celebrated from the comments made on it by Hoffman. In 1561, Clusius published at Antwerp a Latin translation of the *Florentine Antidotarium*. In 1581 was published at Bergamo, in Italy, the *Pharmacopœia Bergamensis*, which was followed by the *Pharmacopœia Augustana*, at Augsburg in 1601; republished at Rotterdam, with notes by Zwelfer, in 1654, and again in 1666. The Pharmacopœia of the faculty at Paris first appeared in 1637, and about the same time there was published at Paris a collection of Arabian formulæ, called the *Persian Pharmacopœia*. In the latter end of the 17th century, the incorporated physicians of Sweden published their Dispensatory under the title of *Pharmacopœia Holmiensis*, which was republished in 1775 and 1784 by the title of *Pharmacopœia Suecica*. The Prussian Dispensatory, *Pharmacopœia Borussia*, was first published in 1799. The Pharmacopœia of Vienna was first published in 1729, and republished in 1765.

Besides these, we have seen or heard of the following.

The Dispensatory of Wirtemberg, of which the first edition is that of 1771.

Pharmacopœia Genevensis, published in 1780, republished in Italian in 1800.

Dispensatorium Lippiacum in 1792.

Pharmacopœia Bremensis in 1792.

Pharmacopœia Austriaco-provincialis, 1794.

Pharmacopœia Austriaco-castrensis, 1795.

Pharmacopœia Rossica, published at St Petersburg first in 1798, and again in 1803.

Of the British *Pharmacopœias*, the earliest is that of

the London college, which was first published in 1618. It was again published either at the close of the 17th, or beginning of the 18th century in 18mo; again in 1746 in 4to, and last in 1791. The college is now preparing a new edition, and has circulated among its members a *specimen* of the proposed alterations. We have been favoured with a perusal of this specimen, and we have no doubt, that with respect to accuracy of preparation, and judicious selection of remedies, the new work will not be inferior to the late editions of the Edinburgh and Dublin *Pharmacopœias*. In point of nomenclature, however, we cannot help thinking, that the committee have in a great measure failed in their desire to avoid error and confusion. Should the nomenclature of the *specimen* be adopted in the published edition, we fear that the *novelty* of the terms will be the smallest objection to their use; but that being so perfectly different, both from the language of modern chemistry and of the late pharmacy of the London druggists and apothecaries, will occasion serious inconvenience both to prescribers and compounders. It would be indecorous for us to particularize instances, but we chiefly allude to the names of the *secondary salts*, which we consider as very objectionable. The new edition will be evidently much improved, many new articles are admitted, and not a few of such as were less efficacious, or which may be prepared extemporaneously, are omitted.

The college of Edinburgh first published their Pharmacopœia in 1722; and improved editions have successively appeared in 1736, 1747, 1756, 1775, 1783, 1792, 1803, and 1805, this last being little more than a new impression of the preceding. The Dublin college first published, or rather printed, a Pharmacopœia in 1794; and they have lately, viz. in 1807, republished it with considerable improvements. In this edition they have chiefly followed the plan of the Edinburgh Pharmacopœia, but they retain the usual pharmaceutical names of the simples, though they have in general adopted the reformed chemical nomenclature. The most material improvements will be noticed in the *appendix* to this article.

Besides the Pharmacopœias printed under the authority of public colleges, a great many have been published by individuals both on the continent and in Britain. We shall notice the principal of these in chronological order.

The earliest of these that we find on record, after those of Nicholas, is the *Antidotarium Speciale* of Wecker, which was printed in 1561. Four years after appeared the *Antidotarium* of Montagna, published at Venice; and at the same place in 1600, appeared a work by Fioraventi, entitled *Secreti Rationali Intorno Alla Medicina*. In 1608, Renodæus published at Paris his *Officina Pharmaceutica seu Antidotarium*. Mynsicht's *Armamentarium Medico-chymicum* appeared in 1631; and in 1656, Schroeder published at Leyden his *Pharmacopœia Medico-Chemica*. In 1676 Charas published his *Pharmacopœe Galenique et Chemique* at Paris, and in 1684 the same work was republished in Latin at Genoa. In 1698 appeared the celebrated *Pharmacopœe Universelle* of Lemery; and in the same year the *Pharmacopœia Spagyrica* of Poterius. Of those that have appeared in the 18th century, beside those mentioned in the introduction to MATERIA MEDICA, we may

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may notice as being of superior merit; Triller's *Dispensatorium Pharmaceuticum Univerſale*, published at Frankfurt in 1764; Spielman's *Pharmacopœia Generalis* at Straſburg in 1783, and Reuſs's *Dispensatorium Univerſale* at the ſame place.

have ſeen is that published at Paris in 1768, under the care of Theodore Baron.

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British private Diſpenſatories.

In our own country, ſeveral uſeful works of this kind have been produced. One of the earlieſt (D), and among the moſt reſpectable of theſe, is the *Pharmacopœia Officinalis et Extemporanea*, ſor *Complete Engliſh Diſpenſatory* of Dr Quincy, which was firſt published in 1718, again in 1722, and in 1739 had reached the eleventh edition, now before us. Conſidering the time at which it was written, this is an excellent performance, and is the more intereſting, as it formed the foundation on which were compoſed thoſe more accurate and ſcientific works, the *New Diſpenſatory* of Lewis, and the *Edinburgh New Diſpenſatory*. Quincy's Diſpenſatory was followed by ſimilar works, as by James's Diſpenſatory in 1747, Lewis's in 1753, and the *Edinburgh New Diſpenſatory* by Webſter in 1786. At length, in 1803, Dr Andrew Duncan, Junior, published his *Edinburgh New Diſpenſatory*, which, from the important additions and improvements progreſſively introduced in four editions, muſt be conſidered as a new work, and has entirely ſuperſeded every ſimilar publication.

We know of very few works that have been written, containing practical rules for the writing of preſcriptions. In our own country, almoſt the only work on the ſubject with which we are acquainted, is Quincy's *Lectures on Pharmacy*; a work now very little known, though the principal parts of it were introduced under their proper heads, in the later editions of the complete Engliſh Diſpenſatory. Quincy's rules, though now a little antiquated, are for the moſt part very good; and allowing for the imperfect ſtate of chemical ſcience in the beginning of the 18th century, may ſtill be peruſed with advantage. Similar rules, which were indeed little more than modifications of thoſe given by Quincy, were laid down by Dr Lewis in his *New Diſpenſatory*.

83
Works on extemporaneous preſcription.

82
Collections of formulæ.

Of collections of formulæ, both by continental and Engliſh writers, there is no want; but it will be difficult for an unexperienced preſcriber to make a judicious ſelection from among them. The beſt we have ſeen in this country are, the *Theſaurus Medicaminum*, now admitted to be the production of Dr. R. Pearſon; the *Pharmacopœia Chirurgica*; and perhaps we may add thoſe published in Dr Kirby's tables of the *Materia Medica*. The firſt of theſe was published in 1794, and a third edition of it materially improved appeared in 1804. The *Pharmacopœia Chirurgica* is a valuable ſelection of formulæ, chiefly intended for ſurgeons, and drawn up principally from the practical *Pharmacopœiæ* of the different London hoſpitals. The firſt edition appeared, we believe, in 1794; and in 1802 there was published a fifth edition, with the addition of a ſynoptical table of the formulæ contained in the volume, arranged according to the order of their principal ingredients. The formulæ annexed to each of the claſſes in Dr Kirby's Tables are intended principally to ſerve as examples of the method of preſcribing the principal articles enumerated in the claſs to which they are attached. They are ſelected partly from the beſt writers on extemporaneous preſcription and the practice of medicine, and are partly derived from the private experience of the author or his medical friends.

One of the moſt celebrated foreign elementary works on this ſubject, and that which we believe is beſt known in this country, is *Libellus de Methodo Concinnandi Formulæ Medicamentorum*, by Gaubius, a ſecond edition of which was published at Leyden in 1752. After laying down ſome general rules to be obſerved before preſcribing, Gaubius gives an account of the nature and conſtruction of formulæ in general, and then treats particularly of the ſeveral forms of medicines uſually employed. Theſe he divides into internal and external, reckoning among the former powders, boluſes, electuaries, *eclegmata* or linctuſes, pills, lozenges, &c. which he diſtinguiſhes into *tabellæ* and *rotuli*, infuſions, decoctions, expreſſed juices, emulſions, juleps, mixtures, and draughts or contracted mixtures. External forms he divides into injections, *adſpergines* (powder ſprinkled on the ſurface), fomentations, dry epithems, cataplaſms or poultices, baths, fumigations, plaſters, cerates, ointments, odoriferous baſams, liniments, epiſpaſtics or bliſtering plaſters, frictions, *collyria* or eye-waters, errhines or ſnuſſes, dentifrices or tooth-powders, apophlegmatifms, gargles, clyſters, ſuppoſitories, and peſſaries. He gives ample rules for the preparation of each of theſe forms, with examples. This work, however, from the antiquated ſtyle and prolixity with which it is written, and the obſolete names that every where occur throughout the examples, is of little uſe except as a book of reference.

84
Gaubius.

In 1754, Joannes Petrus Eberhard, profeſſor of medicine in the univerſity of Halle, in the duchy of Magdeburg, published his *Methodus Conſcribendi Formulæ Medicas*, a ſmall pamphlet in 18mo, containing rules arranged in a tabular form. In this little work the author firſt treats of the nature of a medical formula, and explains the characters uſually employed in preſcription. He then lays down his plan of diviſion, and laſtly treats of the preparation of each particular form, with practical hints reſpecting the ingredients proper for each form, with their proportional doſes, and the caſes to which they are more particularly adapted. This work was firſt intended for the profeſſor's pupils, but he published it under the conviction that it would be found of advantage by practitioners in general. On the whole, it is a uſeful

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Eberhard.

T t 2

(D) The only *Pharmacopœias* worth notice in this country that preceded the Diſpenſatory of Quincy, were, we believe, the *Pharmacopœia Bateana*, edited by Dr Thomas Fuller, and the *Pharmacopœia Extemporanea*, drawn up by the ſame author, (to be preſently noticed), both published early in the 18th century.

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useful publication, but is as much too brief as that of Gaubius is too prolix. The rules are not illustrated by examples.

The best work that we have seen on the elements of extemporaneous prescription, is entitled, *Via et Ratio Formulas Medicas conscribendi*, by Grüner, professor of medicine in the university of Jena. As we have seen only one copy of this work, belonging to the college library Edinburgh, and when this article went to press, could not procure a second perusal of it, we cannot present our readers with any analysis of its contents; but from the favourable impression we received on examining it several years ago, we consider it as a valuable work.

87
Alibert.

The last writer on this subject whom we shall notice is M. Alibert, who, at the end of the second volume of his *Nouveaux Elémens de Thérapeutique et de Matière Médicale*, has given what he calls a New Essay on the Art of Prescribing; in the first part of which he treats of the general rules of the art, and in the second explains the particular formulæ which act on the vital properties of the different organic systems of the human body. M. Alibert's arrangement is peculiar, and we shall therefore give a sketch of it. He arranges his formulæ under six sections, and divides each section into several articles. In the first section he treats of the formulæ or compound medicines which the medical art principally directs towards the vital properties of the system of the digestive organs. In the first article of this section he describes the compound medicines which are particularly directed to the muscular contractility of the stomach, in common language, emetics; in the second article, those which are particularly directed to the muscular contractility of the intestinal canal, viz. cathartics; in the third article he treats of those which are particularly adapted to the changes of the vital properties that

result from the presence of worms in the stomach and intestines, namely, anthelmintics; in the fourth article, of those which are particularly directed against the effects of poisons introduced into the stomach or intestines; and in the fifth, of those compound medicines which are particularly directed to the vital properties of the larger intestines.

In the second section he treats of these medicines which the art particularly adapts to the vital properties of the urinary passages; diuretics.

In the third section he describes those that particularly refer to the vital properties of the respiratory organs, viz. expectorants and refrigerants.

In the fourth section he treats of those compound medicines which are particularly directed to the vital properties of the *dermoid system*, or the skin; namely, diaphoretics, emollients, and epispastics.

In the fifth section he notices those medicines which are particularly directed to the vital properties of the nervous system; viz. antispasmodics, narcotics, sternutatories and sialagogues.

In the sixth and last section he treats of the compound medicines that the art particularly directs toward the vital properties of the system of generation.

Some other late French writers on Pharmacy have given a number of examples of medical formulæ, especially M. Bouillon La Grange, in his *Manuel du Pharmacien*. In all these formulæ is employed the new French standard of weights and measures, commonly accompanied by the synonymous troy weights and measures, as used by the French apothecaries under the old government; but as neither of these are familiar to English readers, we shall here add two tables of the French weights and measures of capacity, reduced to English wine measures and troy and apothecary weights.

TABLE I. A Comparison of French Grammes with Troy, French, and Nuremberg, Apothecary Grains.

Grammes.	Troy grains.	Old French Grains.	Nuremberg Grains.
1=	15.444=	18.883=	16.128
2=	30.888=	37.766=	32.256
3=	46.332=	56.649=	48.384
4=	61.776=	75.532=	64.512
5=	77.220=	94.415=	80.640
6=	92.664=	113.298=	96.768
7=	108.108=	132.181=	112.896
8=	123.552=	151.064=	129.024
9=	138.996=	169.947=	145.152
10=	154.440=	188.830=	161.280

TABLE II. French Measures of Capacity, reduced to cubic inches, and English Wine Measure.

French Measures.	English cub. inches.	Tuns.	Hhds.	Gallons.	Pints.
Millilitre =	.06102	0	0	0	.002
Centilitre =	.61028=	0	0	0	.0211
Decilitre =	6.10280=	0	0	0	.2113
Litre =	61.02800=	0	0	0	2.1133
Decalitre =	610.28000=	0	0	2	5.1352
Hecolitre =	6102.80000=	0	0	26.419	
Chilolitre =	61028.00000=	1	0	12.19	
Myriolitre =	610280.00000=	10	1	58.9	

Appendix.

APPENDIX.

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THE new edition of the *Dublin Pharmacopœia* having appeared since the printing of our article MATERIA MEDICA, it becomes us to notice the principal improvements introduced by the Dublin college; and as particular circumstances prevented our doing so under PHARMACY, we have reserved them for an appendix to the present article. We shall also take this opportunity of supplying some omissions in the article MATERIA MEDICA, rendered unavoidable by the circumstance of that article coming on at the conclusion of a volume, beyond which we could not with propriety extend it, especially by the addition of a complete table of the synonymous Latin names of all the officinal compounds.

We shall notice the additions and improvements of the Dublin college in the same order which we have observed in MATERIA MEDICA, Part IV.

CHAP. I. *Animal Substances.*

2. MURIAS AMMONIÆ (E).

Preparation *c.* CARBONAS AMMONIÆ. See MATERIA MEDICA, N^o 238.

In the preparation of this salt, the Dublin college now employ carbonate of soda for decomposing the muriate of ammonia, instead of chalk. The only advantage of this seems to be that the decomposition is effected at a lower temperature.

Preparation *d.* AQUA CARBONATIS AMMONIÆ. MATERIA MEDICA, N^o 239.

Here too carbonate of soda is employed in the proportion of 28 oz. to the pound of muriate of ammonia.

Preparation *f.* HYDROSULPHURETUM AMMONIÆ. MATERIA MEDICA, N^o 241.

This is now introduced into the Dublin Pharmacopœia, and is directed to be prepared much in the same manner as in the pharmacopœia of Edinburgh.

Preparation *h.* ALCOHOL AMMONIATUM AROMATICUM. MATERIA MEDICA, N^o 243.

The only change made in the preparation is, in substituting $\frac{1}{2}$ oz. of nutmegs for 2 drs. of the essential oil, and distilling off the ammoniated alcohol, thus rendering the solution of the aromatic principles more complete.

5. CERVUS ELAPHUS.

Preparation *a.* PHOSPHAS CALCIS. MATERIA MEDICA, N^o 254.

The Dublin college order this under the name of *Pulvis cornu cervini usi*, to be prepared in the usual manner as directed by the Edinburgh pharmacopœia.

Preparation *b.* DECOCTUM CORNU CERVINI, Dub. Appendix. Decoction of hartshorn.

This is made by boiling two ounces of burnt hartshorn reduced to powder and 3 drs. of gum arabic, in 3 pints of water to 2 pints, continually stirring, and then straining the liquor.

In this way a considerable quantity of the phosphate of lime is, by means of the gum arabic, suspended in the water; but we do not think this so good a method of administering the remedy as giving the powder itself, mixed with syrup of mucilage.

CHAP. II. *Vegetable Substances.*

24. ALCOHOL, MATERIA MEDICA, N^o 294.

Preparation *a.* ALCOHOL.

The new process of the Dublin college for preparing alcohol is as follows: A gallon of rectified spirit of wine is first mixed with an ounce of caustic potash in powder; then a pound of pearl ashes dried at the heat of 300° of Fahrenheit, and reduced to powder, is added while still warm, and the mixture digested for three days in a close vessel with frequent agitation. The spirit is then poured off, mixed with half a pound of dried muriate of lime (which is usually obtained from the residuum after the preparation of pure ammonia), and distilled with a moderate heat till what remains in the retort begins to grow thick.

26. ACIDUM ACETOSUM IMPURUM.

Preparation *b.* ACIDUM ACETOSUM FORTE, E. MATERIA MEDICA, N^o 307.

ACIDUM ACETICUM, Dub.

This is prepared by putting into a tubulated retort, 3 ounces by weight of sulphuric acid, and adding to it gradually in small portions, 6 ounces of acetate of potash, waiting after each addition till the mixture be cold; and after the whole is mixed, distilling to dryness. What comes over is the acetic acid.

Preparation *d.* ACIDUM ACETOSUM CAMPHORATUM, E. MATERIA MEDICA, N^o 309.

ACIDUM ACETICUM CAMPHORATUM, Dub.

Prepared much in the same manner with the Edinburgh acid, only with half the quantity of acid.

29. CERA. MATERIA MEDICA, N^o 319.

Preparation *a.* CERA FLAVA PURIFICATA, Dub. Purified yellow wax.

Wax is purified by melting it with a moderate heat (as in a water bath), scumming it, and pouring off the clear fluid from the dregs.

32. ANGUSTURA, MATERIA MEDICA, N^o 331.

Preparation

89 Carbonate of ammonia.

90 Solution of carbonate of ammonia.

91 Hydrosulphuret of ammonia.

92 Aromatic ammoniated alcohol.

93 Phosphate of lime.

94 Decoction of hartshorn.

95 Alcohol.

96 Acetic acid.

97 Camphorated acetic acid.

98 Purified wax.

(E) In the following enumeration the numbers prefixed to the simple articles correspond to those in the same situation in the arrangement of Part IV. in MATERIA MEDICA; while those which follow some of the articles refer to the paragraphs of that article as numbered in the marginal notes.

Appendix. Preparation *a*. TINCTURA ANGUSTURÆ, Dub. Tincture of Angustura.

This is prepared by digesting two ounces of coarsely powdered angustura bark in two pints of proof spirit for seven days, and straining.

99 Tincture of angustura. This preparation, now first made officinal by the Dublin college, is a good form for exhibiting the angustura in small doses. Ordinary dose about 2 drs. generally in composition.

CLASS II. Order 3. DIANDRIA TRIGYNIA.

45. PIPER NIGRUM.

100 Ointment of black pepper. Preparation *a*. UNGUENTUM PIPERIS NIGRI, Dub. Ointment of black pepper. A stimulating ointment, made by mixing 4 oz. of finely powdered black pepper, with a pound of prepared hogs lard.

CLASS III. Order 1. TRIANDRIA MONOGYNIA.

48. VALERIANA OFFICINALIS, MATERIA MEDICA, N^o 354.

101 Infusion of valerian. Preparation *d*. INFUSUM VALERIANÆ, Dub. Infusion of valerian.

This is made by digesting 2 drs. of valerian root, coarsely powdered in 7 oz. by measure of boiling water, for an hour, and draining off the liquor when cold.

This is a good antispasmodic, especially in hysterical cases, and the stomach is said to bear it better than the powder. Dose, a glassful twice or thrice a-day.

In our MATERIA MEDICA, in the names of the preparations of valerian, the genitive case of valeriana is inadvertently printed *valeriani*.

CLASS V. Order 1. PENTANDRIA MONOGYNIA.

69. HYOSCYAMUS NIGER.

102 Tincture of henbane. Preparation *b*. TINCTURA HYOSCYAMI NIGRI, MATERIA MEDICA, N^o 392.

Now added by the Dublin college, and made rather stronger than the Edinburgh tincture, the proportions being 2½ ounces of the dried leaves in coarse powder, to an English pint of proof spirit.

72. CINCHONA OFFICINALIS.

103 Infusion of cinchona. Preparation *a*. INFUSUM CINCHONÆ OFFICINALIS, E. MATERIA MEDICA, N^o 402.

INFUSUM CINCHONÆ SINE CALORE, Dub.

Prepared by macerating an ounce of cinchona bark in coarse powder in 12 ounces of cold water for 24 hours; then pouring off the liquor.

Order 2. DIGYNIA.

84. ULMUS CAMPESTRIS.

104 Decoction of elm bark. Preparation *a*. DECOCTUM ULMI.

The Dublin college order this decoction to be prepared much in the same manner as that of the London pharmacopœia.

90. FERULA ASAFOETIDA.

105 Fetid clyster. Preparation *f*. ENEMA FOETIDUM, Dub. Fetid clyster.

This is made by adding to the purging clyster to be described presently, 2 drs. of tincture of asafœtida. Appendix.

CLASS VI. Order 2. HEXANDRIA TRIGYNIA.

112 *. RUMEX AQUATICUS, Dub. Great water dock. The root. 106 Great water dock.

One of the new additions to the Dublin Materia Medica.

It ranks among astringents, and has been celebrated as a remedy in scurvy, diseases of the skin, and venereal complaints. It is generally given by way of infusion.

CLASS VII. Order 1. HEPTANDRIA MONOGYNIA.

113. ÆSCULUS HIPPOCASTANUM. 107

Now adopted by the Dublin college.

127. CASSIA SENNA.

Preparation *h*. SYRUPUS SENNÆ, Dub. Syrup of Senna. See SYRUPUS MANNÆ, MATERIA MEDICA, N^o 795. 108 Syrup of Senna.

CLASS X. Order 1. DECANDRIA MONOGYNIA.

130. SWIETENIA FEBRIFUGA. 109

Now also first adopted in the Dublin pharmacopœia.

134. QUASSIA EXCELSA.

Preparation *a*. TINCTURA QUASSIÆ, Dub. Tincture of quassia. 110 Tincture of quassia.

This is prepared by digesting an ounce of quassia shavings in 2 pints of proof spirit for 7 days, and filtering.

This forms a strong solution of the bitter principle of quassia.

137. STYRAX OFFICINALE.

Preparation *b*. PILULÆ E STYRACE, Dub. Storax pills. 111 Storax pills.

Prepared by beating well together 3 drs. of purified storax, 1 dr. of soft purified opium, and the same quantity of saffron.

This may properly be considered as a preparation of opium, of which it contains a fifth part.

CLASS XI. Order 2. DODECANDRIA DIGYNIA.

142 *. AGRIMONIA EUPATORIA, Dub. The herb. Agrimony. 112 Agrimony.

A slight astringent now added by the Dublin college.

CLASS XII. Order 5. ICOSANDRIA POLYGYNIA.

158. GEUM URBANUM, Dub. Avens. The root. 113 Avens.

This has now obtained a place in the pharmacopœia of Dublin, and as a useful indigenous tonic, merits particular notice. Dose of the powder from half a dram to a dram.

CLASS

114
Opium.

As the account of this important remedy given in the article Botany may not be deemed sufficiently satisfactory by our medical readers, and as in the *Materia Medica* we were so much confined that we could only refer to the best writers that have treated on opium, we shall here supply that deficiency, by giving a comprehensive view of the effects of opium; of the discoveries that have been made by late chemical analyses respecting the nature of its narcotic principle; shall point out the general means by which the ill effects which sometimes attend the exhibition of this medicine may be obviated, and enumerate those articles of the *Materia Medica* which may be most conveniently employed as substitutes for a drug now become so scarce and expensive.

Perhaps no article of the *Materia Medica* ranks higher in point either of antiquity or efficacy than opium. Its peculiar properties and mode of operation have, however, been long a subject of debate, both among theoretical and practical writers. The place assigned to it in systematic arrangement has been continually fluctuating; Cullen and his followers considering it as one of the most powerful sedatives which we possess, while Brown, Darwin, and the advocates for their doctrines, as strenuously contend that it ought to be ranked amongst the most active and diffusible stimuli. In fact, the parties engaged in this controversy appear chiefly to differ about words, and probably they are both partly right and partly wrong.

They agree that the effects of opium are similar to those of wine and alcohol, liquors which are generally, though indeed not universally, accounted stimulants. If opium produces similar effects with these, we see no good reason why it should not be arranged in the same class. All these substances may indeed be considered as both stimulant and sedative, according as we advert to their primary or secondary effects. If by a stimulant be meant something which increases the force and frequency of action in the muscular fibres, and possesses the power of sustaining or increasing the vital powers, which is, we believe, the generally received definition, we can surely not refuse this character to alcohol, and its modifications. Who that has ever felt the cheering influence of wine, that has experienced the exhilaration, the flow of spirits, and the energy of action, which are the usual effects of the bottle, can refuse to acknowledge the effects of the stimulating powers of this too fascinating beverage. Again, if by a sedative we are to understand something which diminishes the force and vigour of muscular action, and depresses all the vital energies, every one who has felt the effects consequent to a too free libation at the shrine of Bacchus, will readily admit that wine and alcohol are, in an eminent degree, possessed of sedative powers. Now, that opium resembles alcohol in both these circumstances, is generally admitted.

115
General effects of opium.

When a moderate quantity of opium (we mean not more than two grains), is received into the stomach, it excites there a gentle warmth, which is gradually diffused over the whole body, attended with an itching of the skin, and usually followed by an increase of perspiration. The pulsation of the heart and arteries is at first rendered fuller and more frequent, and there is commonly a heat and flushing of the face; the eyes appear enliven-

ed, and the spirits are exhilarated. Pain is alleviated, and all care for the time forgotten. The effects of this substance on those who swallow it as a substitute for wine, as is usual in the east, are familiar to most of our readers, and sufficiently prove its stimulating effect. Similar proofs appear to have been exhibited during the present war, among Europeans. We are told that the French soldiers are plied indifferently with opium or brandy, in order to increase their courage and ferocity; and we have been credibly informed, that some of the most celebrated performers on the London stage, particularly in tragic parts, which require peculiar self-command, or energy of expression, are accustomed to take doses of opium proportioned to the circumstances of the character which they are to perform.

The excretion of urine is sometimes increased; but as an increase of absorption is a usual consequence of opium, other excretions, except, as we have said, the perspiration, appear to be diminished. Opium also acts as a powerful stimulus to the genital organs, and excites the venereal appetite. It is said that on examining the bodies of Turks slain in battle, the penis has been often found in a state of erection, even in old men*.

After these effects have continued for a time, appearances of a different nature present themselves. At first a languor and lassitude not unpleasing come on, and are soon followed by yawning and a strong propensity to sleep. If the quantity taken has been considerable (above two gr.), the previous symptoms of excitement are more remarkable, but they generally continue for a shorter time, and are followed by a proportional depression. Considerable nausea supervenes, and sometimes a severe vomiting is excited, by which great part of the opium is expelled from the stomach. But if this should fail to take place, and often when it has to a partial degree appeared, a heavy stupor comes on, attended with giddiness and headach; the breathing becomes difficult and laborious; the person falls into a profound sleep, from which he is roused with great difficulty, and into which, if left to himself, he speedily relapses; the face becomes pale, the lips livid, the extremities cold, universal torpor seizes the limbs, and is followed by convulsions and fatal apoplexy.

* Murray
Apparat.
Medicam.
tom. ii. p.
282.

On examining the bodies of those animals which have fallen victims to opium, the stomach is found distended, and containing frothy mucus, its internal coat in a state of inflammation, and sometimes the pylorus contracted. The vessels of the brain are exceedingly turgid, and commonly an effusion of blood is found to have taken place.

116
Appearances on dissection.

When a person awakes after having taken opium, he usually finds himself heavy and giddy, and not unfrequently complains of headach and dimness of sight; his bowels are costive, and his appetite defective. Some people, so far from being soothed and lulled to sleep by opium, are rendered exceedingly irritable and restless; others, if they are made to sleep by the influence of this medicine, are harassed with frightful dreams, and awake unrefreshed.

Effects similar to what we have described arise from opium when injected into the rectum; but they require a larger dose. When this substance is applied to the eye, the urethra, or other sensible parts, it excites pain and redness*, which, however, do not long continue. When merely applied to the surface of the body, while 23.

the

* Crumpe's
Enquiry, p.

Appendix.

the cuticle is entire, it produces no change; but when the tincture of opium, or opium in fine powder, mixed with an oily substance, is rubbed on the skin, pain is alleviated, sleep induced, delirium assuaged, and other sedative effects brought on; but the stimulating effects of the medicine are, in this way, said to be less apparent.

117
Ill effects of opium.

The ill effects which sometimes attend the exhibition of opium, may arise, either directly from its stimulating power, or from consequent exhaustion.

I. The ill effects which appear to be the immediate consequence of this stimulus are, excitement, increased absorption, and determination of the blood to the head. These effects render it an improper remedy in the early stages of inflammatory diseases, particularly in phrenitis, pneumonia, catarrh, and dysentery. By increasing excitement and determining to the head, opium is improper in phrenitis; and it is hurtful in the other diseases by increasing absorption, and hence lessening expectoration, and producing costiveness. In some cases of inflammation, however, where increased perspiration is desirable, as in rheumatism, if the medicine be so managed as to produce full sweating in a short time after exhibition, it may be employed with advantage.

II. The ill effects which arise from the secondary circumstances following the administration of opium, are chiefly headach, general debility, tremors, spasms, paralysis, and hypochondriasis. Of course, in cases where these symptoms and diseases are to be apprehended, it must be employed with considerable caution.

118
Analysis of opium.

Opium has been analysed by several chemists, especially by Gren, Bucholtz, Joffe, Proust, Dr Duncan junior, and very lately by Derofne. "By evaporating a watery solution of opium to the consistence of a syrup, Derofne obtained a precipitate, which was increased by diluting it with water. He dissolved this in hot alcohol, from which it again separated on cooling. When purified by repeated solutions, it crystallised in rectangular prisms, with rhomboidal bases, had no taste or smell, was insoluble in cold water, and soluble in 400 parts of boiling water, did not affect vegetable blues, was soluble in 24 parts boiling alcohol and 110 cold; soluble in hot ether and volatile oils, and separated from them as they cooled; very soluble in all acids, and highly narco-

* Duncan's tic *.

Dispen. 4th
edit. p. 329

A considerable proportion of the substance of opium is insoluble, both in water and alcohol; and it is remarkable that the insoluble part is very different in Turkey opium from what it is in that which comes from the East Indies; being in the former a ductile, plastic, coherent mass, in the latter an incoherent powdery matter, diffusible in water. According to Dr Duncan the active constituent of opium appears to be of a volatile nature; and as this must be carried off by boiling or distillation, the usual processes for purifying opium, tend to diminish its medical effects.

119
Means of obviating the ill effects of opium.

The ill effects of opium are to be obviated or counteracted by regulating the dose according to the effect intended to be produced; by the mode of administration, whether internally, or by friction, or by combining with it some correcting substance which has the effect of counteracting its unpleasant properties, such as lemon-juice, ammonia, tartrate of antimony and potash, submuriate of mercury, or aromatics. The languor and

general debility felt after having taken opium, are best relieved by wine and exercise. Appendix.

When a person has swallowed such a quantity of opium as there is reason to fear will prove fatal, if its effects are not prevented or counteracted, it is proper to exhibit an emetic as soon as convenient, in order to evacuate from the stomach as much of the opium as possible. With this view, a scruple or half a dram of sulphate of zinc dissolved in a little water, is to be given, and the action of vomiting promoted several times by proper diluting liquors. We should then administer lemon juice in considerable quantities; and if the stupor be very great, all methods are to be employed for rousing the patient, and obliging him to exert himself in moving about. If the more alarming symptoms are made to yield, we should give wine, ether, or other stimulants, in moderate doses, still taking care to keep alive the attention of the patient. Strong coffee has been highly recommended in these cases.

As opium is now become a very expensive article, it is of consequence to consider what other remedies that are likely to produce the same good effects may be substituted for it. Several of the narcotic vegetables have been employed for this purpose, especially *lactuca virosa*, *conium maculatum* or hemlock, *datura stramonium* or thorn apple, *atropa belladonna* or deadly nightshade, *humulus lupulus* or hop, and *hyoscyamus niger* or henbane. Of these the two last seem to be best adapted to this purpose. 120
Substitutes for opium

Preparation d. EXTRACTUM OPII AQUOSUM, Dub.

The Dublin College have made some alteration in their mode of preparing this extract, though they preserve the same proportions. They direct the opium to be triturated with hot water for ten minutes, when the water is to be poured off, a fresh quantity added, and the trituration continued for the same period. This trituration to be repeated a third time. Then all the liquors are to be mixed together, suffered to stand in an open vessel for two days, strained through linen, and then inspissated to the consistence of an extract. 121
Watery extract of opium.

CLASS XIV. Order I. DIDYNAMIA GYMNOSPERMIA.

168. MENTHA VIRIDIS.

Preparation d. INFUSUM COMPOSITUM, Dub. Compound infusion of mint. 122

This is prepared by first digesting, for half an hour, in a close vessel, two drams of dried mint in as much boiling water as, when strained, may produce six ounces, and then mixing with the strained liquor, two drams of fine white sugar, and three drops of essential oil of mint, previously dissolved in half an ounce of compound tincture of cardamom.

This forms a very grateful stomachic.

174. TEUCRIUM CHAMÆDRYS, Dub. Wall germander. The herb. 123
Wall germander.

An indigenous tonic, employed in domestic medicine in cases of *chlorosis*, *gout*, and *intermittent fever*.

Order

EXTEMPORANEOUS PRESCRIPTIONS.

Appendix.

Order 2. ANGIOSPERMIA.

180. DIGITALIS PURPUREA.

124
Tincture of digitalis.

Preparation *b.* TINCTURA DIGITALIS PURPUREÆ.

This medicine is now introduced into the Dublin Pharmacopœia, and is prepared in the same manner as directed by the Edinburgh college.

CLASS XIX. Order 2. SYNGENESIA POLYGAMIA SUPERFLUA.

216. ANTHEMIS NOBILIS.

125
Compound decoction of chamomile.

Preparation *a* *. DECOCTUM CHAMEMÆLI COMPOSITUM. Dub. Compound decoction of chamomile.

Made by boiling for a little half an ounce of chamomile flowers and two drams of sweet fennel seeds in a pint of water, and straining.

Used chiefly for clysters.

CLASS XXI. Order 8. MONOECIA POLYANDRIA.

226. QUERCUS CERRIS. *Galls.*

126
Tincture of galls.

Preparation *a.* TINCTURA GALLARUM, Dub. Tincture of galls.

Prepared by digesting four ounces of powdered galls in two pints of proof spirit for seven days, and straining.

A strong solution of the astringent principle of galls.

Order 10. MONADELPHIA.

228. PINUS ABIES. *Burgundy pitch.*

127
Calefacient plaster.

Preparation *b.* EMPLASTRUM CALEFACIENS, Dub. Calefacient plaster.

A warm stimulating plaster, made by melting together, with a moderate heat, seven parts of *Burgundy pitch* and one part of *ointment of cantharides*.

Order 12. SYNGENESIA.

236. CUCUMIS COLOCYNTHIS.

128
Compound pills of colocynth.

Preparation *b.* PILULÆ COLOCYNTHIDIS COMPOSITÆ. Dub. Compound pills of colocynth.

These are prepared by beating together half an ounce of the pith of colocynth, half an ounce of hepatic aloes, and the same quantity of scammony, all in powder, with two drams of Spanish soap, a dram of cloves, and a sufficient quantity of simple syrup, to form a mass for pills. This is a strong cathartic, and may be given in a dose of 10 or 15 grains.

244. JUNIPERUS SABINA.

129
Savine ointment.

Preparation *d.* UNGUENTUM SABINÆ, Dub. Savine ointment.

Prepared by boiling half a pound of fresh savine leaves, bruised, in two pounds of prepared hog's lard till they become crisp, then pressing out the lard and melting in it half a pound of bees wax.

A stimulating ointment, used in dressing issues, for which it is said to be preferable to cantharides ointment.

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CLASS XXIV. Order 2. CRYPTOGAMIA. FUCI.

Appendix.

255*. FUCUS VESICULOSUS, QUERCUS MARINA, Dub. Yellow bladder wrack.

130
Bladder wrack.

A common indigenous sea-weed, the charcoal from which is employed in the following preparation.

a. PULVIS QUERCUS MARINÆ, Dub. Powder of sea-wrack.

131
Powder of sea-wrack.

This is prepared by drying and cleaning any quantity of yellow bladder wrack, gathered while in fruit; then exposing it to the fire in an iron pot or crucible, covered with a perforated lid, till the volatile matters have evaporated, and the mass becomes of a dull red colour. This is to be reduced to a very fine powder, and kept in close vessels.

The medical virtues of this preparation, if it have any, are similar to those of burnt sponge, and it may be given in the same dose.

Order 3. ALGÆ.

256. LICHEN ISLANDICUS, N^o 799.

Preparation *a.* DECOCTUM LICHENIS ISLANDICI, Dub. Decoction of Iceland liverwort.

132
Decoction of Iceland liverwort.

This is prepared by digesting half an ounce of Iceland liverwort in a pint of hot water for two hours, in a close vessel, then boiling for 15 minutes, and straining off the liquor while hot.

CHAP. III. *Mineral Substances.*

SECT. 2. *Inflammable Substances.*

260. SULPHUR SUBLIMATUM.

Preparation *g.* AQUA SULPHURETI KALI, Dub. Water of sulphuret of potash.

133
Water of sulphuret of potash.

This is prepared by boiling together half an ounce of sublimed sulphur with nine ounces by measure of caustic ley for 10 minutes, and straining through paper. The liquor is to be kept in vessels well closed.

The specific gravity of this liquid is assigned by the Dublin college to be to that of distilled water, as 1120 to 1000.

Preparation *h.* AQUA SULPHURETI AMMONIÆ, Dub. Water of sulphuret of ammonia.

134
Water of sulphuret of ammonia.

This is prepared by slaking four ounces of fresh-burnt lime in an earthen vessel, which is to be kept covered till the lime has fallen into powder, and become cool; when there are to be added four ounces of powdered muriate of ammonia, and two ounces of sublimed sulphur mixed together, avoiding the vapours. The whole is now to be put into a retort, and distilled with a sudden and pretty strong heat, and the liquor that comes over is to be kept in a phial well closed with a glass stopper.

SECT. 4. *Alkalies and Alkaline Salts.*

265. NITRAS POTASSÆ.

Preparation *g.* ÆTHER NITROSUS, Dub. Nitrous ether.

135
Nitrous ether.

Prepared by pouring gradually, and in different portions, upon a pound and a half of nitre, dried and coarsely powdered, in a tubulated retort, placed in a bath of cold water,

U u

Appendix

water, a pound of sulphuric acid previously mixed with 19 ounces by measure of rectified spirit of wine, the mixture having been allowed to cool. With a very slight degree of heat, such as that of tepid water, an ethereal liquor will pass over from the retort, and the heat which soon spontaneously arises in the retort must be moderated by cooling with cold water. The receiver should also be cooled with ice or snow, and furnished with a proper apparatus, to carry off and condense the superabundant vapours. The ethereal liquor that spontaneously comes over, is to be put into a phial with a ground glass stopper, and as much dry subcarbonate of potash added as may be sufficient to saturate the superabundant acid, which is commonly done after the addition of about a dram of the salt. The ether which now floats on the upper part of the phial, is to be separated by means of a funnel, and kept for use.

Nitrous ether is a powerful stimulus, but is seldom employed in medicine.

136

Oxymuriatic alkaline water.

266. MURIAS SODÆ.

Preparation *d.* AQUA ALKALINA OXYMURIATICA, Dub. Oxymuriatic alkaline water.

This is prepared by putting into a matras two pounds of dried muriate of soda, and a pound of powdered manganese mixed, then pouring on two pounds of water, and gradually adding at different times two pounds of sulphuric acid, adapting a proper apparatus of tubes and recipients, that the gas which comes over may pass through a solution of four ounces of carbonate of potash, in 29 ounces by measure of water.

This preparation is a solution of *oxmuriate of potash*, a salt which was lately in great esteem as a remedy in several diseases, especially *typhus*, *scurvy*, and *siphilis*, from an idea that it imparted to the system the oxygen defective in these diseases. The remedy is already out of fashion in this country.

137

Oxymuriatic water.

Preparation *e.* AQUA OXYMURIATICA, Dub. Oxymuriatic water.

Made by passing the gas extricated from the mixture of muriate of soda, manganese, and sulphuric acid, in the preceding preparation, through a pound of distilled water, by which this is impregnated with *oxymuriatic acid gas*.

Forms a good bleaching liquor, but is scarcely employed in medicine.

SECT. 6. *Earths and Earthy Salts.*

138

Water of muriate of lime.

272. CARBONAS CALCIS.

Preparation *f.* SOLUTIO MURIATICA CALCIS, E. MATERIA MEDICA, N^o 876. AQUA MURIATIS CALCIS, Dub. Water of muriate of lime.

The Dublin college direct this to be prepared by dissolving an ounce of chalk in coarse powder in two ounces of diluted muriatic acid, and straining.

139

Precipitated chalk.

Preparation *g.* CRETA PRÆCIPITATA, Dub. Precipitated chalk.

Prepared by precipitating the chalk from the above solution, by adding carbonate of soda, filtering and washing the precipitate.

The carbonate of lime is thus procured very pure and in a very fine powder.

273. SULPHAS MAGNESIÆ.

Preparation *d.* ENEMA CATHARTICUM, Dub. Purging clyster.

Made by dissolving an ounce of manna in 10 ounces by measure of compound decoction of chamomile, (see N^o 125), and adding an ounce of olive oil, and half an ounce of sulphate of magnesia.

Appendix

140
Purging
clyster.SECT. 7. *Metals and Metallic Preparations.*

275. ACIDUM ARSENIOSUM.

Preparation *a.* ARSENIAS KALI, Dub. Arseniate of potash.

141
Arseniate
of potash.

The Dublin college direct this salt to be prepared by mixing together an ounce of white oxide of arsenic, and the same quantity of nitrate of potash, separately reduced to powder, putting them into a glass retort placed in a sand bath, and applying a gradual heat, till the bottom of the retort assumes an obscure red; then dissolving the residuum in four pounds of boiling distilled water, evaporating, and setting it aside to crystallize.

The use of arsenic, in the cure of many diseases of debility, has of late been much extended. It is now employed, not only in intermittents, but in protracted rheumatism, and many other cases where the vital powers are much diminished.

276. SULPHURETUM ANTIMONII.

Preparation *h.* OXIDUM ANTIMONII NITRO-MURIATICUM, olim CALX STIBII PRÆCIPITATA, Dub. (See N^o 879). Nitro-muriatic oxide of antimony.

142
Nitro-mu-
riatic oxide
of anti-
mony.

This precipitate is now directed to be prepared by mixing together 11 ounces by measure of muriatic acid, and 1 ounce by measure of nitrous acid, taking care to avoid the fumes, and gradually adding to the mixture 2 ounces of prepared sulphuret of antimony; then digesting with a gradually increased heat, till the effervescence ceases, and boiling for an hour; filtering the liquor when cold, so that it may drop into a gallon of water. The powder which falls to the bottom is to be repeatedly washed till the water poured from it is perfectly free from acid, and is then to be dried on blotting paper.

Preparation *k.* TARTRAS ANTIMONII ET POTASSÆ, Antimoniated tartar.
TARTARUM ANTIMONIATUM, sive EMETICUM, Dub. Antimoniated or emetic tartar.

In the Dublin pharmacopœia we are directed to prepare this medicine by boiling 18 ounces by measure of distilled water in a glass vessel, and gradually throwing into it 2 ounces of nitro-muriatic oxide of antimony, and 2½ ounces of powdered crystals of tartar, previously mixed, continuing the boiling for half an hour, then filtering the liquor, and cooling it gradually, that crystals may be formed.

277. HYDRARGYRUM.

Preparation *α.* HYDRARGYRUM CUM MAGNESIA, Dub. Mercury with magnesia.

This is a new preparation, formed by first rubbing together an ounce of quicksilver with the same quantity of manna, adding now and then a few drops of water,

144
Quicksilver
with mag-
nesia.

13

Appendix. so as to reduce the mixture to the consistence of syrup, till the whole of the mercury disappears; then still continuing the trituration, adding first a dram of magnesia, and when all are well mixed, a pint of hot water, and shaking the mixture. When the sediment has completely subsided, the liquor is to be poured off, and the washing twice repeated, so as to dissolve the whole of the manna. To the sediment, still moist, are to be added three drams more of magnesia, and the compound is to be dried on blotting paper.

This preparation is similar in its medical effects to the *hydrargyrus cum creta*, described in MATERIA MEDICA, N^o 914.

145
Ammoniated submuriate of mercury.

Preparation β. SUBMURIAS HYDRARGYRI AMMONIATUM. Dub. Ammoniated sub-muriate of mercury.

Prepared by adding to the liquor from which precipitated submuriate of mercury has been obtained, a quantity of caustic water of ammonia, washing the precipitate with cold distilled water, and drying on blotting paper. The same with the *calx hydrargyri alba*, London.

146
Tincture of acetate of zinc.

278. ZINCUM.
Preparation g. TINCTURA ACETATIS ZINCI. Dub. Tincture of acetate of zinc.

Made by rubbing together an ounce of sulphate of zinc, and the same quantity of acetate of potash, then adding a pint of rectified spirit of wine, macerating for a week with frequent agitation, and filtering the tincture.

Chiefly used as an external astringent.

280 *. OXIDUM MANGANESII NIGRUM. Manganesium, Dub. Black oxide of manganese.

Employed chiefly in preparing the oxymuriatic alkaline water. Appendix.

287. SULPHAS FERRI NATIVUS.

Preparation e*. ACETAS FERRI. Dub. Acetate of iron. 147
Acetate of iron.

Made by digesting half an ounce of carbonate of iron in 3 ounces by measure of acetic acid, and filtering.

Preparation f. TINCTURA MURIATIS FERRI CUM OXIDO RUBRO, Dub. Tincture of muriate of iron with red oxide. 148
Tincture of muriate of iron with red oxide.

Prepared by digesting an ounce of red oxide of iron with four ounces by measure of muriatic acid for 24 hours, then boiling for half an hour, evaporating the filtered liquor to the consistence of syrup, and when cold, adding rectified spirit of wine, with frequent agitation, till the tincture acquires the specific gravity of 1050.

A modification of the tincture of muriated iron described under MATERIA MEDICA, N^o 965, and is employed in similar cases.

The above appear to be the most material changes made in the new edition of the Dublin Pharmacopœia. A few articles of less consequence are omitted, and the new names of others will be seen in the following Table. In this Table we have followed the alphabetical order of the last Edinburgh Pharmacopœia, and in the third column we have caused the London names to be printed in Italics, leaving a space above each for the insertion of such new names as may occur in the new edition of their Pharmacopœia which the London College is expected soon to publish.

TABLE of Synonymous Names of the Official Compounds.

EDINBURGH NAMES.	DUBLIN NAMES.	LONDON NAMES IN 1791.
Acetis hydrargyri. <i>Hydrargyrus acetatus.</i>	Acetas hydrargyri. <i>Hydrargyrum acetatum.</i>	<i>Hydrargyrus acetatus.</i>
Acetis plumbi. <i>Saccharum saturni.</i>	Acetas plumbi. <i>Cerussa acetata.</i>	<i>Cerussa acetata.</i>
Acetis potassæ. <i>Lixiva acetata.</i>	Acetas kali. <i>Alkali vegetabile acetatum.</i>	<i>Kali acetatum.</i>
Acidum acetosum destillatum. <i>Acetum vini distillatum.</i>	Acetum distillatum.	<i>Acetum distillatum.</i>
Acidum acetosum forte.	Acidum aceticum.	<i>Acidum acetosum.</i>
Acidum acetosum camphoratum.	Acidum aceticum camphoratum.	
Acidum benzoicum. <i>Flores benzoini.</i>	Acidum benzoicum. <i>Sal benzoini.</i>	<i>Flores benzoiës.</i>
Acidum sulphuricum. <i>Acidum vitriolicum.</i>	Acidum sulphuricum. <i>Acidum vitriolicum.</i>	<i>Acidum vitriolicum.</i>
Æther sulphuricus. <i>Æther vitriolicus.</i>	Æther sulphuricus. <i>Æther vitriolicus.</i>	<i>Æther vitriolicus.</i>
Alcohol. <i>Spiritus vinosus rectificatus.</i>	Alcohol.	<i>Alcohol.</i>
Alcohol ammoniatum. <i>Spiritus ammoniæ.</i>	Spiritus ammoniæ. <i>Spiritus alkali volatilis.</i>	<i>Spiritus ammoniæ.</i>
Alcohol ammoniatum aromaticum. <i>Spiritus ammoniæ aromaticus.</i>	Spiritus ammoniæ aromaticus. <i>Spiritus alkali volatilis aromaticus.</i>	<i>Spiritus ammoniæ compositus.</i>
Alcohol ammoniatum foetidum.	Spiritus ammoniæ foetidus.	<i>Spiritus ammoniæ foetidus.</i>

Ammoniaretum cupri.

Cuprum ammoniacum.

Aqua acetitis ammoniæ.

Aqua ammoniæ acetatæ.

Aqua ammoniæ.

Aqua ammoniæ causticæ.

Aqua carbonatis ammoniæ.

Aqua ammoniæ.

Aqua potassæ.

Aqua lixivæ causticæ.

Carbonas ammoniæ.

Sal ammoniacus volatilis.

Carbonas calcis præparatus.

Creta alba.

Carbonas ferri præparatus.

Rubigo ferri.

Carbonas ferri præcipitatus.

Carbonas magnesiæ.

Magnesia alba.

Carbonas potassæ.

Lixiva purificata.

Carbonas sodæ.

Soda.

Decoctum anthemidis nobilis.

Decoctum commune.

Decoctum guaiaci compositum.

Decoctum lignorum.

Decoctum cinchonæ officinalis.

Electuarium aromaticum.

Confectio cardiaca.

Electuarium cassiæ fennæ.

Electuarium lenitivum.

Electuarium mimosæ catechu.

Confectio Japonica.

Electuarium opiatum.

Electuarium thebaicum.

Emplastrum gummosum.

Emplastrum meloes vesicatorii.

Emplastrum vesicatorium.

Emplastrum oxidi plumbi semivitrei.

Emplastrum commune.

Emplastrum oxidi ferri rubri.

Emplastrum roborans.

Emplastrum resinofum.

Emplastrum adhæsivum.

Emplastrum saponaceum.

Emulsio amygdali communis.

Emulsio communis.

Emulsio mimosæ niloticæ

Emulsio Arabica.

Emulsio camphorata.

Extractum anthemidis nobilis.

Extractum cinchonæ officinalis.

Extractum corticis peruviani.

Cuprum ammoniatum.

Aqua acetatis ammoniæ.

Liquor alkali acetatis volatilis.

Aqua ammoniæ causticæ.

Aqua alkali volatilis caustici.

Aqua carbonatis ammoniæ.

Liquor alkali volatilis mitis.

Aqua cupri ammoniati.

Liquor cupri ammoniati.

Aqua kali caustici.

Lixivium causticum.

Aqua subcarbonatis kali.

Lixivium mite.

Carbonas ammoniæ.

Alkali volatile mite.

Creta præparata.

Carbonas ferri.

Magnesia.

Carbonas potassæ.

Alkali vegetabile mite.

Carbonas sodæ.

Alkali fossile mite.

Decoctum chamæmeli.

Decoctum sarsaparillæ compositum.

Decoctum corticis cinchonæ.

Decoctum corticis peruviani.

Electuarium aromaticum.

Electuarium fennæ.

Electuarium catechu compositum.

Emplastrum galbani.

Emplastrum aromaticum.

Emplastrum cantharidis.

Emplastrum lithargyri.

Emplastrum thuris.

Emplastrum lithargyri cum resina.

Emplastrum saponis.

Emplastrum saponaceum.

Emulsio Arabica.

Mistura camphorata.

Extractum florum chamæmeli.

Extractum cinchonæ rubræ refin.

*Extractum corticis peruviani.**Aqua ammoniæ acetatæ.**Aqua ammoniæ puræ.**Aqua ammoniæ.**Aqua cupri ammoniati.**Aqua kali puri.**Aqua kali præparati.**Ammonia præparata.**Creta præparata.**Rubigo ferri.**Magnesia alba.**Kali præparatum.**Natron præparatum.**Decoctum pro enemate.**Decoctum sarsaparillæ compositum.**Decoctum corticis peruviani.**Confectio aromatica.**Electuarium è senna.**Confectio opiata.**Emplastrum lithargyri compositum.**Emplastrum ladani compositum.**Emplastrum cantharidis.**Emplastrum lithargyri.**Emplastrum thuris.**Emplastrum lithargyri cum resina.**Emplastrum saponis.**Lac amygdale.**Mistura camphorata.**Extractum chamæmeli.**Extractum corticis peruviani cum resino.*

Extractum

EXTEMPORANEOUS PRESCRIPTIONS.

Appendix.

EDINBURGH NAMES.

DUBLIN NAMES.

LONDON NAMES IN 1791.

Appendix

Extractum convolvuli jalapæ.
Extractum jalapæ.
 Extractum glycyrrhizæ glabræ.
 Extract. hæmatoxyli campechiani.
Extractum ligni campechensis.
 Extractum rutæ graveolentis.
Extractum foliorum rutæ.

Extractum jalapæ.
 Extractum glycyrrhizæ.
 Extractum icobis hæmatoxyli.
 Extractum foliorum rutæ.

Extractum jalapii.
Extractum glycyrrhizæ.
Extractum ligni campechensis.
Extractum rutæ.

Infusum cinchonæ officinalis.
 Infusum rosæ gallicæ.
Infusum rosarum.
 Infusum tamarindi cum fenna.
 Magnesia.

Hydrargyrum cum creta.
 Infusum cinchonæ sine calore.
 Infusum rosæ.
 Infusum fennæ cum tamarindis.

Hydrargyrus cum creta.
Infusum rosæ.

Magnesia usta.
 Mucilago astragali tragacantha.
Mucilago gummi tragacanthæ.
 Mucilago mimosæ niloticæ.
Mucilago gummi Arabici.

Magnesia usta.
 Mucilago gummi tragacanthæ.
 Mucilago gummi Arabici.

Magnesia usta.
Mucilago tragacanthæ.
Mucilago Arabici gummi.

Murias ammoniæ et ferri.
Flores martiales.
 Murias hydrargyri.
Mercurius sublimatus corrosivum.

Murias ammoniæ et ferri.
 Murias hydrargyri corrosivum.
Hydrargyrum muriatum corrosivum.

Ferrum ammoniacale.
Hydrargyrus muriatus.

Murias antimonii.
Butyrum antimonii.

Nitras argenti.
Argentum nitratum.

Antimonium muriatum.
Argentum nitratum.

Nitras argenti.
Causiticum lunare.
 Oleum ammoniatum.
Linimentum volatile.

Linimentum ammoniæ.

Linimentum ammoniæ.

Oleum volatile juniperi communis.

Oleum cornu cervi rectificatum.

Oleum animale.

Oleum volatile lauri sassafras.

Oleum baccarum juniperi.

Oleum essentielle baccæ juniperi.

Oleum lavandulæ spicæ.
 Oleum juniperi sabinæ.
 Oleum volatile menthæ piperitæ.

Oleum corticis et ligni sassafras.

Radix sassafras.

Oleum florum lavandulæ.
 Oleum foliorum sabinæ.
 Oleum herbæ florecentis menthæ piperitidis.

Oleum lavandulæ.
Oleum menthæ piperitidis.

Oleum volatile myrti pimentæ:
 Oleum volatile pimpinellæ anisi.

Oleum baccarum pimento.
 Oleum feminum anisi.

Oleum essentielle anisi.

Oleum volatile pini.

Oleum terebinthinæ rectificatum.

Oleum terebinthinæ rectificatum.

Oleum volatile roris marini officinalis.
 Oleum sulphuratum.

Oleum roris marini.

Oleum roris marini.

Balsamum sulphuris.
 Oxidum antimonii cum phosphate calcis.

Pulvis antimonialis.

Oleum sulphuratum.

Antimonium calcareo-phosphoratum.
 Oxidum antimonii cum sulph. per nitrat. potassæ.

Pulvis antimonialis.

Crocus antimonii.
 Oxidum antimonii cum sulphure vitrificatum.

Crocus antimonii.

Vitrum antimonii.
 Oxidum ferri nigrum.

Oxydum ferri nigrum.

Antimonium vitrificatum.

Ferri squamæ.
 Oxidum rubrum.

Oxydum ferri rubrum.

Ferrum vitriolatumustum.
 Oxid. hydrargyri per acidum nitricum.
Mercurius præcipitatus ruber.

Oxydum hydrargyri.
 Oxydum hydrargyri nitricum.
Hydrargyrum subnitratum.

Hydrargyrus calcinatus.
Hydrargyrus nitratus ruber.

Oxidum

Oxidum hydrargyri cinereum.
Pulvis mercurii cinereus.
 Oxidum zinci.
Calx zinci.
 Phosphas fodæ.
Soda phosphorata.
 Pilulæ aloeticæ.
 Pilulæ aloes cum colocynthide.
Pilulæ ex colocynthide cum aloë.
 Pilulæ afæfoetidæ compositæ.
Pilulæ gummosæ.
 Pilulæ scilliticæ.
 Potassa.
Causiticum commune acerrimum.
 Potassa cum calce.
Causiticum commune mitius.
 Potio carbonatis calcis.
Potio cretacea.
 Pulvis carbonatis calcis compositus.
Pulvis cretaceus.
 Pulvis ipecacuanhæ et opii.
Pulvis doveri.
 Solutio sulphatis cupri composita.
Aqua styptica.
 Spiritus ætheris nitrosi.
Spiritus nitri dulcis.
 Spiritus ammoniæ aromaticus.
Spiritus volatilis aromaticus.
 Spiritus lauri cinnamomi.
Aqua cinnamomi spirituosa.
 Spiritus myristicæ moschataæ.
 Subacetis cupri præparatus.
Ærugo æris.
 Submuriæ hydrargyri.
Hydrargyrus muriatis mitis.
 Submuriæ hydrargyri præcipitatus.
 Subsulphas hydrargyri flavus.
Mercurius flavus, vel turpeth. min.
 Succus spissatus conii maculati.
Extractum seminum cicutæ.
 Succus spissatus momordicæ elaterii.
Elaterium.
 Sulphas aluminæ exsiccatus.
Alumen ustum.
 Sulphas ferri.
Sal martis.
 Sulphas potassæ.
Lixiva vitriolata.
 Sulphas potassæ cum sulphure.
Sal polychrestus.
 Sulphas fodæ.
Soda vitriolata.
 Sulphas zinci.
Vitriolum album.
 Vitriolum antimonii præcipitatum.
Sulphur antimonii præcipitatum.

Oxydum hydrargyri cinereum.
 Oxydum zinci.
Zincum ustum.
 Phosphas fodæ.
 Pilulæ aloes cum zingibere.
Pilulæ aloeticæ.
 Pilulæ colocynthidis compositæ.
 Pilulæ myrrhæ compositæ.
 Pilulæ scillæ cum zingibere.
Pilulæ scilliticæ.
 Kali causticum.
Alkali vegetabile causticum.
 Kali cum calce.
Causiticum mitius.
 Mistura cretæ.
Mistura cretacea.
 Pulvis ipecacuanhæ compositus.
 Spiritus æthereus nitrosus.
Liquor æthereus nitrosus.
 Spiritus ammoniæ aromaticus.
Spiritus alkali volatilis aromaticus.
 Spiritus cinnamomi.
 Spiritus nucis moschataæ.
 Ærugo præparata.
 Submuriæ hydrargyri sublimatum.
Hydrargyrum muriatum mite sublimatum.
 Submuriæ hydrargyri præcipitatum.
Hydrargyrum muriatum mite præcipitatum.
 Submuriæ hydrargyri ammoniatum.
 Oxydum hydrargyri sulphuricum.
 Succus spissatus cicutæ.
 Elaterium.
 Alumen ustum.
 Sulphas ferri.
Ferrum vitriolatum.
 Sulphas kali.
Alkali vegetabile vitriolatum.
 Sulphas fodæ.
Alkali fossile vitriolatum.
 Sulphas zinci.
Zincum vitriolatum.
 Sulphur antimonii fuscum.

Zincum calcinatum.
Pilulæ aloes compositæ.
Pilulæ à gummi.
Pilulæ scillæ.
Kali purum.
Calx cum kali puro.
Mistura cretacea.
Pulvis cretæ compositus.
Pulvis ipecacuanha compositus.
Spiritus ætheris nitrosi.
Spiritus ammoniæ compositus.
Spiritus cinnamomi.
Spiritus myristicæ.
Ærugo præparata.
Caomelas.
Hydrargyrus muriatis mitis.
Calx hydrargyri alba.
Hydrargyrus vitriolatus.
Succus cicutæ spissatus.
Elaterium.
Alumen ustum.
Ferrum vitriolatum.
Kali vitriolatum.
Natron vitriolatum.
Zincum vitriolatum.

EXTEMPORANEOUS PRESCRIPTIONS.

Appendix.

EDINBURGH NAMES.

Sulphuretum hydrargyri nigrum.
Æthiops mineralis.
 Sulphuretum hydrargyri rubrum.
Cinnabaris factitia.
 Sulphuretum potassæ.
Hepar sulphuris.
 Syrupus citri aurantii.
Syrupus è cortice aurantium.
 Syrupus citri medici.
Syrupus è succo malorum limon.
 Syrupus dianthi caryophylli.
Syrupus caryophyllorum.
 Syrupus toluiferi balsami.
Syrupus balsamicus.
 Tartris antimonii.
Tartarus antimonialis sive emet.
 Tartris potassæ.
Tartarum solubile.
 Tartris potassæ et sodæ.
Sal rupellenfis.

 Tinctura aloes et myrrhæ.

 Tinctura aristolochiæ serpentariæ.
 Tinctura beazoin composita.
Balsamum traumaticum.
 Tinctura camphoræ.
Spiritus vinosus camphoratus.

 Tinctura convolvuli jalapæ.

 Tinctura ferulæ asæfœtidæ.

 Tinctura lauri cinnamomi.

 Tinctura meloës vesicatorii.
Tinctura cantharidum.
 Tinctura mimosæ catechu.
Tinctura japonica.

 Tinctura muriatis ferri.
 Tinctura opii ammoniata.
Elixir paregoricum.

 Tinctura rhei palmati.
 Tinctura saponis.
Linimentum saponaceum.
 Tinctura saponis et opii.
Linimentum anodynum.
 Tinctura toluiferi balsami.
Tinctura tolutana.
 Unguentum acetitis plumbi.
Unguentum saturninum.
 Unguentum album.
 Unguentum nitratis hydrargyri.
Unguentum citrinum.
 Unguentum oxidi plumbi albi.
Unguentum è cerussa.
 Unguentum meloës vesicatorii.
Unguentum epispasti. è pulv. canth.
 Unguentum resinofum.
Unguentum basilicum.
 Unguentum subacetitis cupri.
 Vinum tartritis antimonii.
Vinum è tartaro antimoniali.

DUBLIN NAMES.

Sulphuretum hydrargyri nigrum.
Hydrargyrum sulphuratum nigrum.
 Sulphuretum hydrargyri rubrum.
Hydrargyrum sulphuratum rubrum.
 Sulphuretum kali.
Alkali vegetabile sulphuratum.
 Syrupus aurantii.

 Syrupus limonis.

 Syrupus caryophylli rubri.

 Tartarum antimoniatum.
Tartarum stibiatum.
 Tartaras kali.
Alkali vegetabile tartarifatum.
 Tartaras sodæ et kali.
Sal rupellenfis.

 Tinctura aloes composita.

 Tinctura serpentariæ.

 Spiritus camphoratus.

 Tinctura jalapæ.

 Tinctura asæfœtidæ.

 Tinctura cinnamomi.

 Tinctura cantharidis.

 Tinctura catechu.

 Tinctura muriatis ferri.
 Tinctura opii camphorata.

 Tinctura rhei.
 Linimentum saponis.

 Tinctura balsami tolutani.

 Unguentum acetatis plumbi.

 Unguentum ceræ.
 Unguentum supernitratis hydrargyri.
Unguentum hydrargyri nitrati.

 Unguentum cerussæ.
 Unguentum cantharidis.

 Unguentum refinii albi.

 Unguentum æruginis.

LONDON NAMES IN 1791.

Appendix.

Hydrargyrus cum sulphure.

Hydrargyrus sulphuratus ruber.

Kali sulphuratum.

Syrupus corticis aurantii.

Syrupus limonis.

Syrupus caryophylli rubri.

Syrupus tolutanus.

Antimonium tartarifatum.

Kali tartarifatum.

Natron tartarifatum.

Tinctura aloes composita.

Tinctura serpentariæ.

Tinctura benzoës composita.

Spiritus camphoratus.

Tinctura jalapæ.

Tinctura asæfœtidæ.

Tinctura cinnamomi.

Tinctura cantharidis.

Tinctura catechu.

Tinctura ferri muriati.

Tinctura opii camphorata.

Tinctura rhabarbari.

Linimentum saponis compositum.

Unguentum cerussæ acetatæ.

Unguentum ceræ.

Unguentum hydrargyri nitrati.

Unguentum cantharidis.

Unguentum resinii flavi.

Vinum antimonii tartarifati.

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P R E

Presence, **PRESENTENCE**, a term of relation, used in opposition to absence, and signifying the existence of a person in a certain place.

PRESENT Tense, in *Grammar*, the first tense of a verb, expressing the present time, or that something is now

P R E

performing; as *scribo* I write, or am writing. See **PRESENTATION**.

PRESENTATION, in ecclesiastical law. See **PATRONS**.

PRESENTATION of the Virgin, is a feast of the Roman

Presenta-
tion
||
Preserva-
tion Island.

ish church, celebrated on the 21st of November, in memory of the Holy Virgin's being presented by her parents in the temple, to be there educated. Emanuel Comnenus, who began to reign in 1143, makes mention of this feast in his Constitutions. Some imagine it to have been established among the Greeks in the 11th century; and think they see evident proofs of it in some homilies of George of Nicomedia, who lived in the time of Photius. Its institution in the West is ascribed to Gregory XI. in 1372. Some think it was instituted in memory of the ceremony practised among the Jews for their newborn females; corresponding to the circumcision on the eighth day for males.

PRESENTATION of our Lady also gives the title to three orders of nuns. The first, projected in 1618, by a maid named Joan of Cambray. The habit of the nuns, according to the vision she pretended to have, was to be a grey gown of natural wool, &c.; but this project was never accomplished. The second was established in France, about the year 1627, by Nicholas Sanguin, bishop of Senlis; it was approved by Urban VIII. This order never made any great progress. The third was established in 1664, when Frederic Borromeo, being apostolical visitor in the Valteline, was intreated by some devout maids at Morbegno to allow them live in community in a retired place; which he granted, and erected them into a congregation, under the title of *congregation of our Lady*. They live under the rule of St Augustine.

PRESENTMENT, in Law. See PROSECUTION.

A presentment, generally taken, is a very comprehensive term; including not only *presentments* properly so called, but also inquisitions of office, and indictments by a grand jury. A presentment, properly speaking, is the notice taken by a grand jury of any offence from their own knowledge or observation, without any bill of indictment laid before them at the suit of the king: As the presentment of a nuisance, a libel, and the like; upon which the officer of the court must afterwards frame an indictment, before the party presented can be put to answer it. An inquisition of office is the act of a jury, summoned by the proper officer to inquire of matters relating to the crown, upon evidence laid before them. Some of these are in themselves convictions, and cannot afterwards be traversed or denied; and therefore the inquest, or jury, ought to hear all that can be alleged on both sides. Of this nature are all inquisitions of *felo de se*; of flight in persons accused of felony; of deodands, and the like; and presentments of petty offences in the sheriff's tourn or court-leet, whereupon the presiding officer may set a fine. Other inquisitions may be afterwards traversed and examined; as particularly the coroner's inquisition of the death of a man, when it finds any one guilty of homicide; for in such cases the offender so presented must be arraigned upon this inquisition, and may dispute the truth of it; which brings it to a kind of indictment, the most usual and effectual means of prosecution. See INDICTMENT.

PRESERVATION island, a small island on the southern coast of New Holland, and one of the groupe called *Ferneaux islands*, derives its name from the circumstance of the crew of a ship which was wrecked on the coast, having saved their lives, and resided for some time upon it. This island is in most places extremely barren, and is remarkable for large

blocks of granite scattered on its surface in many places. But one of the most singular phenomena in the history of this island was, the discovery of a petrified wood in the midst of a patch of naked sand; and at least 100 feet above the level of the sea. Some of the stumps of the trees rose a foot and a half above the surface; some were furnished with branches, and even it is said a green leaf was seen on one of them when they were first discovered. The petrifications were found to be of a calcareous nature. We think it probable that the trees here said to be petrified may be of the nature of corals, may have been formed as usual at the bottom of the sea, and elevated to their present situation by some convulsion.

In some parts of the island a little vegetation was observed, with some brush wood and stunted trees. Small kangaroos were found in abundance, with different kinds of birds and some noxious snakes. *Collins's Account of New South Wales*, II.

PRESERVING lives of shipwrecked persons. In our account of life-boats, we laid before our readers every thing that seemed useful on so important a subject which was then known to us. Since that time we have met with the following description of a similar invention by a Mr Lakin of London, suggested during his casual residence at Lowestoff in Suffolk.

A boat constructed on this principle cannot be overfet or sunk by any power of wind and water, in proof of which the following particulars and description of the construction are made public, with the hope of rendering more generally known the easy means of saving many valuable lives; which might certainly be done, if one or two of these boats were built at each of our ports, and every ship furnished with one (at least) in proportion to her size.

Description and Dimensions of the Lowestoff Life-Boat.

	Fect.	Inches.
Length aloft	40	0
keel	37	0
Breadth amidships	10	0
Depth	3	6 exclusive of
a moveable wash strake of	0	8

The form the same as the yawns of that coast; the stem post nearly upright.

External gunwales hollow, forming an oblique section of a parabola with the side of the boat, and projecting nine inches from it on each side: these gunwales are reduced a little in their projection towards their ends, and are first formed by brackets and thin boards, covered at top and bottom with one thickness of good sound cork, and the extremity or apex of the projection having two thicknesses of cork, the better to defend it from any violent blows it may meet with in hard service. The depth of these gunwales from top to bottom was 15 inches, and the whole covered with very strong canvas, laid on with strong cement to resist the water, and that will not stick to any thing laid upon it.

A false keel of wrought iron three inches deep, made of three bars rivetted together, and bolted under the common keel, which it greatly strengthens, and makes a very essential part of her ballast; being fixed so much below the floor, it has nearly double the power the same weight would have if laid on the floor, and therefore much

Preserva-
tion Island,
preserving.

Preferring much preferable to any other ballast that can be used for sailing boats.

Presidial. Thwarts and gang-board as usual; three masts and lug sails, and 12 short oars.

In this state, this boat is much safer than any common boat of the same dimensions, will carry more sail, and bear more weather; but to make it completely unimmovable, empty casks of about 22 inches diameter were ranged along within the gunwales, lashed firmly to the boat, lying even with the tops of the gunwales, and resting upon brackets fastened to the timbers for that purpose: also two such casks in the head, and two in the stern, and all removable in a short time, if desired; there were also some empty casks placed under the gang-board; these would be an addition to the buoyancy if empty, and an increase to her ballast if full.

Thus equipped, this boat was launched on the 19th of November, in a very squally day. About 20 men were launched in her, most of them pilots or seamen. They ran her immediately from the beach across the Corton sand, in the midst of the breakers, which would have been almost certain destruction to any common sailing boat, as that would have been filled and sunk immediately. They then turned to the southward along the top of the sand to its end; when they tacked and stood to the northward, pulled up the plugs in her bottom, and let in as much water as would come that way; the water rose very little above the thwarts. With all this water in it, the boat sailed better than without it. The plugs were now put in again, and water poured in by buckets, until it ran over both gunwales; and in this state it was the opinion of those on board that she would have carried 60 men without sinking, and to upset it is not possible. But it is Mr Lukin's opinion that more than 50 men should not be taken in when the boat is full of water, and all her casks empty.

It is particularly advisable that all life boats should be built of the form most approved by the pilots or seamen on the coast where they are to be used; as no one form will suit all shores; and these principles of safety are applicable to every form.

To this description we have only to add, that Mr Lukin is said to be the inventor of the first life-boat ever built in England, and to have obtained a patent for it in the year 1785. It would appear, too, that he published a pamphlet on the subject, but this pamphlet we have had no opportunity of seeing.

PRESIDENT, PRÆSES, is an officer created or elected to preside over a company or assembly; so called in contradistinction to the other members, who are termed *residents*.

Lord PRESIDENT of the Council, is a great officer of the crown, who has precedence next after the lord chancellor and lord treasurer; as ancient as the time of King John, when he was styled *consiliarius capitalis*.—His office is to attend on the king, to propose business at the council-table, and to report to the king the several transactions there. See *PRIVY-COUNCIL*.

PRESIDIAL, was a tribunal, or bench of judges, established (before the Revolution) in the several considerable cities of France, to judge ultimately, or in the last resort, of the several causes brought before them by way of appeal from the subaltern judges. The presidials made one company with the officers of the bailliages and sénéchaussées, where they were established.

PRESS (PRELUM), in the mechanic arts, a machine made of iron or wood, serving to squeeze or compress any body very close.

The ordinary presses consist of six members, or pieces; viz. two flat smooth planks; between which the things to be pressed are laid; two screws, or worms, fastened to the lower plank, and passing through two holes in the upper; and two nuts, in form of an S, serving to drive the upper plank, which is moveable, against the lower, which is stable, and without motion.

PRESSES used for expressing Liquors, are of various kinds; some, in most respects, the same with the common presses, excepting that the under plank is perforated with a great number of holes, to let the juice expressed run through into a tub, or receiver, underneath.

A very useful machine for a press, in the process of cyder-making, has been constructed by Mr Anstice, who, with his well-known zeal for the improvement of mechanics, permits us to lay before our readers the following description of it.

AA fig. 1. two pieces of timber, 21 feet long, 12 by 6 inches, laid side by side at the distance of 12 inches, and secured in that situation by blocks placed between and bolts passing through them; this frame forms the bed of the machine. BB, two uprights, 12 feet long, 6 by 8 inches, morticed upon them, and secured in their position by pins and iron squares. CC, two uprights, five feet long, six by ten inches, morticed near the end of the under frame, and secured as before. D, a lever, 17 feet long, 12 by 13 inches, turning on a large bolt which passes through the short uprights, also through iron straps, which secure them to the bed inside, and a stirrup of iron which passes over the end of the lever, and which makes the turning point in the line of its lower side, and not through its middle. E, a lever 20 feet long, six by eight inches at its largest part and tapering towards the other end: this lever turns on a bolt in the uprights BB. F, 1, 2, 3, 4. four pieces of oak (which he calls *needles*, 10 feet long), four by two and an half inches, morticed loosely into the upper lever, and hung thereto by bolts, so as to swing perpendicularly, and play in a long mortice or channel cut through the large lever to receive them. These needles have inch-holes pretty closely bored through them (in a direction crossing the machine), from the lower ends as far upwards as the great lever will reach, when it is as high as it can go. G, a bed to receive what is to be pressed. H, a frame to support a winch worked by a handle at I. At the end of the small lever two blocks or pulleys are fixed, one above, and the other below it; a rope of about half an inch diameter is then fastened to the ceiling (or continuation of the uprights of the winch frame if necessary) at K; then passed through the upper block on the lever, from thence passed through a block at L, and then goes with four turns round the winch, from whence it is carried through the block under the lever, and fastens to the machine at M; by this means, if the winch be turned one way, it raises the end of the small lever if the other depresses it.

To work the machine. If we suppose the great lever bearing on the matter to be pressed, an iron pin must be put into one of the holes in the needles above the great lever; and when the small lever is worked as

Prefs.

far as it will go, either up or down, another bolt is to be put into the hole, which comes nearest above the great lever on the other side of the uprights BB, and the winch then turned the contrary way, by which means the pressing goes on whether the small lever rises or falls. Before the resistance is very great, the needles farthest from the fulcrum of the small lever are used; after that the nearest are employed, which doubles the power of the machine. In raising the great lever, or lowering it to its bearing, the needles most distant from the fulcrum of the small lever, are used *under* instead of *over* it. As the rope is liable to stretch and get slack, he passes it, after taking two turns on the winch, through a pulley, to which is suspended a weight of half a hundred, and then takes two turns more before it is carried through the other block, by which means the slack is constantly gathered in, and the weight holds on without increasing the friction, as by hanging under the winch it counteracts the pressure upwards on its axis.

The power of this machine is very great, being as one to 1136 nearly, and capable by a trifling addition of any other proportion. It is applicable to many purposes beside cyder pressing, and is more simple, and less liable to injury, than any other which has fallen under our observation. Perhaps, however, it would be an improvement to use, instead of the ropes and pulleys, by which the lever E is moved, a small wheel or pinion of 10 or 12 teeth, on the axis of the winch W (fig. 2), and a stiff beam *en* down from the lever, having on its lower end an iron rack, of which the teeth take into those of the pinion. The action of these teeth would, in our opinion, be less diminished by friction and obliquity, than the pulleys are by friction and the stiffness of the rope; and the machine would retain all its other advantages.

Fig. 2.

PRESS used by Joiners, to keep close the pieces they have glued, especially panels, &c. of wainscot, is very simple, consisting of four members; viz. two screws, and two pieces of wood, four or five inches square, and two or three feet long; whereof the holes at the two ends serve for nuts to the screws.

PRESS used by Inlayers, resembles the joiner's press, except that the pieces of wood are thicker, and that only one of them is moveable; the other, which is in form of a tressel, being sustained by two legs or pillars, jointed into it at each end. This press serves them for sawing and cleaving the pieces of wood required in marquetry or inlaid work.

Founder's PRESS, is a strong square frame, consisting of four pieces of wood, firmly joined together with tenons, &c. This press is of various sizes, according to the sizes of the moulds; two of them are required to each mould, at the two extremities of which they are placed; so as that, by driving wooden wedges between the mould and the sides of the presses, the two parts of the mould wherein the metal is to be run may be pressed close together.

Printing-PRESS. See *PRINTING-Prefs*.

Rolling-PRESS, is a machine used for taking off prints from copper-plates. It is much less complex than that of the letter-printers. See its description and use under the article *Rolling press PRINTING*.

PRESS, in *Coining*, is one of the machines used in striking of money; differing from the balance, in that it

has only one iron bar to give it motion, and presses the moulds or coins; is not charged with lead at its extreme, nor drawn by cordage. See *COINING*.

Prefs,
Pressing.

Binder's Cutting-PRESS, is a machine used equally by book-binders, stationers, and pasteboard-makers; consisting of two large pieces of wood, in form of cheeks, connected by two strong wooden screws; which, being turned by an iron bar, draw together, or set asunder, the cheeks, as much as is necessary for the putting in the books or paper to be cut. The cheeks are placed lengthwise on a wooden stand, in the form of a chest, into which the cuttings fall. Aside of the cheeks are two pieces of wood, of the same length with the screws, serving to direct the cheeks, and prevent their opening unequally. Upon the cheeks the plough moves, to which the cutting-knife is fastened by a screw; which has its key to dismount it, on occasion, to be sharpened.

The plough consists of several parts; among the rest a wooden screw or worm, which, catching within the nuts of the two feet that sustain it on the cheeks, brings the knife to the book or paper which is fastened in the press between two boards. This screw, which is pretty long, has two directories, which resemble those of the screws of the press. To make the plough slide square and even on the cheeks, so that the knife may make an equal paring, that foot of the plough where the knife is not fixed, slides in a kind of groove, fastened along one of the cheeks. Lastly, the knife is a piece of steel, six or seven inches long, flat, thin, and sharp, terminating at one end in a point, like that of a sword, and at the other in a square form, which serves to fasten it to the plough. See *BOOK-binding*.

As the long knives used by us in the cutting of books or papers, are apt to jump in the cutting thick books, the Dutch are said to use circular knives, with an edge all round; which not only cut more steadily, but last longer without grinding.

PRESS, in the *Woollen Manufactory*, is a large wooden machine, serving to press cloths, serges, rateens, &c. thereby to render them smooth and even, and to give them a gloss.

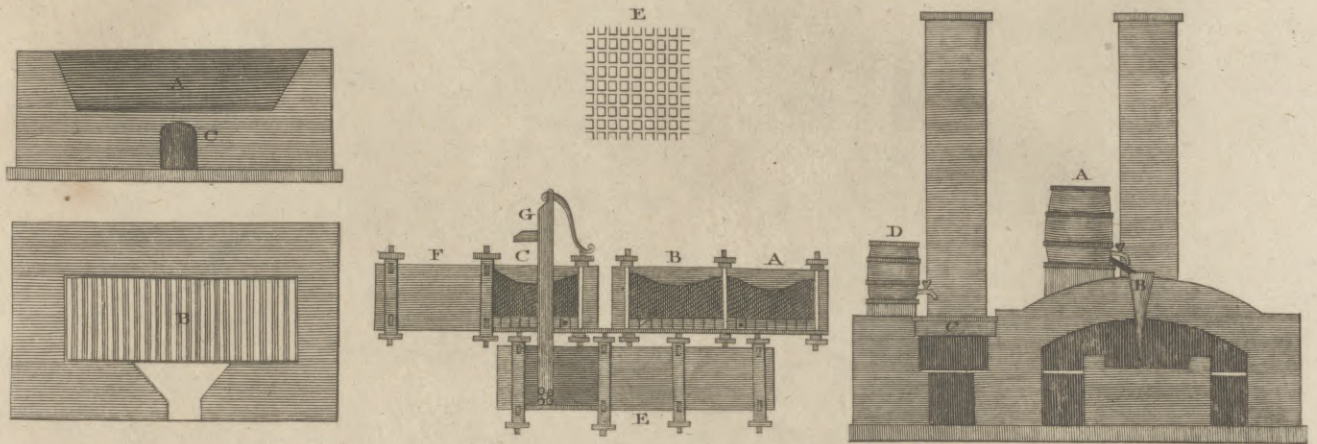
This machine consists of several members; the principal whereof are the cheeks, the nut, and the worm or screw, accompanied with its bar, which serves to turn it round, and make it descend perpendicularly on the middle of a thick wooden plank, under which the stuffs to be pressed are placed. The *CALENDER* is also a kind of press, serving to press or calender linens, silks, &c.

Liberty of the PRESS. See *LIBERTY of the Prefs*.

PRESSING, in the manufactures, is the violently squeezing a cloth, stuff, &c. to render it smooth and glossy.

There are two methods of pressing, viz. cold and hot.

As to the former, or cold pressing: After the stuff has been scoured, fulled, and shorn, it is folded square in equal plaits, and a skin of vellum or pasteboard put between each plait. Over the whole is laid a square wooden plank, and so put into the press, which is screwed down tight by means of a lever. After it has lain a sufficient time in the press, they take it out, removing the pasteboards, and lay it up to keep. Some only lay the stuff on a firm table after plaiting and pasteboarding, cover



PRESS Cyder.

Fig. 1.

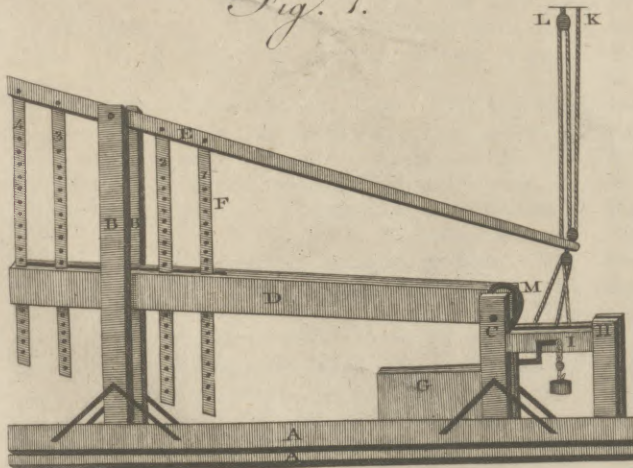
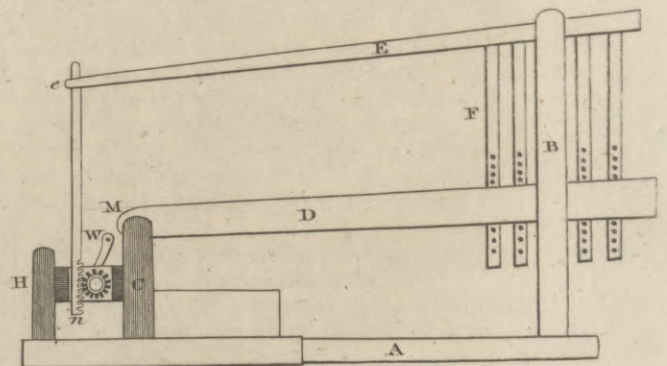
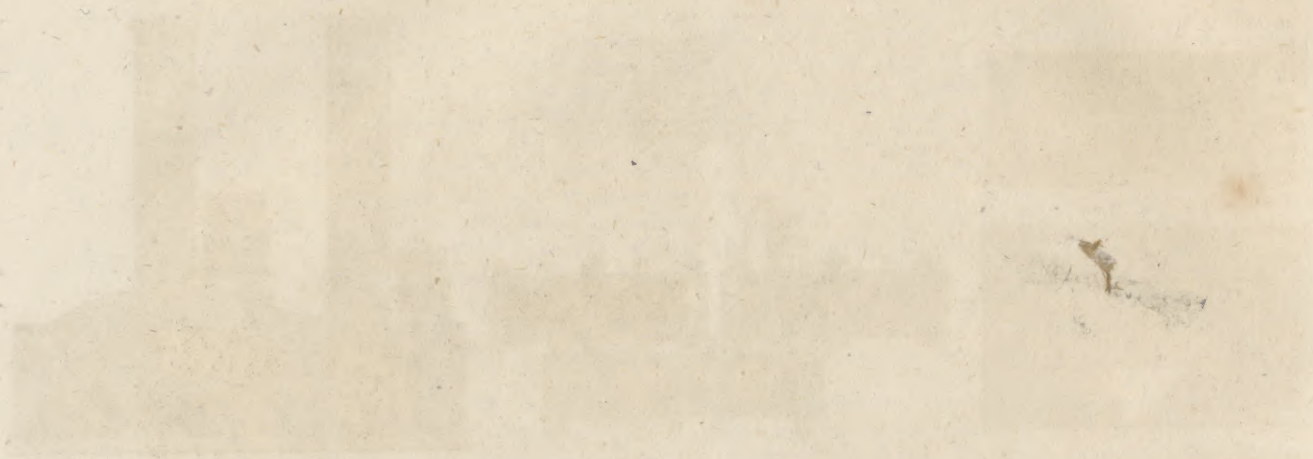


Fig. 2.



Abell Pin. H. al. Sculptor fecit.



Pressing
||
Presteign.

cover the whole with a wooden plank, and load it with a proper weight.

The method of pressing hot is this: When the stuff has received the above preparations, it is sprinkled a little with water, sometimes gum-water; then plaited equally, and between each two plaits are put leaves of pasteboard; and between every sixth and seventh plait, as well as over the whole, an iron or brass plate well heated in a kind of furnace. This done, it is laid upon the press, and forcibly screwed down. Under this press are laid five, six, &c. pieces at the same time, all furnished with their pasteboards and iron plates. When the plates are well cooled, the stuffs are taken out and stitched a little together to keep them in the plaits. This manner of pressing was only invented to cover the defects of the stuffs; and, accordingly, it has been frequently prohibited.

PRESSING, or *Impressing*. See IMPRESSING.

PRESSION, or PRESSURE, in the Cartesian philosophy, is a supposed impulsive kind of motion, or rather an endeavour to move, impressed on a fluid medium, and propagated through it.

PRESSURE OF AIR. See PNEUMATICS.

PRESSURE of Fluids. See HYDRODYNAMICS and PNEUMATICS.

PREST, is used for a duty in money, to be paid by the sheriff on his account, in the exchequer, or for money left or remaining in his hands: 2 & 3 Edw. VI. c. 4.

PREST-Money, is so called from the French word *prest*, that is, *promptus, expeditus*; for that it binds those who receive it, to be ready at all times appointed, being commonly meant of soldiers.

PRESTATION-MONEY, is a sum of money paid yearly by archdeacons and other dignitaries to their bishop, *pro exteriori jurisdictione*.

PRESTATION (*prestatio*), was anciently used for other payments: *Et quieti sint de prestatione muragii*. Chart. Hen. VII. Sometimes also for pourveyance.

PRESTEIGN is a town in Radnorshire, distant 149 miles west-north-west from London, in the direct road to Aberystwith, and throughout South Wales, in N. Lat. 52° 12', bounded to the north and north-east by Herefordshire. It is a neat well built town, with clean and regular streets, and is the residence of many genteel families. The neighbourhood abounds with all the comforts and conveniencies of life. It is seated on a gravelly soil on the banks of the river Lug, and at the head of a very fertile vale: the mountains to the west and north-west of the town forming, as it were, an amphitheatre round it. The name of it in Welsh, is *Slan-Andras*, which is supposed to be derived from the church, which is dedicated to Saint Andrew. The town is divided into four wards, which have each a separate jurisdiction, separate officers, levies, &c. The curfew-bell of William the Conqueror still remains in this place, and is rung every night. It is a borough by prescription, and is governed by a bailiff annually elected, and sworn in by a steward appointed by the crown. The living is a rectory and vicarage united, and reported to be worth from 500l. to 600l. *per annum*; the parish lying in two counties. Here is an excellent free school well endowed. The county hall, the county gaol, the county bridewell, and house of correction, are kept in this place. The markets are held on Saturdays; and

there are two fairs in the year. About a century and a half ago Presteign was considerably larger; had a good woollen manufactory, of which the very large buildings now standing (formerly belonging to clothiers) bear ample testimony; but a fire, succeeded by the plague, in the town, about the year 1636, reduced the same, and with it its consequence as a manufacturing town. The parish embraces a circle of at least 19 miles; and is reckoned very healthy.

PRESTER JOHN, or JEAN, an appellation formerly given to an emperor of the Tartars who was overcome and killed by Jenghiz Khan. Since that time it has been given to the emperor of Abyssinia or Ethiopia; however, in Ethiopia itself this name is utterly unknown, the emperor being there called the *grand negus*.

PRESTER, a meteor, consisting of an exhalation thrown from the clouds downwards with such violence, as that by the collision it is set on fire. The word is Greek, *πρεστηρ*, the name of a kind of serpent, called also *dipsas*, to which this meteor is supposed to bear a resemblance. The prester differs from the thunderbolt in the manner of its inflammation; and in its burning and breaking every thing it touches with greater violence.

PRESTER, a word used by some to express the external part of the neck, which is usually inflated in anger.

PRESTIMONY, in *Canon Law*, is derived à *prestatione quotidiana*; and is, by some, defined to be a kind of benefice, served by a single priest. Others say, it is the incumbency of a chapel, without any title or collation; such as are most of those in castles, where prayers or mass are said; and which are mere unendowed oratories. Whence the term is also applied, in the Romish church, to certain perpetual offices bestowed on canons, religious, or others, for the saying of masses, by way of augmentation of their livings. Others think it is a lease, or concession of any ecclesiastical fund or revenue, belonging to a monastery, to be enjoyed during life. Du Moulin calls it a *profane benefice*, which, however, has a perpetual title, and an ecclesiastical office, with certain revenues attached to it; which the incumbent is allowed to sell, and which may be possessed without tonsure; such as the lay church-wardens of Notre-dame. He adds, that, in propriety, the canopies of chapels are benefices of this nature. The most probable opinion seems to be, that prestimony is a fund, or revenue, appropriated by the founder for the subsistence of a priest, without being erected into any title of benefice, chapel, prebend, or priory; and which is not subject either to the pope or to the ordinary, but whereof the patron, and those who have a right from him, are the collators, and nominate and confer *pleno jure*.

PRESTO, in the Italian music, intimates to perform quick; as *prestissimo* does extremely quick.

PRESTON, a town of Lancashire in England, seated on the river Ribble, over which there is a handsome stone bridge. Here is held a court of chancery, and other offices of justice for the county palatine of Lancaster. It is noted for the defeat of the rebels here in 1715, when they were all made prisoners, and sent up to London. It contains about 11,887 inhabitants. W. Long. 2. 26. N. Lat. 53. 45.

PRESTRE,

Presteign
||
Preston.

Preſtre
||
Prevarica-
tion.

PRESTRE. See VAUDAN.

PRETENSED or PRETENDED right, in law, is where one is in poſſeſſion of lands and tenements, which another, who is out, claims and ſues for. Here the pretended right is in him who ſo claims or ſues.

PRETERITE, in *Grammar*, a tenſe which expreſſes the time paſt, or an action completely finiſhed; as, *ſcripſi*, "I have written." See PERFECT and GRAMMAR.

PRETERITION, or PRETERMISSION, in *Rhetoric*, a figure whereby, in pretending to paſs over a thing untouched, we make a ſummary mention thereof. *I will not ſay he is valiant, he is learned, he is juſt, &c.* The moſt artful praifes are thoſe given by way of preterition. See ORATORY.

PRETEXT, a colour or motive, whether real or feigned, for doing ſomething.

TOGA PRETEXTA, among the ancient Romans, a long white gown, with a border of purple round the edges, and worn by children of quality till the age of puberty, *viz.* by the boys till 17, when they changed it for the *toga virilis*; and by the girls till marriage.

PRETIUM SEPULCHRI, in old law books, &c. thoſe goods accruing to the church wherein a corſe is buried. In the Irifh canons, lib. xix. cap. 6. it is ordered, that along with every body that is buried, there go his cow, horſe, apparel, and the furniture of his bed; none of which may be diſpoſed of otherwiſe than for the payment of debts, &c. as being familiars and domeſtics of the deceaſed.

PRETOR, a magiſtrate among the ancient Romans, not unlike our lord chief juſtices, or lord chancellor, or both in one; as being veſted with the power of diſtributing juſtice among the citizens. At firſt there was only one pretor; but afterwards, another being created, the firſt or chief one had the title of *praetor urbanus*, or the "city pretor;" the other was called *peregrinus*, as being judge in all matters relating to foreigners. But, beſides theſe, there were afterwards created many provincial pretors; who were not only judges, but alſo aſſiſted the conſuls in the government of the provinces, and even were inveſted with the government of provinces themſelves.

PRETORIAN GUARDS, in Roman antiquity, were the emperor's guards, who at length were increaſed to 10,000: they had this denomination, according to ſome, from their being ſtationed at a place called *Pratorium*: their commander was ſtyled *praefectus praetorii*.

PRETORIUM, or PRÆTORIUM, among the Romans, denoted the hall or court wherein the pretor lived, and wherein he adminiſtered juſtice.

It likewiſe denoted the tent of the Roman general, wherein councils of war, &c. were held: alſo a place in Rome where the Pretorian guards were lodged.

PBEVARICATION, in the civil law, is where the informer colludes with the defendants, and ſo makes only a ſham proſecution.

PREVARICATION, in our laws, is when a man falſely ſeems to undertake a thing, with intention that he may deſtroy it; where a lawyer pleads booty, or acts by collusion, &c. It ſignifies alſo the falſe and contradictory teſtimony of a witneſs; and denotes ſometimes the ſecret abuſe committed in the exerciſe of a public office, or of a commiſſion given by a private perſon.

Priam
||
Price.

PRIAM, king of Troy, was the ſon of Laomedon. He was carried into Greece after the taking of that city by Hercules; but was afterwards ranſomed, on which he obtained the name of *Priam*, a Greek word ſignifying "ranſomed." At his return he rebuilt Ilium, and extended the bounds of the kingdom of Troy, which became very flouriſhing under his reign. He married Hecuba, the daughter of Cilleus king of Thrace, by whom he had 19 children; and among the reſt Paris, who carried off Helen, and occaſioned the ruin of Troy, which is ſuppoſed to have been ſacked by the Greeks about 1184 B. C. when Priam was killed by Pyrrhus the ſon of Achilles at the foot of an altar where he had taken refuge, after a reign of 52 years. See TROY.

PRIAPISMUS, or PRIAPISM, is an erection of the penis without any concomitant pain, or the conſent of other parts. It is thus called, becauſe the perſon in this ſtate reſembles the lewd god Priapus. Coelius Aurelianus ſays it is a paſſy of the feminal veſſels, and other nerves diſtributed to the parts about the penis, by the diſtenſion of which this diſorder is produced. It is of the ſame nature as the ſatyriaſis. See MEDICINE, N^o 372.

PRIAPUS, in Pagan worſhip, the ſon of Bacchus and Venus, who preſided over gardens and the moſt indecent actions. He was particularly adored at Lampſacus, a city at the mouth of the Hellespont, ſaid to be the place of his birth; and his image was placed in gardens to defend them from thieves and birds deſtructive to fruit. He was uſually repreſented naked, with a ſtern countenance, matted hair, and holding either a wooden ſword or ſickle in his hand, and with a monſtrous privity; from whence downward his body ended in a ſhapeleſs trunk. The ſacrifice offered to this obſcene deity was the aſs; either on account of the natural uncomelineſs of this animal, and its propenſity to venery, or from the diſappointment which Priapus met with on his attempting the chaſtity of Veſta, while that goddeſs was aſleep, when ſhe eſcaped the injury deſigned her by her being awaked by the braying of old Silenus's aſs.

PRICE, REV. RICHARD, D. D. L. L. D. fellow of the Royal Society of London, and of the Academy of Sciences, New England, was born at Tynton in Glamorganſhire, February 22. 1723. His father was a diſſenting miniſter at Bridgend in that county, and died in 1739. At eight years old he was placed under a Mr Simmons of Neath; and in four years removed to Pentwyn in Caermarthenshire under the Rev. Samuel Jones, whom he repreſented as a man of a very enlarged mind, and who firſt inſpired him with liberal ſentiments of religion. Having lived as long with him as with Mr Simmons, he was ſent to Mr Griffith's academy at Talgarth in Breconſhire. In 1740 he loſt his mother; and on this he quitted the academy and came to London. Here he was ſettled at that academy, of which Mr Eames was the principal tutor, under the patronage of his uncle the Rev. S. Price, who was co-paſtor with Dr Watts upwards of 40 years. At the end of four years he left this academy, and reſided with Mr Streatfield of Stoke Newington in the quality of domeſtic chaplain, while at the ſame time he regularly aſſiſted Dr Chandler at the Old Jewry, and occaſionally aſſiſted others. Having lived with Mr Streatfield near

Price. 13 years, on his death and his uncle's he was induced to change his situation, and in 1757 married Miss S. Blundell of Leicestershire. He then settled at Hackney, but being shortly after chosen minister at Newington Green, he lived there until the death of his wife, which was in 1786, when he returned to Hackney. He was next chosen after-noon preacher at the meeting-house in Poor Jewry-street, but this he resigned on being elected pastor of the Gravel-pit meeting Hackney, and afternoon-preacher at Newington Green. These he resigned with a farewell-sermon in February 1791. Shortly after he was attacked with a nervous fever, which disappearing was succeeded by a disorder in his bladder, which reduced him to such a degree that, worn out with agony and disease, he died without a groan on the 19th April 1791. He left his property to a sister and two nephews.

Dr Kippis, speaking of his learning and pursuits, observes*, that "his chief aim was to lay a foundation for solid knowledge, by an application to sciences of the noblest kind. It was on the great and fundamental principles and obligations of morality, on the higher species of mathematics, on the sublimer parts of natural philosophy, on the true basis of government, and on the questions which relate to the essential welfare and dignity of man, that his studies were employed; and in the prosecution of these studies he not only enriched his own mind, but was enabled to become of eminent service to his country and to the world. In his moral writings he has laboured with distinguished ability to build the science of ethics on an immutable basis; and what he has advanced will always stand high in estimation as one of the strongest efforts of human reason in favour of the system he has adopted. For myself (adds Dr Kippis), I scruple not to say, that I regard the treatise referred to as a rich treasure of valuable information, and as deserving to be ranked among the first productions of its kind. With respect to his other ethical works, every one must admire the zeal, earnestness, and strength, with which he endeavours to lead men into pious views of God, of providence and prayer; and to promote the exercise of devout and amiable dispositions. In consequence of his profound knowledge in mathematical calculations, he was qualified at a particular crisis for being of singular utility to his fellow-citizens. A number of schemes for insurance for lives, and the benefit of survivorship, promising mighty advantages, were rising up in the metropolis. These ruinous schemes would have been carried to great excess had not Dr Price stepped forward and dispelled the delusion. Gratitude will not allow us to forget the ability and spirit with which he awakened the attention of his countrymen to the reduction of the national debt. With him it was that the scheme of the present minister for that purpose is understood to have originated. What crowned the whole of his character was, its being an assemblage of the most amiable and excellent private virtues. His piety was sincere, humble, and fervent; his soul pure and elevated; in his views disinterested and noble; and in his manners mild and gentle: the applause of his talents and virtues will be transmitted to future ages, and he will be united in the catalogue with the most eminent benefactors of mankind."

This is the panegyric of a friend; but with few abatements it will be admitted by every candid reader. In

Price. morals Dr Price's principles were those of Cudworth and Clarke; and by many who have themselves adopted a very different theory, he is allowed to have defended those principles with greater ability than any other writer in the English language (see *MORAL Philosophy*, N^o 14.) In metaphysics he was perhaps too great an admirer of Plato, from whom he has borrowed a doctrine concerning ideas which we confess ourselves unable to comprehend. He was a firm believer in the immateriality of the soul; but, with Dr Law, the late learned bishop of Carlisle, he thought, that from death to the resurrection of the body it remains in a dormant or quiescent state. He contended for its indivisibility, but maintained at the same time its extension: which furnished Dr Priestley with some advantages in their celebrated controversy, which his own acuteness would never have obtained. In propagating his political principles, which were republican, he sometimes expressed himself with undue vehemence; and he was a zealous enemy to all religious establishments, which, in his opinion, encroach upon that liberty wherewith Christ has made us free. His faith respecting the Son of God was what has been called sometimes *low Arianism* and sometimes *Semi-arianism*. From a very early age he claimed the privilege of thinking for himself on every subject. His father was a rigid Calvinist, and spared no pains to instil his own theological dogmas into the tender mind of his son; but young Richard would often start his doubts and difficulties, and sometimes incur the old man's displeasure by arguing against his favourite system with an ingenuity that perplexed, and a solidity that could not be easily overturned. He had once the misfortune to be caught reading a volume of Clarke's sermons, which his father in great wrath snatched from him and threw into the fire. Perhaps he could not have taken a more effectual method to make the book a favourite, or to excite the young man's curiosity after the other works of the same author; and it is by no means improbable that this orthodox bigotry contributed more than any other circumstance to lay the foundation of his son's Arianism.

But whatever may be thought of Dr Price's speculative opinions, whether political or religious, his virtues in private life have never been called in question. Of his practical religion it is impossible to speak in terms too high. There was a fervour even in his public prayers which indicated the strongest sensibility as well as sincerity in himself, and communicated its warmth to those who joined with him. But in his family devotions he gave still fuller scope to the pious emotions of his soul, and proved to those friends who were occasionally present at them how deeply he felt religious impressions, and how happily he blended in this as well as in other things the cool decisions of the understanding with the amiable and exalted sensibilities of the heart.

But it was not in devotion only that these sensibilities were displayed. He was as exemplary in affection to his relatives as in love to his Maker. Of this he gave a striking though private instance before he first quitted his native place to try his fortune in London. His father had left to an elder brother by a former marriage a very considerable fortune; to Richard he left a mere trifle; and to each of two sisters still less. Our author divided his share between his sisters, refer-

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Price.

ving to himself only a few pounds to defray the expences of his journey, and trusting for his future support to the blessing of God upon his talents and his industry. As in early life he was an affectionate and generous brother, in old age he was a loving and attentive husband. His wife, who for a considerable time before her death was almost wholly helpless, found during the last years of her life hardly any enjoyment except in a game at whist; and though our Doctor disliked cards as a waste of time, and never touched them on any other occasion, to amuse her he would sit down every evening to the card-table, and play till it was late, with a cheerfulness and good humour which charmed every person who had the happiness of viewing him in that endearing situation.

Yet, though thus attentive to the obligations of domestic life, he did not suffer his private affections to encroach upon his social duties. His talents and his labours were ever ready at the call of friendship; nay so much did his nature abound with the milk of human kindness, that he could not resist without extreme reluctance even troublesome and unreasonable solicitations. His hours of study and retirement were frequently broken in upon by applications for assistance and advice, especially in matters relating to annuities and life-insurances; and in this way he sacrificed much of his personal convenience to individuals of whom he knew but little, and from whom he would accept of no pecuniary recompense. His good nature in this respect amounted almost to a foible; and subjected him to importunities and loss of time, of which he would sometimes complain as interfering materially with more important and more generally useful studies.

Whilst he thus obliged the rich by his mental talents, he succoured the poor with his earthly substance. A fifth part of his annual income was regularly devoted to charitable purposes; and he was laudably anxious to distribute it in such a way as might produce the greatest good. In the practice of this, and indeed of all his virtues, he was utterly devoid of ostentation. Simplicity and humility were among the strong features of his character. No man was ever less sensible of his own excellence, or less elated by his own celebrity; and in no man was the dignity of artless manners and unaffected modesty more happily displayed.

His face was the true index of his mind. It beamed with philanthropy; and when lighted up in conversation with his friends, assumed an aspect peculiarly pleasing. His person was slender, and rather below the common size, but possessed of great muscular strength and remarkable activity. A habit of deep thought had given a stoop to his figure, and he generally walked a brisk pace with his eyes on the ground, his coat buttoned, one hand in his pocket, and the other swinging by his side.

It is natural to suppose that such a man as Dr Price, some of whose writings were translated into foreign languages, would be very generally respected in the republic of letters, and have many correspondents. The supposition is well founded. In 1763 or 1764 he was chosen a fellow of the Royal Society, and contributed largely to the transactions of that learned body; in 1769 he received from Aberdeen a diploma creating him DD.; and in 1783 the degree of LL.D. was conferred upon him by the college of Yale in Connecticut.

Price.

As in 1770 he had refused an American degree which had been conveyed to him by Dr Franklin, his acceptance of one 13 years afterwards can be attributed only to his extravagant attachment to a republican form of government; which was the greatest defect in his character, and shows what prejudices the most vigorous mind will imbibe by thinking always on the same subjects, and in the same track. Among his correspondents, the most eminent in his own country were the late Lord Chatham, Lord Stanhope, Lord Lansdowne, the late bishops of Carlisle and St Asaph, and the present bishop of Landaff; Mr Hume, Mr Harris of Salisbury, Dr Gregory of Edinburgh, and the celebrated Mr Howard, who lived with him on terms of the greatest intimacy; in America he corresponded with Dr Franklin, Dr Chauncey, Mr Adams, and others; and in France with the celebrated Turgot, the Duke de Rochefoucault, and several of the first national assembly. One of his female correspondents sketched his character with great justness many years ago under the fictitious but well applied name of *Simplicius*; and with this character we shall close these short memoirs.

“ While the vain man is painfully striving to outshine the company and to attract their admiration by false wit, forced compliments, and studied graces, he must surely be mortified to observe how constantly *Simplicius* engages their attention, respect, and complacency, without having once thought of himself as a person of any consequence among them. *Simplicius* imparts his superior knowledge, when called upon, as easily and naturally as he would tell you what it is o'clock; and with the same readiness and good will informs the most ignorant or confers with the most learned. He is as willing to receive information as to give it, and to join the company, as far as he is able, in the most trifling conversation into which they may happen to fall, as in the most serious and sublime. If he disputes, it is with as much candour on the most important and interesting as on the most insignificant subjects; and he is not less patient in hearing than in answering his antagonist. If you talk to him of himself or his works, he accepts praise or acknowledges defects with equal meekness, and it is impossible to suspect him of affectation in either. We are more obliged by the plain unexaggerated expressions of his regard, than by the compliments and attentions of the most accomplished pattern of high breeding; because his benevolence and sincerity are so strongly marked in every look, word, and action, that we are convinced his civilities are offered for our sakes, not for his own, and are the natural effects of real kindness, not the studied ornaments of behaviour. Every one is desirous to show him kindness in return, which we know will be accepted just as it is meant. All are ready to pay him that deference which he does not desire, and to give him credit for more than he assumes, or even more than he possesses. With a person ungraceful, and with manners unpolished by the world, his behaviour is always proper, easy, and respectable; as free from constraint and servility in the highest company, as from haughtiness and insolence in the lowest. His dignity arises from his humility; and the sweetness, gentleness, and frankness of his manners, from the real goodness and rectitude of his heart, which lies open to inspection in all the fearlessness of truth, without any need of disguise or ornament.”

Such

Price,
Pride.

Such was Dr Price.—Of his public principles men will think differently; of his private worth there can be but one opinion. He will live in the memory of his friends till memory has lost her power. To posterity his works will be his monument. They are: A Review of the principal Questions and Difficulties in Morals, 8vo, 1758; Dissertations on Providence, &c. 8vo. 1767; Observations on Reverfionary Payments, &c. 8vo. 1771; Appeal on the National Debt, &c. 8vo. 1773; Observations on the Nature of Civil Liberty, 1776; on Materialism and Necessity, in a correspondence between Dr Price and Dr Priestley, 1779; on Annuities, Assurances, Population, &c. 8vo. 1779; on the Population of England, 1780; on the Public Debts, Finances, Loans, &c. 8vo. 1783; on Reverfionary Payments, 2 vols, 1783; on the importance of the American Revolution, 1784: besides Sermons, and a variety of papers in the Philofophical Transactions on astronomical and other philofophical subjects.

PRIDE, inordinate and unreasonable self-esteem, attended with insolence and rude treatment of others.—It is frequently confounded with vanity, and sometimes with dignity; but to the former passion it has no resemblance, and in many circumstances it differs from the latter. Vanity is the parent of loquacious boasting; and the person subject to it, if his pretences be admitted, has no inclination to insult the company. The proud man, on the other hand, is naturally silent, and, wrapt up in his own importance, he seldom speaks but to make his audience feel their inferiority. It is this circumstance which distinguishes pride from dignity, and constitutes its insolence. Every man possessed of great powers of mind is conscious of them, and feels that he holds a higher rank in the scale of existence than he whose powers are less. If he recollect, at the same time, that he has nothing which he did not receive, and that his superiority is owing to the good pleasure of Him who forms his creatures differently, as the potter forms his clay; he will be so far from insulting his inferiors, that when necessarily in company with them, he will bear with their foibles, and, as far as is proper, make them lose sight of the distance which the laws of God and man have for ever placed between them and him. This condescension, however, if he be a man of dignity, will never lead him to joint with them in any mean or dirty action. He will even excuse in them many things which he would condemn in himself, and give them his good wishes, after they have forfeited his esteem. Such a character is amiable and respectable, and what every man should labour to obtain. From the weakness of human nature, however, it is too apt to degenerate into pride.

To a man of great intellectual powers and various erudition, the conversation of ordinary persons affords neither instruction nor amusement; and such conversation, when often repeated, must, from the nature of things, become tedious and irksome. But it requires great command of temper and of manners to prevent uneasiness long felt from sometimes betraying itself by external symptoms, such as peevish expressions, a forbidding look, or absence of mind; and these are the infallible indications of contempt for the company, the very worst ingredient in the passion of pride. If this contempt be often excited, it will be formed into a habit; and the proud man will be so much under its influ-

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ence, as to insult his inferiors, and sometimes his equals, without forming the resolution to insult either the one or the other. Such a character is hateful to every company, and is so far from indicating true dignity of mind in him to whom it belongs, that it is obviously associated with meanness, and indicates a consciousness of some radical defect. He who possesses real and conspicuous merit has no occasion to depress others for the purpose of raising himself; his superiority will be cheerfully acknowledged: but when a man of undoubted eminence in one respect, is so swollen with pride as to make him wish to appear great in all respects, he has no other means of enforcing his ill-founded claim, than displaying his acknowledged superiority, with such insolence as may drive at a distance from him every person by whom he is conscious that in many instances he might be more than rivalled. Whoever is proud of knowledge, would do well to consider how much knowledge he wants.

The same observations which we have made on pride of parts will apply to every other species of pride, such as pride of birth, office, or riches, &c. The peace and order of society require difference of rank, accompanied with different degrees of authority; and he who inherits a title or office from his ancestors, may without pride be conscious of his superiority, provided he forget not that such superiority is conferred on families and individuals, not for their own sakes, but for the good of the community. The peer, who keeps this circumstance in mind, may maintain his station, and repress the forward petulance of the plebeian, without giving offence to any thinking man; but if he dwell upon his rank with too much complacency, he will in process of time be apt to consider himself and his family as superior by nature to those upon whom no title has been conferred, and then his pride will become intolerable. If we could trace our descents, says Seneca, we should find all slaves to come from princes, and all princes from slaves. To be proud of knowledge, is to be blind in the light; to be proud of virtue, is to poison ourselves with the antidote; to be proud of authority, is to make our rise our downfall. The best way to humble a proud man is to neglect him.

PRIDEAUX, HUMPHRY, a learned clergyman of the church of England, was born at Padstow in Cornwall in 1648. He studied three years at Westminster under Dr Busby; and then was removed to Christchurch, Oxford. Here he published, in 1676, his *Marmora Oxoniensia ex Arundelianis, Seldenianis, alisque conflata, cum perpetuo Commentario*. This introduced him to the lord chancellor Finch, afterward earl of Nottingham, who in 1679 presented him to the rectory of St Clements near Oxford, and in 1681 bestowed on him a prebend of Norwich. Some years after he was engaged in a controversy with the Papists at Norwich, concerning the validity of the orders of the church of England, which produced his book upon that subject. In 1688 he was installed in the archdeaconry of Suffolk; to which he was collated by Dr Lloyd, then bishop of Norwich. In 1691, upon the death of Dr Edward Pococke, the Hebrew professorship at Oxford being vacant, was offered to Dr Prideaux, but he refused it. In 1697, he published his *Life of Mahomet*, and in 1702 was installed dean of Norwich. In 1710 he was cut for the stone, which interrupted his studies

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for

Pride,
Prideaux.

Priene,
Priest.

for more than a year. Some time after his return to London, he proceeded with his Connection of the History of the Old and New Testament; which he had begun when he laid aside the design of writing the History of Appropriations. He died in 1724.

Chandler's
Travels in
Asia Mi-
nor.

PRIENE, an ancient town of Asia Minor. It is now called *Samsun*, and *Samsun-katesi*, which do not however appear to be very recent. It was taken in 1391 by Bajazet, who subdued Ionia. It had formerly, without including the citadel, three gateways; one of which was towards Kelibesh, an adjoining village; and without it are vaults of sepulchres. The entrance was not wide. A part of the arch, consisting of a single row of massive stones, still remains: but those on which it rests are so corroded by age, broken, or distorted, as to seem every moment ready to yield and let down their load. A rugged way leads to a second opening in the wall opposite to this, and about a mile from it; beyond which are likewise vaults of sepulchres. Between these was a gate facing to the plain; and on the left hand going out of it is a hole, resembling the mouth of an oven, in the side of a square tower; and over it an inscription in small characters, exceedingly difficult to be read. It signifies, that a certain Cyprian in his sleep had beheld Ceres and Proserpine arrayed in white; and that in three visions they had enjoined the worship of a hero, the guardian of the city, and pointed out the place where, in obedience to them, he had erected the god. This was probably some local hero, whose little image was set in the wall, and whose name and memory have perished.

PRIEST, a person set apart for the performance of sacrifice, and other offices and ceremonies of religion. Before the promulgation of the law of Moses, the first-born of every family, the fathers, the princes, and the kings, were priests. Thus Cain and Abel, Noah, Abraham, Melchizedec, Job, Isaac, and Jacob, offered themselves their own sacrifices. Among the Israelites, after their exod from Egypt, the priesthood was confined to one tribe, and it consisted of three orders, the *high-priest*, *priests*, and *Levites*. The priesthood was made hereditary in the family of Aaron, and the first-born of the oldest branch of that family, if he had no legal blemish, was always the high-priest. This divine appointment was observed with considerable accuracy till the Jews fell under the dominion of the Romans, and had their faith corrupted by a false philosophy.—Then, indeed, the high-priesthood was sometimes set up to sale, and instead of continuing for life, as it ought to have done, it seems, from some passages in the New Testament, to have been nothing more than an annual office. There is sufficient reason, however, to believe, that it was never disposed of but to some descendant of Aaron, capable of filling it, had the older branches been extinct. (For the consecration and offices of the Jewish priesthood, we refer our readers to the books of Moses). In the time of David, the inferior priests were divided into 24 companies, who were to serve in rotation, each company by itself, for a week. The order in which the several courses were to serve was determined by lot; and each course was in all succeeding ages called by the name of its original chief.—All nations have had their *priests*. The Pagans had *priests* of Jupiter, Mars, Bacchus, Hercules, Osiris, and Isis, &c.; and some deities had *priestesses*. The Mahometans have

priests of different orders, called *schiek*, and *musfi*; and the Indians and Chinese have their *bramins* and *bonzes*.

Priest,
Priestley.

It has been much disputed, whether, in the Christian church, there be any such officer as a *priest*, in the proper sense of the word. The church of Rome, which holds the *propitiatory* sacrifice of the *mass*, has of course her proper *priesthood*. In the church of England, the word *priest* is retained to denote the second order in her hierarchy, but we believe with very different significations, according to the different opinions entertained of the Lord's supper. Some few of her divines, of great learning, and of undoubted Protestantism, maintain that the Lord's supper is a *commemorative* and *eucharistical* sacrifice. Those consider all who are authorized to administer that sacrament as in the strictest sense *priests*. Others hold the Lord's supper to be a *feast* upon the *one* sacrifice, once offered on the cross; and these too must consider themselves as clothed with some kind of priesthood. Great numbers, however, of the English clergy, perhaps the majority, agree with the church of Scotland, in maintaining that the Lord's supper is a rite of no other moral import, than the mere commemoration of the death of Christ. These cannot consider themselves as *priests* in the rigid sense of the word, but only as *presbyters*, of which the word *priest* is a contraction of the same import with *elder*. See *SUPPER of the Lord*.

PRIESTLEY, JOSEPH, LL. D. F. R. S. and member of many foreign literary societies, was born on the 24th of March 1733, at Field-head, in the parish of Birstall, in the west riding of Yorkshire. His father was a cloth-manufacturer, and both his parents were respectable among Calvinistic dissenters. A strong desire for reading was one of the first passions which this philosopher exhibited, and which probably induced his parents and friends to change their mind respecting his destination, and instead of a tradesman, to fit him for some learned profession. He acquired a knowledge of Hebrew, Greek, and Latin, in the school of an eminent teacher at Bartley, and at the age of 19 became a theological student in the academy of Daventry. When about the age of twenty-two he was made choice of to be assistant minister to the Independent congregation of Needham-market, in Suffolk. Having staid at Needham for about three years, he received an invitation to be pastor of a small flock at Nampton, in Cheshire, of which he accepted. Here he opened a day-school, in the management of which he displayed that turn for research, and that spirit of improvement, which were afterwards destined to be such prominent features of his character. His reputation as a man of extraordinary talents and diligent enquiry soon spread among his professional brethren, and when Dr Aikin was chosen to succeed the reverend Dr Taylor as tutor in divinity at Warrington, the vacant department of belles lettres was assigned to Mr Priestley.

His literary career may properly be said to have commenced at Warrington; and the extent, as well as the originality of his pursuits, were soon announced to the world by a variety of valuable publications. Much of his attention about this period was taken up with general politics, on which he delivered a number of lectures. Although it was reasonable to think that his time would be sufficiently occupied by his academical and literary employments, yet his unwearied activity and industry found

Priestley found means to accomplish the first great work in philosophy which laid a solid foundation for his future fame.

Having long amused himself with an electrical machine, and felt himself interested in the progress of discovery in that branch of physics, he undertook a history of electricity, with an account of its present state. This work made its first appearance at Warrington in the year 1767, which was so well received by the learned world, that it went through a fifth edition in 4to in the year 1794. It is justly deemed a valuable performance, and its original experiments are allowed to be very ingenious.

About the year 1768, he was chosen pastor of a large and respectable congregation of Protestant dissenters at Leeds, which made him turn a very large share of his attention to theological subjects. His mind is said to have been strongly impressed with sentiments of piety and devotion from a child; and though he changed most of those religious sentiments in which he had been instructed, for such as he regarded to be more rational and consistent with truth, his piety and devotion never deserted him.

He was at the head of the modern Unitarians, whose leading tenet is the proper humanity of Christ, confining every species of religious worship and adoration to the one supreme. Some, we believe, have charged him with a design to subvert the Christian religion; but such an insinuation argues a total want of candour, as zeal for Christianity, as a divine dispensation, and the most valuable of all gifts bestowed upon the human race, was his ruling passion.

His History and Present state of Discoveries relating to Vision, Light, and Colours, appeared in 1772, in two vols 4to. This is allowed to be a performance of great merit, having a lucid arrangement; but it did not bring him such a large share of popularity as his History of Electricity, as it is probable that he was scarcely qualified to explain the abstruser parts of the science. In the year 1770 he quitted Leeds for a situation entirely different. His philosophical writings, and the recommendation of Dr Price had made him so favourably known to the earl of Shelburne, that this nobleman made him such advantageous proposals for residing with him, that a regard for his family would not permit them to be rejected. The domestic tuition of Lord Shelburne's sons having been previously committed to a man of merit, they received no instructions from Dr Priestley farther than some courses of experimental philosophy. He also attended his lordship in a visit to Paris, where he had an opportunity of seeing some of the most celebrated men of science in that country, whom he astonished by asserting a firm belief in revealed religion, which had been presented to their minds in such colours, that they thought no man of sense could hesitate in rejecting it as an idle fable.

In 1775, he published his examination of Dr Reid on the Human Mind; Dr Beattie on the Nature and Immutability of Truth; and Dr Oswald's Appeal to Common Sense. The design of this volume was to refute the new doctrine of *common sense*, employed as the test of truth by the metaphysicians of Scotland. He never intentionally misrepresented either the arguments or purposes of an opponent; but he measured the respect with which he treated him by that which he

felt for him in his own mind. In the year 1777, he published his disquisitions relating to Matter and Spirit, in which he gave a history of the philosophical doctrine respecting the soul, and openly supported the *material* system, which makes it homogeneous with the body. This subjected him to more odium than any of his other opinions. As he materialized spirit, so he in some measure spiritualized matter, by assigning to it penetrability and some other subtle qualities. About the same period he became the champion of philosophical necessity; a doctrine not less obnoxious to many, on account of its supposed effects on morality, than the former. So astonishing was the versatility of his mind, that he at the same time carried on that course of discovery concerning æriform bodies which has rendered his name so illustrious among philosophical chemists. A second volume was published in 1775, and a third in 1777. Some of his most memorable discoveries were those of nitrous and dephlogisticated or pure air; of the restoration of vitiated air by vegetation; of the influence of light on vegetables, and of the effects of respiration on the blood.

The name of Priestley was by these means spread through the countries of Europe, and honours were heaped upon him from scientific bodies in various parts. The term of his engagement with Lord Shelburne having expired, Dr Priestley was at liberty to choose a new situation for himself, retiring with a pension for life of 150l. a-year. He chose the vicinity of the populous town of Birmingham, as it was the residence of several men of science, such as Watt, Withering, Bolton, and Keir, whose names are well known to the public. Here he was invited to become pastor of a dissenting congregation, of which he accepted about the latter end of the year 1780. Soon after this appeared his Letters to Bishop Newcome, on the Duration of Christ's Ministry, and his History of the Corruptions of Christianity, which were afterwards followed by his History of Early Opinions.

He displayed his attachment to freedom by his Essay on the First Principles of Government; and by an anonymous pamphlet on the State of Public Liberty in this country; and had shewn a warm interest in the cause of America at the time of its unfortunate quarrel with the mother country.

The celebration of the anniversary of the destruction of the Bastille, by a public dinner, on July 14th 1791, at which Dr Priestley was not present, gave the signal of those riots which have thrown lasting infamy on the town of Birmingham, and in some degree on the national character. Amidst burning houses of worship and private dwellings, Dr Priestley was the great object of popular rage; his house, library, manuscripts, and apparatus, were made a prey to the flames; he was hunted like a criminal, and experienced not only the furious outrages of a mob, but the most unhandsome treatment from some who ought to have sustained the parts of gentlemen, and the friends of good order. He now lay under a load of public odium and suspicion, and he was constantly harassed by the petty malignity of bigotry.

It was of consequence not to be wondered at, that he looked for an asylum in a country to which he had always shewn a friendly attachment, and which he supposed was in possession of all the blessings of civil and religious liberty. In the year 1794 he took leave of

Priestley. his native country, and embarked for North America. He took up his residence in Northumberland, a town in the interior of the state of Pennsylvania, which he selected on account of the purchase of landed property in its neighbourhood; otherwise its remoteness from the sea-ports, its want of many of the comforts of life, and of all the helps to scientific pursuit, rendered it a peculiarly undesirable abode for one of Dr Priestley's habits and employments. The loss of his amiable wife, and of a most promising son, as well as repeated attacks of disease, severely tried the fortitude and resignation of this great and good man.

In America he was received with general respect, and the angry contests of party were not able wholly to deprive him of the esteem due to his character. He was heard as a preacher by some of the most distinguished members of congress; and he was offered, but declined, the place of chemical professor of Philadelphia. It became his great object to enable himself in his retirement at Northumberland to renew that course of philosophical experiment, and especially that train of theological writing, which had occupied so many of the best years of his life. By numerous experiments on the constitution of airs, he became more and more fixed in his belief of the phlogistic theory, and in his opposition to the new French chemical system, of which he lived to be the only opponent of any celebrity. By the liberal contributions of his friends in England, he was enabled to commence the printing of two extensive works, on which he was zealously bent, a Church History, and an Exposition of the Scriptures; and through the progress of his final decline he unremittingly urged their completion.

An article in the Philadelphia Gazette speaks of him in the following honourable terms:

"Since his illness at Philadelphia, in the year 1801, he never regained his former good state of health. His complaint was constant indigestion, and a difficulty of swallowing food of any kind. But during this period of general debility, he was busily employed in printing his Church History, and in the first volume of his notes on the Scriptures, and in making new and original experiments. During this period, likewise, he wrote his pamphlet of Jesus and Socrates compared, and reprinted his Essay on Phlogiston.

"From about the beginning of November, 1803, to the middle of January, 1804, his complaint grew more serious; yet, by judicious medical treatment, and strict attention to diet, he, after some time, seemed, if not gaining strength, at least not getting worse; and his friends fondly hoped that his health would continue to improve as the season advanced. He, however, considered his life as very precarious. Even at this time, besides his miscellaneous reading, which was at all times very extensive, he read through all the works quoted in his Comparison of the different Systems of Grecian Philosophers with Christianity; composed that work, and transcribed the whole of it in less than three months; so that he has left it ready for the press.

"In the last fortnight of January, his fits of indigestion became more alarming, his legs swelled, and his weakness increased. Within two days of his death he became so weak, that he could walk but a little way, and that with great difficulty. He was fully sensible that he had not long to live, yet talked with cheerfulness

to all who called on him. He dwelt upon the peculiarly happy situation in which it had pleased the divine Being to place him in life, and the great advantage he had enjoyed in the acquaintance and friendship of some of the best and wisest men of the age in which he lived, and the satisfaction he derived from having led an useful as well as happy life. On the 9th of February 1804, he breathed his last, so easily, that those who were sitting close to him did not immediately perceive it. He had put his hand to his face, which prevented them from observing it."

In the constitution of Dr Priestley's mind ardour and vivacity of intellect were united with a mild and placid temper. With a zeal for the propagation of truth which nothing could subdue, he joined a calm patience, an unruffled serenity, which rendered him proof against disappointments. The rights of private judgement were rendered sacred to him by every principle of his understanding, and his heart would not have suffered him to injure his bitterest enemy. He was naturally disposed to be cheerful, and when his mind was not occupied with serious thoughts, could unbend with playful ease and negligence, in the private circle of friends. He commonly spoke little in large and mixed companies, and in the domestic relations of life was uniformly kind and affectionate. His parental feelings were those of the tenderest and best of fathers. Not even malice itself could ever fix a stain on his private conduct, or impeach his integrity.

PRIMÆ VIÆ, among physicians, denote the whole alimentary duct; including the œsophagus, stomach, and intestines, with their appendages.

PRIMAGE, in *Commerce*, a small duty at the water-side, usually about 12d. per ton, or 6d. per bale, due to the master and mariners of a ship.

PRIMARY, first in dignity, chief, or principal.

PRIMARY Qualities of Bodies. See **METAPHYSICS**, n^o 152.

PRIMATE, in church polity, an archbishop, who is invested with a jurisdiction over other bishops.

PRIME, PRIMUS, an appellation given to whatever is first in order, degree, or dignity, among several things of the same or like kind; thus we say, the prime minister, prime cost, &c.

Prime is sometimes used to denote the same with decimal, or the tenth part of an unit.

PRIME-Figure, in *Geometry*, one which cannot be divided into any other figures more simple than itself, as a triangle among planes, and the pyramid among solids.

For prime numbers, in arithmetic, see the article **NUMBER**.

PRIME of the Moon, is the new moon when she first appears, which is about three days after the change.

PRIME Vertical, is that vertical circle which passes through the poles of the meridian, or the east and west points of the horizon; whence dials projected on the plane of this circle are called *prime vertical*, or *north-and-south dials*.

PRIME, in the Romish church, is the first of the canonical hours, succeeding to lauds.

PRIME, in *Fencing*, is the first of the chief guards. See **GUARD**.

PRIMER SEASIN, in *Feodal Law*, was a feodal burden, only incident to the king's tenants *in capite*, and not

Priestley
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not to those who held of inferior or mesne lords. It was a right which the king had, when any of his tenants *in capite* died seized of a knight's fee, to receive of the heir (provided he were of full age) one whole year's profits of the lands if they were in immediate possession, and half a year's profits if the lands were in reversion expectant on an estate for life. This seems to be little more than an additional relief, (see RELIEF); but grounded upon this feudal reason, That, by the ancient law of feods, immediately upon the death of a vassal the superior was entitled to enter and take seisin or possession of the land, by way of protection against intruders, till the heir appeared to claim it, and receive investiture; and for the time the lord so held it, he was entitled to take the profits; and unless the heir claimed within a year and day, it was by the strict law a forfeiture. This practice however, seems not to have long obtained in England, if ever, with regard to tenures under inferior lords; but, as to the king's tenures *in capite*, this *prima seisina* was expressly declared, under Henry III. and Edward II. to belong to the king by prerogative, in contradistinction to other lords. And the king was entitled to enter and receive the whole profits of the land, till livery was sued; which suit being commonly within a year and day next after the death of the tenant, therefore the king used to take at an average the *first fruits*, that is to say, one year's profits of the land. And this afterwards gave a handle to the popes, who claimed to be feudal lords of the church, to claim in like manner from every clergyman in England the first year's profits of his benefice, by way of *primitive*, or first-fruits.— All the charges arising by primer seisin were taken away by 12 Car. II. c. 24.

PRIMING, in *Gunnery*, the train of powder that is laid, from the opening of the vent, along the gutter or channel on the upper part of the breech of the gun: which, when fired, conveys the flame to the vent, by which it is further communicated to the charge, in order to fire the piece. This operation is only used on ship-board at the proof, and sometimes in garrison; for, on all other occasions, tubes are used for that purpose.

PRIMING-WIRE, in *Gunnery*, a sort of iron needle employed to penetrate the vent or touch-hole of a piece of ordnance, when it is loaded: in order to discover whether the powder contained therein is thoroughly dry and fit for immediate service; as likewise to search the vent and penetrate the cartridge, when the guns are not loaded with the loose powder.

PRIMING, among painters, signifies the laying on of the first colour.

PRIMPILUS, in antiquity, the centurion of the first cohort of a legion, who had the charge of the Roman eagle.

PRIMITIÆ, the first-fruits gathered off the earth, whereof the ancients made presents to the gods.

PRIMITIVE, in *Grammar*, is a root or original word in a language, in contradistinction to *derivative*; thus, *God* is a primitive; *godly*, a derivative; and *god-like*, a compound.

PRIMOGENITURE, the right of the first-born, has among most nations been very considerable. The first born son in the patriarchal ages had a superiority over his brethren, and, in the absence of his father, was priest to the family. Among the Jews, he was conse-

crated to the Lord, had a double portion of the inheritance, and succeeded in the government of the family or kingdom. It is, however, remarkable, and unquestionably shows the connection between this institution and the birth and office of our Saviour, that if a woman's first child was a girl, neither she, nor the children that came after her, were consecrated.

In every nation of Europe, the right of primogeniture prevails in some degree at present, but it did not prevail always. The law which calls the elder-born to the crown, preferably to the others, was not introduced into France till very late; it was unknown to the first race of kings, and even to the second. The four sons of Clovis shared the kingdom equally among themselves; and Louis le Debonnaire did the same: it was not till the race of Hugh Capet, that the prerogative of succession to the crown was appropriated to the first-born.

By the ancient custom of *Gavel-kind*, still preserved in some parts of our island, primogeniture is of no account; the paternal estate being equally shared by all the sons. And it has been a matter of violent and learned dispute, whether, at the death of Alexander III. Baliol or Bruce was, by the law as it then stood, heir to the crown of Scotland. The former had undoubtedly the right of primogeniture, but the latter stood in one degree of nearer relation to the deceased sovereign; and the Scottish barons, not being able to determine whose claim was best founded, referred the question to Edward I. of England, and thereby involved their country in a long and ruinous war. See SCOTLAND.

PRIMORIE, is a name given by the Slavi to that tract of sea-coast which lies between the two rivers Cetina and Narenta, the first of which is the Nestus and Tiluras, and the second the Narus, of the ancients; comprising what was properly called Dalmatia two ages before our era, and which was known to the Greeks of the low times under the name of *Paratalassia*. Appian informs us, that the Ardei or Vardei possessed many cities there, part of which they seized before the invasion of the Romans, and part they built themselves. We learn also from the *Tabula Peutingeriana*, that after the conquest many of those cities remained, and were inhabited by the conquerors, who also founded new settlements. And indeed were these proofs wanting, the numerous inscriptions found near the sea, and sometimes among the hills, would render it at least probable. The coast is extremely pleasant, the soil fertile, and the situation most convenient for commerce with the inland provinces. By bad management, however, much ground has been lost near the sea, by its being covered with gravel, and by imprudent cultivation of the hills, the impetuous fury of the mountain torrents has rendered a part of it uninhabitable. Macarska is now the only town in the territory, and it appears to have risen out of the ruins of the ancient RATANEUM of Pliny. It formed a part of the Narentan state for several ages, and afterwards, together with the rest of Primorie, passed under the obedience of various Christian princes. It afterwards became subject to the Ottoman Porte, and at last voluntarily subjected itself to the Venetian republic. See DALMATIA and MACARSKA. See also Fortis's *Travels into Dalmatia*, p. 265.—318.

PRIMULA, the PRIMROSE; a genus of plants belonging to the pentandria class; and in the natural method

Primula
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Prince.

thod ranking under the 21st order, *Precivæ*. See BOTANY Index. This genus includes the primrose, the cowslip, the polyanthus, and the auricula; some of the earliest and most beautiful ornaments of the flower-garden. For the mode of culture, see GARDENING.

PRIMUM MOBILE, in the Ptolemaic astronomy, the ninth or highest sphere of the heavens, whose centre is that of the world, and in comparison of which the earth is but a point. This is supposed to contain within it all other spheres, and to give them motion, turning them quite round, as well as revolving itself, in 24 hours.

PRINCE, PRINCEPS, in polity, a person invested with the supreme command of a state, independent of any superior.

PRINCE also denotes a person who is a sovereign in his own territories, yet holds of some other as his superior; such are the princes of Germany, who, though absolute in their respective principalities, are bound to the emperor in certain services.

PRINCE also denotes the issue of princes, or those of the royal family. In France, before the revolution, they were called *princes of the blood*, and during the short continuance of the constitution of 1791, *French princes*. In England the king's children are called *sons and daughters of England*; the eldest son is created prince of Wales; the cadets are created dukes or earls as the king pleases; and the title of all the children is *royal highness*: all subjects are to kneel when admitted to kiss their hand, and at table out of the king's presence they are served on the knee. See ROYAL Family.

PRINCE of the Senate, in old Rome, the person who was called over first in the roll of senators, whenever it was renewed by the censors: he was always of consular and censorian dignity. See the article SENATE.

PRINCE's Metal, or *Pinchbeck*, an alloy of copper and zinc, which has a resemblance to gold. See CHEMISTRY, N^o 2014.

PRINCETOWN. See New JERSEY.

PRINCE of Wales's Island, or *Pulo Penang*, is situated in the entrance of the straits of Malacca, in 100° of east longitude, and in 5° of north latitude. It is about seven leagues in length and three in breadth, and is supposed to contain about 160 square miles. Its northern extremity runs nearly parallel with the main land at a distance of about two miles, by which a fine channel is formed, where the greatest fleets might ride in perfect safety, the height of the surrounding mountains acting as a barrier against the force of the prevailing winds.

The purchase of this island from the king of Queddah, on the opposite Malay coast, was made on behalf of the East India Company by Mr Light, who took possession of it on the 12th of August 1786. The settlement continued to enjoy peace and security till the year 1791, when a jealousy, on the part of the king of Queddah, probably arising from a collision of interests, threatened it with the calamities of war. Mr Light, however, anticipated the attack of the enemy, and carried the scene of action to his own shores. A fort, constructed by the Malays at the town of Puya on the opposite shore, and only two miles distant from George Town in Prince of Wales's island, was taken by assault; and almost the whole of the crews collected in the river for the conveyance of troops to attack the British settle-

ment, were destroyed. A new treaty was entered into, by which it was stipulated, that the Malay king should receive an annual payment of 6000 dollars. In 1800, a tract of land on the opposite shore, of 18 miles in length and three in breadth, was ceded to the company by the king of Queddah, on condition of receiving annually an additional sum of 4000 dollars. The number of inhabitants in 1797 was computed at about 12,000 persons of all descriptions.

The climate, considering its vicinity to the equator, is remarkably mild. The thermometer on the high grounds never rises above 78°, seldom more than 74°; and falls as low as 66°; while on the plain it ranges from 76° to 90°. Its healthfulness is certainly not surpassed by that of any European settlement on the coast. Out of a garrison of 300 troops (natives of Hindostan), not one died for the space of 14 months; a singular fact to be experienced by a new settlement in an uncleared country. This great salubrity is perhaps the effect of a constant ventilation, supported by almost continued but gentle breezes, added to the dryness of the soil, the uniform but gradual elevation from the sea to the foot of the hills preventing those stagnations of water which, in tropical latitudes, are so highly prejudicial to the health of man.

A ridge of beautiful mountains, deeply indented with valleys, and covered with evergreens, divides the island longitudinally. Flagstaff hill, nearly the highest on the island, is estimated at 2500 feet above the level of the sea. Innumerable rivulets receive their origin from these mountains, and are remarkable for the transparency and coolness of their waters. The soil, which is light and sandy near the sea, gradually changes to a rich clay as it approaches to the high lands. There the sugar-cane grows with the utmost luxuriance, and the most plentiful crops of rice are everywhere produced. The gardens have already furnished the inhabitants with cabbages and potatoes; and when industry shall have reached the tops of the mountains, it will be no surprise to see in the plantations most of the productions of Europe in their utmost perfection. Here are also produced pepper, cocoa-nuts, coffee, cotton, ginger, yams, sweet potatoes, a great variety of vegetables, and many different sorts of fruits. Among the exotics are the clove, nutmeg, cinnamon, pimento, hyapotee, colalava, and a number of other plants from the Moluccas and Eastern isles, introduced only a few years ago. In decorating the landscapes of this little island, nature has been peculiarly lavish. An assemblage of flowering trees and shrubs in perpetual blossom, and endless in the variety of their species, form the first shade. These are overtopped by forest trees of an immense height, which spread their vast branches on every side, and are covered with the richest foliage. Here strangers feel with rapture the effect of the breezes, which, from whatsoever quarter they blow, are strongly impregnated with the fragrance of the groves.

The original animal productions of this island are very limited. Of quadrupeds, the wild hog, deer, and squirrel, nearly comprehend the whole; but the absence of the tiger and leopard, whose numbers and ferocity almost render the opposite shores uninhabitable, amply compensates for this deficiency. The flying fox and squirrel are natives of this island; the former a non-

descript,

Edin. Phil.
Transf. v. iii.
p. 134. &c.

Prince. descript, and a great natural curiosity. Of birds there are also but few, and only one which is remarkable for the melody of its notes. The crow and sparrow, the never-failing attendants on population, have but lately made their appearance. They are now, however, rapidly increasing and multiplying. All the domestic animals arrive here at great perfection.

The sea which surrounds the island, affords a vast variety of fish of the most delicious flavour, and its shores abundance of the finest turtle and oysters. In no situation indeed are the conveniencies and luxuries of life enjoyed in greater profusion. The advantages of the island in a political and commercial view are very considerable. There were nothing but wooden bridges on this island in the year 1800, which were perpetually liable to be injured, which the rapid swell of the rivers frequently carried away; but four substantial bridges of brick and mortar were soon after that period completed, their foundations being of stone.

The markets are well supplied with different kinds of fish, poultry of all sorts, pork, grain, and great variety of the finest fruits and vegetables. The quality of the beef and veal is none of the best, and they import sheep from Bengal. Milk, butter, and bread, bear a high price, the two former of which are not very abundant.

Prince of Wales Island produces a great variety of timber, fit for every purpose of ship-building, and can furnish masts of any dimensions. Ships of 74 guns were provided with lower masts of one piece in the course of the late war.

There are few, if any places, more abundantly supplied with water, than this island, numerous streams of water flowing from the hills in every direction. Three or four of these streams unite, and form the Penang river, after traversing a considerable space; and it discharges itself into the sea, about a mile to the southward of the town.

This island contains mines of tin; but it is said they have never been worked.

Persons convicted of felonies, &c. in any of the British settlements in the East Indies are frequently banished to Prince of Wales island, so that it may be considered as the Botany Bay of the East.

The following table exhibits the revenue and disbursements of the island, at several different periods, from 1789 to 1804.

	Revenue.	Disbursements.
	Dollars.	Dollars.
1789	2500	78,884
1790	4100	96,274
1791	11,235	108,290
1795	19,612	115,379
1796	28,000	192,598
1800	53,155	184,469
1802	74,280	176,000
1803	75,000 estimated.	180,000 estimated.

The imports of this island consist of the various natural productions of the east, as well as of a great variety of the manufactures of the industrious inhabitants of those regions.

In 1799, 95 English ships, 37 American, Portuguese,

and Danish, and 36 Asiatic, arrived in this island. The total number of arrivals, in 1800, amounted to 193; and in 1802, to 241, equal nearly to 57,000 tons.

PRINCE William's Sound, situated on the north-west coast of America, and so named by Captain Cook in 1778. The men, women, and children of this found are all clothed in the same manner. Their ordinary dress is a sort of close frock, or rather robe, which sometimes reaches only to the knees, but generally down to the ancles. These frocks are composed of the skins of various animals, and are commonly worn with the hairy side outwards. The men often paint their faces of a black colour, and of a bright red, and sometimes of a bluish or leaden hue; but not in any regular figure. The women puncture or stain the chin with black, that comes to a point in each of their cheeks. Their canoes are of two sorts; the one large and open, the other small and covered. The framing consists of slender pieces of wood, and the outside is composed of the skins of seals, or other sea animals, stretched over the wood. Their weapons, and implements for hunting and fishing, are the same as those used by the Greenlanders and Esquimaux. Many of their spears are headed with iron, and their arrows are generally pointed with bone. The food they were seen to eat was the flesh of some animal, either roasted or broiled, and dried fish. Some of the former that was purchased had the appearance of bear's flesh. They also eat a larger sort of fern-root, either baked or dressed in some other method. Their drink, in all probability, is water; for, in their canoes, they brought snow in wooden vessels, which they swallowed by mouthfuls. Our knowledge of the animals of this part of the American continent is entirely derived from the skins that were brought by the natives for sale. These were principally of bears, common and pine martens, sea otters, seals, racoons, small crmines, foxes, and the whitish cat or lynx. The birds found here were the halcyon, or great King's-fisher, which had fine bright colours; the white-headed eagle, and the humming-bird. The fish that were principally brought to market for sale were: torfk and holibut. The rocks were almost destitute of shellfish; and the only other animal of this tribe that was observed was a reddish crab, covered with very large spines. Few vegetables of any kind were observed; and the trees that chiefly grew about this found were the Canadian spruce pine, some of which were of a considerable size. E. Long. 115. 21. N. Lat. 59. 33.

PRINCIPAL, the chief and most necessary part of a thing. The principal of a college or hall is the master thereof.

In commerce, principal is the capital of a sum due or lent; so called in opposition to interest. See INTEREST.

It also denotes the first fund put by partners into a common stock, by which it is distinguished from the calls or accessions afterwards required.

PRINCIPAL, in *Music*. See FUNDAMENTAL, in MUSIC, and GENERATOR, in MUSIC.

PRINCIPAL, in *Law*, is either the actor or absolute perpetrator of the crime, who is called a *principal*, in the first degree; or he who is present, aiding and abetting the fact to be done, who is denominated a *principal* in the second degree. The presence of a principal need

Principal,
Principle.

Blackst.
Comment.
b. iv. c. 3.

not always be an actual immediate standing by, within sight or hearing of the fact; but there may be also a constructive presence, as when one commits a robbery or murder, and another keeps watch or guard at some convenient distance. And this rule has also other exceptions; for, in case of murder by poisoning, a man may be a principal felon by preparing and laying the poison, or giving it to another (who is ignorant of its poisonous quality) for that purpose; and yet not administer it himself, nor be present when the very deed of poisoning is committed. And the same reasoning will hold, with regard to other murders committed in the absence of the murderer, by means which he had prepared before-hand, and which probably could not fail of their mischievous effect. As by laying a trap or pit-fall for another, whereby he is killed; letting out a wild beast, with an intent to do mischief; or exciting a madman to commit murder, so that death thereupon ensues: in every one of these cases the party offending is guilty of murder as a principal, in the first degree. For he cannot be called an accessory, that necessarily presupposing a principal; and the poison, the pit-fall, the beast, or the madman, cannot be held principals, being only the instruments of death. As therefore he must be certainly guilty, either as principal or accessory, and cannot be so as accessory, it follows that he must be guilty as principal; and if principal, then in the first degree; for there is no other criminal, much less a superior in the guilt, whom he could aid, abet, or assist.

PRINCIPAL Point, in *Perspective*, is a point in the perspective plane, upon which a line drawn from the eye perpendicular to the plane falls.

This point is in the intersection of the horizontal and vertical plane; and is also called the *point of sight*, and *point of the eye*. See *PERSPECTIVE*.

PRINCIPAL Ray, in *Perspective*, is that which passes perpendicularly from the spectator's eye to the perspective plane, or picture.

Whence the point where this ray falls on the plane, is by some also called the *principal point*, which other writers call *the centre of the picture*, and *the point of concurrence*.

PRINCIPATO, the name of a province of Italy, in the kingdom of Naples, which is divided into two parts, called by the Italians the *Principato Ultra* and the *Principato Citra*, that is, the Hither and Farther Principato. The Hither Principato is bounded on the north by the Farther Principato and part of the Terra-di-Lavoro, on the west and south by the Tuscan sea, and on the east by the Basilicata. It is about 60 miles in length, and 30 in breadth; the soil is fertile in wine, corn, oil, and saffron; and they have a great deal of silk, besides several mineral springs. The capital town is Salerno. The Farther Principato is bounded on the north by the county of Molese and the Terra-di-Lavoro, on the west by the Tuscan sea, on the south by the Hither Principato, and on the east by the Capitanata. It is about 37 miles in length, and 30 in breadth. The Apennine mountains render the air cold; and the soil is not very fertile either in corn or wine, but it produces chestnuts, and pastures in great plenty. Benevento is the capital town.

PRINCIPLE, *PRINCIPIUM*, in general, is used for the cause, source, or origin of any thing.

PRINCIPLE, in human nature. See *DISPOSITION*.

PRINCIPLE, in science, is a truth, admitted without proof, from which other truths are inferred by a chain of reasoning. Principles are of two kinds, *primary* and *general*; and to the last the name of *axioms* is usually given on account of their importance and *dignity*. An axiom or *general* principle, when the terms in which it is expressed are understood, must be a self-evident truth; but from its very nature it cannot be a *first* truth. Our first truths are all *particular*. A child knows that two *particular* lines, each an inch long, are equal to one another, before he has formed any *general* notions of length and equality. "Things equal to one and the same thing are equal to one another," is the first of Euclid's axioms; and an axiom it undoubtedly is, but to no man has it been a *first* truth. It is, if we may use the expression, a *genus* or *class* of truths, comprehending under it numberless individuals. Were a full-grown man introduced into the world, without a single idea in his mind, as we may suppose Adam to have been, he would instantly perceive, upon laying together three pieces of wood each a foot long, that they were all equal in length; and if he were to cut another to the same length with *any one* of them, he would find upon trial that it was of the same length with them all. After a few simple experiments of this kind, he would, by a law of human thought, infer, that all things equal in length or in any other dimension, to any *one* thing, are in that dimension equal to one another.

It was not therefore with such weakness as some have imagined, that Hobbes affirmed those propositions commonly called axioms, not to be primary but secondary principles. A primary principle deserves not the name of an axiom, as it is only a particular truth including in it no other truth. There is not one of Euclid's axioms which has not been the result of induction, though we remember not the time at which the induction was made. That the whole is greater than any of its parts is a general truth which no man of common sense can controvert; but every one discovered that truth by observing that his body was larger than his head, his foot, or his hand; that a mountain is larger than a mole-hill in the middle of it; and that a piece of timber measuring what is called a yard is longer than any one of the divisions marked upon it, and termed inches. The particular observations are made through the senses and treasured up in the memory; and the intellect, by its constitution, compares them together, marks in what they agree and disagree, and thence draws its *axioms* or *general* principles. He, therefore, who should admit the truth of an axiom, and deny the evidence of sense and perception, would act as absurdly as he who accepts payment in a bank-bill, and refuses it in the individual pieces of gold or silver which that bill represents. General axioms are of infinite use in the pursuits of science; but it is not because they create new truths; they only shorten the process in the discovery of such as might be found, with labour, through the medium of particular propositions. See *Campbell's Philosophy of Rhetoric* and *Tatham's Chart and Scale of Truth*.

PRINCIPLES, in *Physics*, are often confounded with elements, or the first and simplest parts whereof natural bodies are compounded, and into which they are again resolvable by the force of fire.

PRINGLE, SIR JOHN, an eminent physician and philosopher,

Principle,
Pringle.

Pringle. philosopher, was a younger son of Sir John Pringle of Stichel, in the shire of Roxburgh, Baronet; took the degree of M. D. at Leyden, 1730; and published there *Dissertatio Inauguralis de Marcere Senili*, 4to. After having been some years professor of moral philosophy at Edinburgh, he was in June 1745 appointed physician to the duke of Cumberland, and physician-general to the hospital of the forces in Flanders, where the earl of Stair appears to have been his patron. In February 1746, Dr Pringle, Dr Armstrong, and Dr Barker, were nominated physicians to the hospital of lame, maimed, and sick soldiers, behind Buckingham-house; and in April 1749, Dr Pringle was appointed physician in ordinary to the king. In 1750 he published "Observations on the Nature and Cure of Hospital and Gaol Fevers, in a Letter to Dr Mead," 8vo (reprinted in 1755); and in 1752 he favoured the public with the result of his long experience in an admirable treatise under the title of "Observations on the Disorders of the Army in Camp and Garrison," 8vo. On the 14th of April 1752, he married Charlotte, second daughter of Dr Oliver, an eminent physician at Bath. In 1756 he was appointed jointly with Dr Wintringham (now Sir Clifton Wintringham, Bart.) physician to the hospital for the service of the forces of Great Britain. After the accession of his present majesty, Dr Pringle was appointed physician to the queen's household, 1761; physician in ordinary to the queen in 1763, in which year he was admitted of the college of physicians in London; and on the 5th of June 1766, he was advanced to the dignity of a baronet of Great Britain. In 1772 he was elected president of the Royal Society, where his speeches for five successive years, on delivering the prize-medal of Sir Godfrey Copley, gave the greatest satisfaction. Sir John Pringle in 1777 was appointed physician extraordinary to the king. He was also a fellow of the College of Physicians at Edinburgh, and of the Royal Medical Society at Paris; member of the Royal Academies at Paris, Stockholm, Gottingen, and of the Philosophical Societies at Edinburgh and Haerlem; and continued president of the Royal Society till November 1778; after which period he gradually withdrew from the world, and in 1781 quitted his elegant house in Pall Mall (where he had long distinguished himself as the warm friend and patron of literary men of every nation and profession), and made an excursion to his native country. He returned to London in the latter end of the year; died greatly beloved and respected January 18. 1782; and having no children, was succeeded in estate, and also (agreeably to the limitation of the patent) in title, by his nephew, Sir James Pringle Bart. Among the worthy physician's communications to the Royal Society, the following are the Principal: 1. "Some Experiments on Substances resisting Putrefaction," Phil. Trans. N^o 495. p. 580; and N^o 496, p. 525, 550; reprinted, with additions, in Martin's Abridgement, vol. xi. p. 1365. 2. "Account of some Persons seized with the Gaol Fever by working in Newgate, and of the manner by which the Infection was communicated to one entire Family," vol. xlviii. p. 42. At the request of Dr Hales, a copy of this useful paper was inserted in the Gentleman's Magazine, 1753, p. 71, before its appearance in the Transactions. 3. "A remarkable Case of Fragility, Flexibility, and

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Diffolution of the Bones," ib. p. 297. 4. "Account of the Earthquake felt at Brussels," vol. xlix. p. 546. 5. "Account of the sinking of a River near Pontypool, in Monmouthshire," ib. p. 547. 6. "Account of an Earthquake felt Feb. 18. 1756, along the coast of England, between Margate and Dover," ib. p. 579. 7. "Account of the Earthquake felt at Glasgow and Dumbarton; also of a Shower of Dust falling on a Ship between Shetland and Iceland," ib. p. 509. 8. "Several Accounts of the Fiery Meteor which appeared on Sunday, November 26. 1758, between eight and nine at night," vol. l. p. 218. 9. "Account of the Virtues of Soap in dissolving the Stone, in the Case of the Reverend Mr Matthew Simson," ib. p. 221. 10. "Account of the effects of Electricity in Paralytic Cases," ib. 481. And see a letter to him on that subject from Professor Winthorp. "Some Account of the Success of the *Vitrum Ceratum Antimonii*," was printed in the Edinburgh Medical Essays, vol. v.

PRINOS, in *Botany*, a genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method ranking under the 43d order, *Dumosa*. The calyx is sixfid; the corolla monopetalous, and rotaceous; the belly hexaspermous.

PRINTER, a person who composes and takes impressions from moveable characters ranged in order, by means of ink and a press.

PRINTING, the art of taking impressions from characters or figures, moveable and immoveable, on paper, linen, silk, &c. There are three kinds of printing: the one from moveable letters, for books; another from copper-plates, for pictures; and the last from blocks, in which the representation of birds, flowers, &c. are cut, for printing calicoes, linen, &c. The first is called *common* or *letter-press* printing; the second, *rolling-press* printing; and the last, *calico*, &c. printing. The principal difference between the three consists in this, that the first is cast in relievo, in distinct pieces; the second engraven in creux; and the third cut in relievo, and generally stamped, by placing the block upon the materials to be printed, and striking upon the back of it.

Of the above branches, LETTER-PRESS PRINT-¹Letter-ING is the most curious, and deserves the most particular notice: for to it are owing chiefly our ^{press print-}deliverance from ignorance and error, the progress of learning, the revival of the sciences, and numberless improvements in arts, which, without this noble invention, would have been either lost to mankind, or confined to the knowledge of a few. "To the art of printing ²Utility of this art. (says an elegant essayist *), it is acknowledged we owe ^{Dr Knox.} the reformation. It has been justly remarked, that if the books of Luther had been multiplied only by the slow process of the hand-writing, they must have been few, and would have been easily suppressed by the combination of wealth and power; but, poured forth in abundance from the press, they spread over the land with the rapidity of an inundation, which acquires additional force from the efforts used to obstruct its progress. He who undertook to prevent the dispersion of the books once issued from the press, attempted a task no less arduous than the destruction of the hydra. Resistance was vain, and religion was reformed: and we who are chiefly interested in this happy revolution must remember, amidst the praises bestowed on Luther,

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that

Printing. that his endeavours had been ineffectual, unassisted by the invention of Faustus.

3
Good and
evil result-
ing from it.

“How greatly the cause of religion has been promoted by the art, must appear, when it is considered, that it has placed those sacred books in the hand of every individual, which, besides that they were once locked up in a dead language, could not be procured without great difficulty. The numerous comments on them of every kind, which tend to promote piety, and to form the Christian philosopher, would probably never have been composed, and certainly would not have extended their beneficial influence, if typography had still been unknown. By that art, the light, which is to illuminate a dark world, has been placed in a situation more advantageous to the emission of its rays: but if it has been the means of illustrating the doctrines, and enforcing the practice of religion, it has also, particularly in the present age, struck at the root of piety and moral virtue, by propagating opinions favourable to the sceptic and the voluptuary. It has enabled modern authors wantonly to gratify their avarice, their vanity, and their misanthropy, in disseminating novel systems subversive of the dignity and happiness of human nature: but though the perversion of the art is lamentably remarkable in those volumes which issue, with offensive profusion, from the vain, the wicked, and the hungry; yet this good results from the evil, that as truth is great and will prevail, she must derive fresh lustre, by displaying the superiority of her strength in the conflict with sophistry.

“Thus the art of printing, in whatever light it is viewed, has deserved respect and attention. From the ingenuity of the contrivance, it has ever excited mechanical curiosity; from its intimate connection with learning, it has justly claimed historical notice; and from its extensive influence on morality, politics, and religion, it is now become a subject of very important speculation.

4
Its good
effects
overbalance
the bad.

“But however we may felicitate mankind on the invention, there are perhaps those who wish, that, together with its compatriot art of manufacturing gunpowder, it had not yet been brought to light. Of its effects on literature, they assert, that it has increased the number of books, till they distract rather than improve the mind; and of its malignant influence on morals, they complain, that it has often introduced a false refinement, incompatible with the simplicity of primitive piety and genuine virtue. With respect to its literary ill consequences, it may be said, that though it produces to the world an infinite number of worthless publications, yet true wit and fine composition will still retain their value, and it will be an easy task for critical discernment to select these from the surrounding mass of absurdity: and though, with respect to its moral effects, a regard to truth extorts the confession, that it has diffused immorality and irreligion, divulged with cruel impertinence the se-

crets of private life, and spread the tale of scandal through an empire; yet these are evils which will either shrink away unobserved in the triumphs of time and truth over falsehood, or which may, at any time, be suppressed by the legislative interposition.”

Printing.

Some writers have ascribed the origin of this art to the East, and ascribed a very early period to its invention; particularly P. Jovius, (*Hist. lib. xiv. p. 226. ed. Florent. 1550*), from whom Olorius and many others have embraced the same opinion. But these have evidently confounded the European mode of printing with the engraved tablets which to this day are used in China. The invention of these tablets has been ascribed by many writers even to an earlier period than the commencement of the Christian era; but is with more probability assigned, by the very accurate Phil. Couplet, to the year 930. The *Historia Sinenfis* of Abdalla, written in Persic in 1317, speaks of it as an art in very common use. MEERMAN, vol. i. p. 16. 218, 219, vol. ii. p. 186. N. Trigault asserts that the Chinese practised the art of printing five centuries before. Count Ferre Rezzonico found at Lyons plates with words and names engraven by a Nuremberger 1380.

5
History of
the inven-
tion of
printing-

The honour of having given rise to the European method has been claimed by the cities of *Harlem*, *Mentz*, and *Straßburg*. And to each of these it may be ascribed in a qualified sense, as they made improvements upon one another.

I. The first testimony of the inventor is that recorded by Hadrian Junius, in his *Batavia*, p. 253, ed. Lugd. Bat. 1588; which, though it hath been rejected by many, is of undoubted authority. Junius had the relation from two reputable men; Nicolaus Galius (A), who was his schoolmaster; and Quirinus Talefius, his intimate and correspondent. He ascribes it to LAURENTIUS, the son of John (*Ædituus*, or *Custos*, of the cathedral of HARLEM, at that time a respectable office), upon the testimony of Cornelius, some time a servant to Laurentius, and afterwards bookbinder to the cathedral, an office which had before been performed by Franciscan friars. His narrative was thus: “That, walking in a wood near the city (as the citizens of opulence use to do), he began at first to cut some letters upon the rind of a beech tree; which, for fancy’s sake being impressed on paper, he printed one or two lines, as a specimen for his grand-children (the sons of his daughter) to follow. This having happily succeeded, he meditated greater things (as he was a man of ingenuity and judgement); and first of all, with his son-in-law Thomas Peter (who, by the way, left three sons, who all attained the consular dignity), invented a more glutinous writing-ink, because he found the common ink sunk and spread; and then formed whole pages of wood, with letters cut upon them; of which sort I have seen some essays, in an anonymous work, printed only on one side, intitled, *Speculum nostræ salutis*: in which it is remarkable, that in the infancy

6
Claim of
Harlem.

(A) Galius seems to be the same who is called *Claes Lottynsz. Gael*, Scabinus Harlemi, as it is in the Fasti of that city, in the years 1531, 1533, and 1535. Quirinus in the same Fasti is called *Mr Quiryn Dirkszoon*. He was many years amanuensis to the great Erasmus, as appears from his epistle, 23d July 1529. tom. iii. Oper. p. 1222. He was afterwards Scabinus in 1537 & seq. and Consul in 1552 & seq. But in the troubles of Holland he was cruelly killed by the Spanish soldiers, May 23. 1563. There are some letters of Hadrian Junius to this Talefius, in the *Epistolæ Junianæ*, p. 198.

Printing. fancy of printing (as nothing is complete at its first invention) the back sides of the pages were pasted together, that they might not by their nakedness betray their deformity. These beechen letters he afterwards changed for leaden ones, and these again for a mixture of tin and lead [*stannee*] as a less flexible and more solid and durable substance. Of the remains of which types, when they were turned to waste metal, those old wine-pots were cast, that are still preserved in the family-house, which looks into the market-place, inhabited afterwards by his great-grandson Gerard Thomas, a gentleman of reputation; whom I mention for the honour of the family, and who died old a few years since. A new invention never fails to engage curiosity. And when a commodity never before seen excited purchasers, to the advantage of the inventor, the admiration of the art increased, dependents were enlarged, and workmen multiplied; the first calamitous incident! Among these was one John, whether, as we suspect, he had ominously the name of *Faußus* (B), unfaithful and unlucky to his master, or whether it was really a person of that name, I shall not much inquire; being unwilling to molest the silent shades, who suffer from a consciousness of their past actions in this life. This man, bound by oath to keep the secret of printing, when he thought he had learned the art of joining the letters, the method of casting the types, and other things of that nature, taking the most convenient time that was possible, on Christmas eve, when every one was customarily employed in lustral sacrifices, seizes the collection of types, and all the implements his master had got together, and, with one accomplice, marches off to Amsterdam, thence to Cologne, and at last settled at Mentz, as at an asylum of security, where he might go to work with the tools he had stolen. It is certain, that in a year's time, viz. in 1442, the *Doctrinale* of Alexander Galius, which was a grammar much used at that time, together with the *Tracts* of Peter of Spain, came forth there, from the same types as Laurentius had made use of at Harlem."

Thus far the narrative of Junius, which he had frequently heard from Nicolaus Galius; to whom it was related by Cornelius himself, who lived to a great age, and used to burst into tears upon reflecting on the loss his master had sustained, not only in his substance, but in his honour, by the roguery of his servant, his former associate and bedfellow. Cornelius, as appears by the registers of Harlem cathedral, died either in 1515, or the beginning of the following year; so that he might very well give this information to Nicolaus Galius, who was schoolmaster to Hadrian Junius.

Though this circumstance is probable as to the main fact, yet we must set aside the evidence of it in some particulars. 1. The first obvious difficulty is noticed by Scriverius; "that the types are said to be made of the rind of beech, which could not be strong enough to bear the impression of the press:" though this is removed, if, instead of the bark, we substitute a bough of the beech. The idea of the bark, when Junius wrote this, was perhaps strong in his mind, from what Virgil

tells us (Ecl. v. 13.) of its being usual to cut words on the bark of a beech; and thence he was easily led to make a wrong application of it here.

2. The letters were at first wooden, and are said to be afterwards exchanged for metal types; from which the wine-pots were formed, remaining in the time of Junius. According to tradition, printing was carried on in the same house long after the time of Laurentius: these pots might therefore be formed from the waste metal of the printing-house, after the use of *fusile types* became universal.—But Laurentius seems to have carried the art no farther than *separate wooden types*. What is a remarkable confirmation of this, Henry Spiechel, who wrote, in the 16th century, a Dutch poem intitled *Herfpiegel*, expresses himself thus: "Thou first, Laurentius, to supply the defect of wooden tablets, adaptedst wooden types, and afterwards didst connect them with a thread, to imitate writing. A treacherous servant surreptitiously obtained the honour of the discovery. But truth itself, though destitute of common and wide-spread fame; truth, I say, still remains." No mention in the poem of metal types; a circumstance which, had he been robbed of such, as well as of wooden ones, would scarcely have been passed over in silence.

When Laurentius first devised his rough specimen of the art, can only be guessed at. He died in 1440, after having published the *Speculum Belgicum*, and two editions of *Donatus*, all with different wooden types; which it is probable (considering the difficulties he had to encounter, and the many artists whom he must necessarily have had occasion to consult) cost him some years to execute; so that the first essay might be about 1430, which nearly agrees with Petrus Scriverius, who says the invention was about 10 or 12 years before 1440. See LAURENTIUS.

3. What was the specimen he first diverted himself with in cutting, at the distance of three centuries, one would think impossible to be discovered. And yet Joh. Enschedius, a printer, thinks he was so happy as to find it, being an old parchment *Horarium*, printed on both sides, in eight pages, containing the Letters of the Alphabet, the Lord's Prayer, the Apostles Creed and three short prayers. And Mr Meerman having shown this to proper artists who were judges of these matters, they gave it as their opinion that it agreed exactly with the description of Junius. It is conformable to the first editions of the Dutch *Speculum Salvationis*, and the fragments of both *Donatus's* of Holland, both which are the works of the same Laurentius, and were preceded by this. In these types, which are certainly moveable, cut, and uneven, there is a rudeness which Mr Meerman has not observed in any other instances. There are no numbers to the pages, no signatures, no *direction-words*, no divisions at the end of the lines; on the contrary, a syllable divided in the middle is seen, thus, *Sp iriitū*, in p. 8. l. 2, 3. There are neither distinctions nor points, which are seen in the other works of Laurentius; and the letter *i* is not marked with an accent, but with a dot at the top. The lines through-

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out

(B) *John Fauß*, or *Fuß*, is by many supposed to have derived his name from *faustus*, "happy;" and Dr *Faußus* seems to carry an air of grandeur in the appellation: but very erroneously. *John Fauß*, or *Fuß*, is no more than *John Hand*, whence our name *Fiß*.

Printing. out are uneven. The shape of the pages not always the same; not (as they should be) rectangular, but sometimes rhomb-like, sometimes an *isoscele trapezium*: and the performance seems to be left as a specimen both of his piety, and of his ingenuity in this essay of a new invented art. Mr Meerman has given an exact engraving of this singular curiosity.

But, whatever else may appear doubtful in the narrative of Junius, it is very clear, that the first essays of the art are to be attributed to Laurentius, who used only *separate wooden types*. See the article LAURENTIUS.

II. Some of Laurentius's types were stolen from him by one of his servants (c), *John GEINSFLEICH senior*; who fled therewith to MENTZ. Having introduced the art from Harlem into this his native city; he set with all diligence to carry it on; and published, in 1442, *ALEXANDRI GALLI Doctrinale*, and *PETRI HISPANI Tractatus*; two works, which, being small, best suited his circumstances; and for which, being much used in the schools, he might reasonably expect a profitable sale. They were executed with *wooden types*, cut after the model of those he had stolen.

In 1443 he hired the house *Zum Jungen*; and was assisted

(c) Authors differ as to the person who committed this robbery. It is clear from all accounts that his name was *John*; but what his surname was is the disputed point. Junius, after some hesitation, ascribes it to *John Fuft*; but with injustice: for he was a wealthy man, who assisted the first printers at Mentz with money; and though he afterwards was proprietor of a printing-office, yet he never, as far as appears, performed any part of the business with his own hands, and consequently he could never have been a servant to Laurentius. Nor is the conjecture of *Scriverius* better founded, which fixes it upon *John Gutenberg*, who (as appears by authentic testimonies) resided at Straßburg from 1436 to 1444, and during all that period employed much fruitless labour and expence in endeavouring to attain this art. Mr Meerman once thought, "it might be either *John Meidenbachius*, (who, we are told by *Seb. Munster* and the author of *Chronographia Moguntinensis*, was an assistant to the first Mentz printers); or *John Peterheimius* (who was some time a servant to *Fuif* and *Schoeffer*, and set up a printing-house at *Francfort* in 1459): or, lastly, some other person, who, being unable through poverty to carry on the business, discovered it to *Geinsfleisch* at Mentz." But more authentic intelligence afterwards convinced him there were two persons of this name; and that *John Geinsfleisch senior** was the dishonest servant, who was born at Mentz, and who in the papers published by *Kohlerus*, we find there in the year 1441, and not before: for though he was of a good family, yet he was poor, and seems to have been obliged, as well as his brother, to seek his livelihood in a foreign country; and perhaps was content to be under Laurentius, that, when he had learned the art, he might follow it in his own. But, to leave conjecture, we may produce some certain testimonies.

1. It is what Junius himself says, that the person who stole the types did it with a view to set up elsewhere; nor is it likely that he would either make no use of an art he had seen so profitable to Laurentius, or that he would teach it to another and submit to be again a servant.

2. The *Lambeth Record* (which is printed below, from Mr *Atkyns*) tells us, that "Mentz gained the art by the brother of one of the workmen of Harlem, who learned it at home of his brother, who after set up for himself at Mentz."—By the strictest examination of the best authorities, it is plain, that by these *two brothers* the two *Geinsfleischs* must be meant. But as the younger (*Gutenberg*) was never a servant to Laurentius, it must be the senior who carried off the types, and instructed his brother in the art; who first applied himself to the business at Straßburg, and afterwards joined his elder brother, who had in the mean time settled at Mentz.

What is still stronger, two chronologers of Straßburg, the one named *Dan Speklinus*, the other anonymous (in *Meerman's Documenta*, N^o LXXXV. LXXXVI.), tells us expressly, that *John Geinsfleisch* (*viz.* the senior, whom they distinguished from *Gutenberg*), having learned the art by being servant to its *first inventor*, carried it by theft into Mentz his native country. They are right in the fact, though mistaken in the application of it; for they make Straßburg the place of the invention, and *Mentelius* the inventor, from whom the types were stolen. But this is plainly an error: for *Geinsfleisch* lived at Mentz in 1441, as appears from undoubted testimonies; and could not be a servant to *Mentelius*, to whom the before mentioned writers ascribe the invention in 1440, though more ancient ones do not attempt to prove that he began to print before 1444 or 1448. Nor will the narrative agree better with *Gutenberg*, who was an earlier printer than *Mentelius*; since, among the evidences produced by him in his law-suit, 1439, no *Geinsfleisch senior* appears, nor any other servant but *Laurentius Beildek*. The narration therefore of the theft of *Geinsfleisch*, being spread by various reports through the world, and subsisting in the time of these chronologers, was applied by them (to serve the cause they wrote for) to Straßburg; but serves to confirm the truth, since no writer derives the printing spoils from any other country than *Holland* or *Alsatia*. The chronologers have likewise, instead of *Fuif*, called *Gutenberg* the wealthy man; who, from all circumstances, appears to have been poor. They also call *Schoeffer* the son-in-law of *Mentelius*; when it is clear that he married the daughter of *Fuif*.

* He was called *Geinsfleisch* *старъ и зоръ*; the other was distinguished by the name of *Gutenberg*. They were both poor; though of a family distinguished by knighthood. They were both married men; and were most probably brothers, as it was not uncommon in that age for two brothers to have the same Christian name. These both appear in a disreputable light. The eldest robbed his master, with many aggravating circumstances. The youngest was remarkably contentious; and, after entering into a contract of marriage with *Anna*, a noble girl of *The Iron Gate*, refused to marry her till compelled by a judicial decree; and afterwards cared not what became of the lady, but left her behind at Straßburg when he removed to Mentz. He had not only frequent quarrels with his wife; but with *Andrew Drizehen*, *Andrew Heilmann*, and *John Riff*, all of whom were associated with him at Straßburg in his different employments of making of looking glasses, polishing of precious stones, and endeavouring to attain the art of printing; and with these he involved himself in three law-suits. See *Meerman*, vol. i. p. 163, &c. N.

Printing.

assisted with money by FUST, a wealthy person, who in return had a share of the business: and about the same time *John Meidenbachius* was admitted a partner, as were some others whose names are not transmitted to our times; and in 1444 they were joined by GUTENBERG, who for that purpose quitted Strasburg. Wooden types being found not sufficiently durable, and not answering expectation in other respects, the two brothers first invented *cut metal types*. But while these were preparing, which must have been a work of time, several works were printed, both on *wooden separate types* and on *wooden blocks*; which were well adapted to small books of frequent use, such as the *Tabula Alphabctica*, the *Catholicon*, *Donati Grammatica*, and the *Confessionalia*.

From the above-mentioned printers in conjunction, after many smaller essays, the Bible was published in 1450, with *large cut metal types* (D). And it is no wonder, considering the immense labour this work cost, that it should be seven or eight years in completing. In this same year the partnership was dissolved, and a new one entered into, in August, between *Fust* and *Gutenberg*; the former supplying the money, the latter skill, for their common benefit. Various difficulties arising, occasioned a law-suit for the money which *Fust* had advanced; which was determined against *Gutenberg*. A dissolution of this partnership ensued in 1455; and in 1457 a magnificent edition of the *Pfalzer* was published by *Fust* and *Schoeffer*, with a remarkable commendation, in which they assumed to themselves the merit of a new invention (viz. of *metal types*), *ad inventionem artificiosam imprimendi ac characterizandi*. This book was uncommonly elegant, and in some measure the work of *Gutenberg*; as it was four years in the press, and came out but 18 months after the partnership was dissolved between him and *Fust*.

The latter continued in possession of the printing-office: and *Gutenberg*, by the pecuniary assistance of *Conrad Humery* syndic of *Mentz* (E), and others, opened another office in the same city; whence appeared, in 1460, without the printer's name, the *Catholicon Jo. de Janua*, with a pompous colophon in praise of its

beauty, and ascribing the honour of the invention to the city of *Mentz*. It was a very handsome book, though inferior to the *Pfalzer* which had been published in 1457 by *Fust* and *Schoeffer*. Both the *Pfalzer* and *Catholicon* were printed on *cut metal types* (F). It may not be improper to observe here, that as the *Pfalzer* is the earliest book which is known to have a genuine date, it became a common practice, after that publication, for printers to claim their own performances, by adding their names to them.

III. The progress of the art has been thus traced through its *second* period, the invention of *cut metal types*. But the honour of completing the discovery is due to PETER SCHOEFFER (G) de *Gernsheim*.

A very clear account of this final completion of the types is preserved by *Trithemius* (H). *Post hæc inventis Invention*
successerunt subtiliora, inveneruntque modum fundendi for-of cast
mas omnium Latini alphabeti literarum, quas ipsi matri-types.
ces nominabant: ex quibus rursum æneos sive stanneos
characteres fundebant, ad omnem pressuram sufficientes,
quos prius manibus sculpebant. Et revera sicuti ante
xxx ferme annos ex ore Petri Opilionis de Gernsheim,
civis Moguntini, qui gener erat primi artis inventoris,
audivi, magnam à primo inventionis suæ hæc ars impres-
soria habuit difficultatem.—Petrus autem memoratus Opilio,
tunc famulus postea gener, sicut diximus, inventoris primi
Johannis Fusti, homo ingeniosus et prudens, faciliorem mo-
dum fundendi characteres excogitavit, et artem, ut nunc est,
complevit.

Another ample testimony in favour of *Schoeffer* is given by *Jo. Frid. Faustus* of *Aschaffenburg*, from papers preserved in his family: "Peter *Schoeffer* of *Gernsheim*, perceiving his master *Fust*'s design, and being himself ardently desirous to improve the art, found out (by the good providence of God) the method of cutting (*incidendi*) the characters in a *matrix*, that the letters might easily be singly *cast* instead of being *cut*. He privately *cut matrices* for the whole alphabet; and when he showed his master the letters cast from these matrices, *Fust* was so pleased with the contrivance, that he promised Peter to give him his only daughter, *Christina*, in marriage;

(D) Many writers have supposed that this was the edition of which some copies were sold in France, by *Fust*, as manuscripts, for the great price of 500 or 600 crowns, which he afterwards lowered to 60, and at last to less than 40. But it was the second and more expensive edition of 1462, that was thus disposed of, when *Fust* went to Paris in 1466, and which had cost 4000 florins before the third *quaternion* (or quire of four sheets) was printed. MEERMAN, vol. i. p. 6. 151, 152.

(E) At the death of *Gutenberg*, *Conrad Humery* took possession of all his printing materials; and engaged to the archbishop *Adolphus*, that he never would sell them to any one but a citizen of *Mentz*. They were, however, soon disposed of to *Nicholas Bechtermuntze* of *Altavilla*, who, in 1469, published *Vocabularium Latino-Teutonicum*, which was printed with the same types which had been used in the *Catholicon*. This very curious and scarce *Vocabulary* was shown to *Mr Meerman*, by *Mr Bryant*, in the duke of *Marlborough*'s valuable library at *Blenheim*. It is in quarto, 35 lines long, contains many extracts from the *Catholicon*, and is called *Ex quo*, from the preface beginning with those words. MEERMAN, vol. ii. p. 96.

(F) *Gutenberg* never used any other than either *wooden* or *cut metal types* till the year 1462. In 1465 he was admitted *inter Aulicos* by the elector *Adolphus*, with an annual pension; and died in February 1468. His elder brother *Geinsfleisch* died in 1462. Their epitaphs are printed by *Mr Meerman*, vol. ii. p. 154, 295.

(G) In German, *Schoeffer*; in Latin, *Opilio*; in English, *Shepherd*.—He is supposed by *Mr Meerman* to have been the first engraver on copperplates.

(H) *Annales Hirsaugienses*, tom. ii. ad ann. 1450.—As this book was finished in 1514, and *Trithemius* tells us he had the narrative from *Schoeffer* himself about 30 years before; this will bring us back to 1484, when *Schoeffer* must have been advanced in years, and *Trithemius* about 22 years old, who died in 1516. See *Voff. Hist. Lat.* l. x. c. 10. *Fabr. Med. & Infim. Æt.* l. 9.

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riage; a promise which he soon after performed. But there were as many difficulties at first with these letters, as there had been before with wooden ones; the metal being too soft to support the force of the impression: but this defect was soon remedied, by mixing the metal with a substance which sufficiently hardened it (1)."

Fust and Schoeffer concealed this new improvement, by administering an oath of secrecy to all whom they intrusted, till the year 1642; when, by the dispersion of their servants into different countries, at the sacking of Mentz by the archbishop Adolphus, the invention was publicly divulged.

The first book printed with these improved types was *Durandi Rationale*, in 1459; at which time, however, they seem to have had only one size of cast letters, all the larger characters which occur being cut types, as appears plainly by an inspection of the book. From this time to 1466, Fust and Schoeffer continued to print a considerable number of books; particularly two famous editions of *Tully's Offices*. In their earliest books, they printed more copies on vellum than on paper, which was the case both of their *Bibles* and *Tully's Offices*. This, however, was soon inverted; and paper introduced for the greatest part of their impressions; a few only being printed on vellum for curiosities, and for the purpose of being illuminated. How long Fust lived, is uncertain; but in 1471 we find Schoeffer was in partnership with *Conrad Henliff* and a kinsman of his master Fust. He published many books after the death of his father-in-law; the last of which that can be discovered is a third edition of the *Psalter* in 1490, in which the old cut types of the first edition were used.

9
Claim of
Strasbourg.

IV. With regard to the claim of STRASBURG: It has been already mentioned, that Gutenberg was engaged in that city in different employments; and, among others, in endeavouring to attain the art of printing. That these endeavours were unsuccessful, is plain from an authentic judicial decree of the senate of Strasbourg in 1439, after the death of Andrew Drizehen (κ).

But there are many other proofs that Gutenberg and his partners were never able to bring the art to perfection.

* *Epitome
Rerum Ger-
manicarum*
ed. Argent.
1505,
Meerman,
vol. i.
p. 202
vol. ii.
p. 139.

1. Wimpelingius*, the oldest writer in favour of Strasbourg, tells us, that Gutenberg was the inventor of "a new art of writing," *ars impressoria*, which might also be called a *divine benefit*, and which he happily completed at Mentz; but does not mention one book of his printing: though he adds, that Mentelius printed many volumes correctly and beautifully, and acquired

great wealth; whence we may conclude that he perfected what Gutenberg had in vain essayed.

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2. Wimpelingius, in another book †, tells us, the art of printing was found out by Gutenberg incomplete; which implies, not that he practised the art in an imperfect manner (as Laurentius had done at Harlem), but rather that he had not been able to accomplish what he aimed at.

† *Catal.
Episc. Ar-
gent. 1508.*
Meerman,
ut supra.

3. Gutenberg, when he left Strasbourg in 1444 or the following year, and entered into partnership with Geinsfleisch junior and others, had occasion for his brother's assistance to enable him to complete the art; which shows that his former attempts at Strasbourg had been unsuccessful ‡.

4. These particulars are remarkably confirmed by Tritemius, who tells us, in two different places ||, that Gutenberg spent all his substance in quest of this art; and met with such insuperable difficulties, that, in despair, he had nearly given up all hopes of attaining it, till he was assisted by the liberality of Fust, and by his brother's skill, in the city of Mentz.

‡ Meerman
ut supra.
|| *Annal.
Hisag.*
ut supra, et
Chron.
Sponheim.
See Meerman,
vol.
ii. p. 103.

5. Ulric Zell says* the art was completed at Mentz; but that some books had been published in Holland earlier than in that city. Is it likely that Zell, who was a German, would have omitted to mention Strasbourg, if it had preceded Mentz in printing?

* *Chronicon
127.*
Colonie,
1499.

There is little doubt, therefore, that all Gutenberg's labours at Strasbourg amounted to no more than a fruitless attempt, which he was at last under the necessity of relinquishing: and there is no certain proof of a single book having been printed in that city till after the dispersion of the printers in 1462, when Mentelius and Eggenstenius successfully pursued the business.

In fine, the pretensions of Strasbourg fall evidently to be set aside. And as to the other two cities, Harlem and Mentz, the disputes between them seem easily cleared up, from the twofold invention of printing above-mentioned: the first with separate WOODEN types at Harlem, by Laurentius, about 1430, and after continued by his family; the other with METAL types, first cut, and afterwards cast, which were invented at Mentz, but not used in Holland till brought thither by Theodoric Martens at Alost about 1472.

From this period printing made a rapid progress in most of the principal towns of Europe. In 1490, it reached Constantinople; and, according to Mr Palmer, p. 281, &c. it was extended, by the middle of the next century, to Africa and America. It was introduced into Russia about 1560: but, from motives either of policy

(1) See Meerman, vol. i. p. 183. who copied this testimony from Wolfius, *Monument. Typograph.* vol. i. p. 468. seq.

(κ) Their first attempts were made about 1436 with wooden types. Mr Meerman is of opinion that Geinsfleisch junior (who was of an enterprising genius, and had already engaged in a variety of projects) gained some little insight into the business by visiting his brother who was employed by Laurentius at Harlem, but not sufficient to enable him to practise it. It is certain that, at the time of the law-suit in 1439, much money had been expended, without any profit having arisen; and the unfortunate Drizehen, in 1438, on his death-bed, lamented to his confessor, that he had been at great expence, without having being reimbursed a single *obolus*. Nor did Gutenberg (who persisted in his fruitless endeavours) reap any advantage from them; for, when he quitted Strasbourg, he was overwhelmed in debt, and under a necessity of selling every thing he was in possession of. [MEERMAN, vol. i. p. 198—202.]. All the depositions in the law-suit above-mentioned (with the judicial decree) are printed by Mr Meerman, vol. ii. p. 58—88. N.

Printing.

policy or superstition, it was speedily suppressed by the ruling powers; and, even under the present enlightened empress, has scarcely emerged from its obscurity.—That it was early practised in the inhospitable regions of Iceland, we have the respectable authority of Mr Bryant: “Arngrim Jonas was born amidst the snows of Iceland; yet as much prejudiced in favour of his country as those who are natives of an happier climate. This is visible in his *Crymogæa*, but more particularly in his *Anatome Bleiskimiana*. I have in my possession this curious little treatise, written in Latin by him in his own country, and printed *Typis Hølenfis in Islandia Boreali, anno 1612*. *Hola* is placed in some maps within the Arctic circle, and is certainly not far removed from it. I believe it is the farthest north of any place where arts and sciences have ever resided.” *Observations and Inquiries relating to various parts of Ancient History*, 1767, p. 277.

10
Introduction of the art into Britain.

It was a constant opinion, delivered down by our historians, as hath been observed by Dr Middleton, that the Art of Printing was introduced and first practised in England by *William Caxton*, a mercer and citizen of London; who, by his travels abroad, and a residence of many years in Holland, Flanders, and Germany, in the affairs of trade, had an opportunity of informing himself of the whole method and process of the art; and by the encouragement of the great, and particularly of the abbot of Westminster, first set up a press in that abbey, and began to print books soon after the year 1471.

This was the tradition of our writers; till a book, which had scarce been observed before the Restoration, was then taken notice of by the curious, with a date of its impression from Oxford, anno 1468, and was considered immediately as a clear proof and monument of the exercise of printing in that university several years before Caxton began to deal in it.

This book, which is in the public library at Cambridge, is a small volume of 41 leaves in 4to, with this title: *Expositio Sancti Jeronimi in Symbolum Apostolorum ad Papam Laurentium*: and at the end, *Explicit expositio, &c. Impressa Oxonie, et finita Anno Domini M.CCCC.LXVIII. XVII. die Decembris*.

11
The first printing-press set up in England was at Oxford.

The appearance of this book has robbed Caxton of a glory that he had long possessed, of being the author of printing in this kingdom; and Oxford has ever since carried the honour of the first press. The only difficulty was, to account for the silence of history in an event so memorable, and the want of any memorial in the university itself concerning the establishment of a new art amongst them of such use and benefit to learning. But this likewise has been cleared up by the discovery of a record, which had lain obscure and unknown at Lambeth-palace, in the Register of the See of Canterbury, and gives a narrative of the whole transaction, drawn up at the very time.

An account of this record was first published in a thin quarto volume, in English; with this title: “The Original and Growth of Printing, collected out of History, and the Records of this Kingdome: wherein is also demonstrated, that Printing appertaineth to the Prerogative Royal, and is a Flower of the Crown of England. By Richard Atkyns, esq.—Whitehall, April the 25. 1664. By order and appointment of the right honourable Mr Secretary Morrice, let this be printed.

The. Rycaut. London: Printed by John Streater, for the Aulhor. 1664.” 4to.

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It sets forth in short, “That as soon as the art of printing made some noise in Europe, Thomas Bouchier, archbishop of Canterbury, moved the then king (Henry VI.) to use all possible means for procuring a printing mould (for so it was then called) to be brought into this kingdom. The king (a good man, and much given to works of this nature) readily hearkened to the motion; and taking private advice how to effect his design, concluded it could not be brought about without great secrecy, and a considerable sum of money given to such person or persons as would draw off some of the workmen of Harlem in Holland, where John Gutenberg had newly invented it, and was himself personally at work. It was resolved, that less than 1000 merks would not produce the desired effect; towards which sum the said archbishop presented the king 300 merks. The money being now prepared, the management of the design was committed to Mr Robert Tournour, who then was master of the robes to the king, and a person most in favour with him of any of his condition. Mr Tournour took to his assistance Mr Caxton, a citizen of good abilities, who traded much into Holland; which was a creditable pretence, as well for his going, as stay in the Low Countries. Mr Tournour was in disguise (his beard and hair shaven quite off); but Mr Caxton appeared known and public. They, having received the said sum of 1000 merks, went first to Amsterdam, then to Leyden, not daring to enter Harlem itself; for the town was very jealous, having imprisoned and apprehended divers persons who came from other parts for the same purpose. They staid till they had spent the whole thousand merks in gifts and expences: so as the king was fain to send 500 merks more, Mr Tournour having written to the king that he had almost done his work; a bargain, as he said, being struck betwixt him and two Hollanders, for bringing off one of the under-workmen, whose name was Frederick Corfells (or rather Corfellis), who late one night stole from his fellows in disguise into a vessel prepared before for that purpose; and so, the wind favouring the design, brought him safe to London. It was not thought so prudent to set him on work at London: but, by the archbishop’s means (who had been vice-chancellor and afterwards chancellor of the university of Oxon), Corfellis was carried with a guard to Oxon; which guard constantly watched, to prevent Corfellis from any possible escape, till he had made good his promise in teaching them how to print. So that at Oxford printing was first set up in England, which was before there was any printing-press or printer in France, Spain, Italy, or Germany (except the city of Mentz), which claims seniority, as to printing, even of Harlem itself, calling her city, *Urbem Moguntinam artis typographice inventricem primam*; though it is known to be otherwise, that city gaining the art by the brother of one of the workmen of Harlem, who had learnt it at home of his brother, and after set up for himself at Mentz. This press at Oxon was at least ten years before there was any printing in Europe, except at Harlem and Mentz, where it was but new-born. This press at Oxford was afterwards found inconvenient to be the sole printing-place of England; as being too far from London and the sea. Wherefore the king set up a press

Printing. press at St Alban's, and another in the city of Westminster, where they printed several books of *divinity* and *physic*: for the king (for reasons best known to himself and council) *permitted then no law-books to be printed*; nor did any printer exercise that art, but only such as were the king's sworn servants; *the king himself having the price and emolument for printing books*.—By this means the art grew so famous, that anno primo Richard III. c. 9. when an act of parliament was made for restraint of aliens for using any handicrafts here (except as servants to natives), a special proviso was inserted, that strangers might bring in printed or written books to sell at their pleasure, and exercise the art of printing here, notwithstanding that act: so that in the space of 40 or 50 years, by the indulgence of Edward IV. Edward V. Richard III. Henry VII. and Henry VIII. the English proved so good proficients in printing, and grew so numerous, as to furnish the kingdom with books; and so skilful, as to print them as well as any beyond the seas; as appears by the act 25 Hen. VIII. c. 15. which abrogates the said proviso for that reason. And it was further enacted in the said statute, that if any person bought foreign books bound, he should pay 6s. 8d. per book. And it was further provided and enacted, that in case the said printers or sellers of books were unreasonable in their prices, they should be moderated by the lord chancellor, lord treasurer, the two lords chief justices, or any two of them, who also had power to fine them 3s. 4d. for every book whose price should be enhanced.—But when they were by charter corporated with *bookbinders, booksellers, and founders of letters*, 3 and 4 Philip and Mary, and called *The Company of Stationers*—they kick'd against the power that gave them life, &c.—Queen Elizabeth, the first year of her reign, grants by patent *the privilege of sole printing all books that touch or concern the common laws of England*, to Tottel a servant to her majesty, who kept it entire to his death; after him, to one Yest Weirt, another servant to her majesty; after him, to Weight and Norton; and after them, King James grants the same privilege to More, one of the signet; which grant continues to this day, &c."

12
Whether
Caxton of
Corfellis
was the
first printer.

From the authority of this record, all our later writers declare Corfellis to be the first printer in England; Mr Anthony Wood, the learned Mr Maittaire, Palmer, and one John Bagford, an industrious man, who had published proposals for an History of Printing, (Phil. Transf. for April 1707). But Dr Middleton has called in question the authenticity of this account, and has urged several objections to it, with the view of supporting Caxton's title to the precedence with respect to the introduction of the art into this country; of which we shall quote one or two, with the answers that have been made to them.

Objection 1.—“The silence of Caxton concerning a fact in which he is said to be a principal actor, is a sufficient confutation of it: for it was a constant custom with him, in the prefaces or conclusions of his works, to give an historical account of all his labours and transactions, as far as they concerned the publishing and printing of books. And, what is still stronger, in the continuation of the Polychronicon, compiled by himself, and carried down to the end of Henry the Sixth's reign, he makes no mention of the expedition in quest of a printer: which he could not have omitted had it been

true; whilst in the same book he takes notice of the invention and beginning of printing in the city of Mentz.”

Answer.—As Caxton makes no mention in his Polychronicon of his *expedition in quest of a printer*; so neither does he of his *bringing the art into England*, which it is as much a wonder he should omit as the other. And as to his saying that *the invention of printing was at Mentz*, he means, of printing on *fusile* separate types. In this he copies, as many others have, from the *Fasciculus Temporum*; a work written in 1470, by Wernerus Rolevinch de Laer, a Carthusian monk, a MS. copy of which was in the library of Gerard Jo. Vossius (see lib. iii. *de Hist. Latin.* c. 6.); and afterwards continued to the year 1474, when it was first printed at Cologne *typis Arnoldi ter Huernen*. It was republished in 1481 by Henricus Wirzburg de Vach, a Cluniac monk, without mentioning the name either of the printer or of the place of publication. It is plain that Caxton had one at least, or more probably both, of these editions before him, when he wrote his continuation of Polychronicon, as he mentions this work in his preface, and adopts the sentiments of its editor. (See MEERMAN, vol. ii. p. 37. and his *Documenta*, N^o vii. xxiv. and xxv.)

Obj. 2.—“There is a farther circumstance in Caxton's history, that it seems inconsistent with the record; for we find him still beyond sea, about twelve years after the supposed transactions, “learning with great charge and trouble the art of printing” (*Recole of the Histories of Troye*, in the end of the 2d and 3d books); which he might have done with ease at home, if he had got Corfellis into his hands, as the record imports, so many years before: but he probably learnt it at Cologne, where he resided in 1471, (*Recole, &c. ibid.*), and whence books had been first printed with date the year before.”

Ans.—Caxton tells us, in the preface to *The History of Troye*, that he began that translation March 1. 1468, at Bruges; that he proceeded on with it at Ghent; that he finished it at Cologne in 1471; and printed it, probably, in that city with his own types. He was 30 years abroad, chiefly in Holland; and lived in the court of Margaret duchess of Burgundy, sister of Edward IV. It was therefore much easier to print his book at Cologne, than to cross the sea to learn the art at Oxford. But further, there was a special occasion for his printing it abroad. Corfellis had brought over so far the art of printing as he had learned it at Harlem, which was the method of printing on *wooden separate* types, having the face of the letter cut upon them. But the art of *casting* metal types being divulged in 1462 by the workmen of Mentz, Caxton thought proper to learn that advantageous branch before he returned to England. This method of casting the types was such an improvement, that they looked on it as the *original* of printing; and Caxton, as most others do, ascribes that to Mentz.—Caxton was an assistant with Turnour in getting off Corfellis; but it is nowhere supposed that he came with him into England. (See MERMAN, vol. ii. p. 34. B.)

Obj. 3.—“As the Lambeth record was *never heard of before the publication of Atkyn's book*, so it has never since been seen or produced by any man; though the registers of Canterbury have on many occasions been di-

ligently

Printing. ligently and particularly searched for it. They were examined, without doubt, very carefully by Archbishop Parker, for the compiling his *Antiquities of the British Church*; where, in the life of Thomas Bouchier, though he congratulates that age on the noble and useful invention of printing, yet he is silent as to the introduction of it into England by the endeavours of that archbishop: nay, his giving the honour of the invention to Strasburg clearly shews that he knew nothing of the story of Corfellis conveyed from Harlem, and that the record was not in being in his time. Palmer himself owns, "That it is not to be found there now; for that the late earl of Pembroke assured him, that he had employed a person for some time to search for it, but in vain?" (*Hist. of Printing*, p. 314.). On these grounds we may pronounce the record to be a forgery; though all the writers above mentioned take pains to support its credit, and call it an *authentic piece*.

Atkyns, who by his manner of writing seems to have been a *bold and vain man*, might possibly be the inventor; for he had an interest in imposing it upon the world, in order to confirm the argument of his book, that printing was of the prerogative royal; in opposition to the company of stationers, with whom he was engaged in an expensive suit of law, in defence of the king's patents, under which he claimed some exclusive powers of printing. For he tells us, p. 3. "That, upon considering the thing, he could not but think that a public person, more eminent than a mercer, and a public purse, must needs be concerned in so public a good: and the more he considered, the more inquisitive he was to find out the truth. So that he had formed his hypothesis before he had found his record; which he published, he says, as a friend to truth; not to suffer one man to be intitled to the worthy achievements of another; and as a friend to himself, not to lose one of his best arguments of entitling the king to this art." But, if Atkyns was not himself the contriver, he was imposed upon at least by some more crafty man; who imagined that his interest in the cause, and the warmth that he shewed in prosecuting it, would induce him to swallow for genuine whatever was offered of the kind."

Ans.—On the other hand, is it likely that Mr Atkyns would dare to forge a record, to be laid before the king and council, and which his adversaries, with whom he was at law, could disprove?—(2.) He says he received this history from a person of honour, who was some time keeper of the Lambeth library. It was easy to have confuted this evidence, if it was false, when he published it, April 25. 1664.—(3.) John Bagford (who was born in England 1651, and might know Mr Atkyns, who died in 1677), in his History of Printing at Oxford, blames those who doubted of the authenticity of the Lambeth MS.; and tells us that he knew Sir John Birkenhead had an authentic copy of it, when in 1665 [which Bagford by some mistake calls 1664, and is followed in it by Meerman] he was appointed by the house of commons to draw up a bill relating to the exercise of that art. This is confirmed by the Journals of that house, Friday Oct. 27. 1665, vol. viii. p. 622, where it is ordered, that this Sir John Birkenhead should carry the bill on that head to the house of lords for their consent.—The act was agreed to in the upper house on Tuesday Oct. 31. and received the royal assent on the same day; immediately after which the parliament was

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prorogued. See *Journals of the House of Lords*, vol. xi. p. 700.—It is probable, then, that after Mr Atkyns had published his book in April 1664, the parliament thought proper, the next year, to inquire into the right of the king's prerogative; and that Sir John Birkenhead took care to inspect the original, then in the custody of Archbishop Sheldon: and, finding it not sufficient to prove what Mr Atkyns had cited it for, made no report of the MS. to the house; but only moved that the former law should be renewed. The MS. was probably never returned to the proper keeper of it; but was afterwards burnt in the fire of London, Sept. 13. 1666.—(4.) That printing was practised at Oxford, was a prevailing opinion long before Atkyns. Bryan Twyne, in his *Apologia pro Antiquitate Academicæ Oxoniensis*, published 1608, tells us, it is so delivered down in ancient writings; having heard, probably, of this Lambeth MS. And King Charles I. in his letters patent to the University of Oxford, March 5. in the eleventh of his reign, 1635, mentions printing as brought to Oxford from abroad. As to what is objected, "that it is not likely that the press should undergo a ten or eleven years sleep, viz. from 1468 to 1479," it is probably urged without foundation. Corfellis might print several books without date or name of the place, as Ulrich Zell did at Cologne, from 1467 to 1473, and from that time to 1494. Corfellis's name, it may be said, appears not in any of his publications; but neither does that of Joannes Peterhemius. [See MEERMAN, vol. i. p. 34.; vol. ii. p. 21—27, &c.]

Further, the famous Shakespeare, who was born in 1564, and died 1616, in the Second Part of Henry VI. act iv. sc. 7. introduces the rebel John Cade, thus upbraiding Lord Treasurer Say: "Thou hast most traiterously corrupted the youth of the realm, in creating a grammar-school: and whereas, before, our forefathers had no other book but the score and the tally, thou hast caused Printing to be used; and, contrary to the king, his crown, and dignity, thou hast built a paper-mill."—Whence now had Shakespeare this accusation against Lord Say? We are told in the Poetical Register, vol. ii. p. 231. ed. Lond. 1724, that it was from Fabian, Pol. Vergel, Hall, Hollinghed, Grafton, Stow, Speed, &c. But not one of these ascribes printing to the reign of Henry VI. On the contrary, Stow, in his Annals, printed at London, 1560, p. 686, gives it expressly to William Caxton, 1471. "The noble science of printing was about this time found out in Germany at Magunze, by one John Guthumburgus a knight. One Conradus an Almaine brought it into Rome: William Caxton of London, mercer, brought it into England about the year 1471, and first practised the same in the abbey of St Peter at Westminster; after which time it was likewise practised in the abbeys of St Augustine at Canterbury, Saint Albons, and other monasteries of England." What then shall we say, that the above is an anachronism arbitrarily put into the mouth of an ignorant fellow out of Shakespeare's head? We might believe so, but that we have the record of Mr Atkyns confirming the same in King Charles II.'s time. Shall we say, that Mr Atkyns borrowed the story from Shakespeare, and published it with some improvements of money laid out by Henry VI. from whence it might be received by Charles II. as a prerogative of the crown? But this is improbable, since Shakespeare makes Lord

Printing. Treasurer Say the instrument of importing it, of whom Mr Atkyns mentions not a word. Another difference there will still be between Shakespeare and the Lambeth MS.; the poet placing it before 1449, in which year Lord Say was beheaded; the MS. between 1454 and 1459, when Bouchier was archbishop. We must say, then, that Lord Say first laid the scheme, and sent some one to Harlem, though without success; but after some years it was attempted happily by Bouchier. And we must conclude, that as the generality of writers have overlooked the invention of printing at Harlem with wooden types, and have ascribed it to Mentz where metal types were first made use of; so in England they have passed by Corfellis (or the first Oxford Printer, whoever he was, who printed with wooden types at Oxford), and only mentioned Caxton as the original artist who printed with metal types at Westminster. [See MEERMAN, vol. ii. 7, 8.] It is strange, that the learned commentators on our great dramatic poet, who are so minutely particular upon less important occasions, should every one of them, Dr Johnson excepted, pass by this curious passage, leaving it entirely unnoticed. And how has Dr Johnson trifled, by slightly remarking, "that Shakespeare is a little too early with this accusation!"—The great critic had undertaken to decipher obsolete words, and investigate unintelligible phrases; but never, perhaps, bestowed a thought on Caxton or Corfellis, on Mr Atkyns or the authenticity of the Lambeth Record.

But, independent of the record altogether, the book stands firm as a monument of the exercise of printing in Oxford six years older than any book of Caxton's with a date. In order to get clear of this strong fact Dr Middleton,

1. Supposes the date in question to have been falsified originally by the printer, either by design or mistake; and an X to have been dropped or omitted in the age of its impression. Examples of this kind, he says, are common in the history of printing. And, "whilst I am now writing, an unexpected instance is fallen into my hands, to the support of my opinion; an *Inauguration Speech of the Woodwardian Professor, Mr Mason*, just fresh from the press, with its date given 10 years earlier than it should have been, by the omission of an x, viz. MDCCXXXIV; and the very blunder exemplified in the last piece printed at Cambridge, which I suppose to have happened in the first from Oxford."—To this it has been very properly answered, That we should not pretend to set aside the authority of a plain date, without very strong and cogent reasons; and what the Doctor has in this case advanced will not appear, on examination, to carry that weight with it that he seems to imagine. There may be, and have been, mistakes and

forgeries in the date both of books and of records too; but this is never allowed as a reason for suspecting such as bear no mark of either. We cannot from a blunder in the last book printed at Cambridge, infer a like blunder in the first book printed at Oxford. Besides, the type used in this our Oxford edition seems to be no small proof of its antiquity. It is the German letter, and very nearly the same with that used by Fust [who has been supposed to be] the first printer; whereas Caxton and Rood use a quite different letter, something between this German and our old English letter, which was soon after introduced by De Worde and Pynson.

2. "For the probability of his opinion (he says), the book itself affords sufficient proof: for, not to insist on what is less material, the neatness of the letter, and regularity of the page, &c. above those of Caxton, it has one mark, that seems to have carried the matter beyond probable, and to make it even certain, viz. the use of signatures, or letters of the alphabet placed at the bottom of the page, to show the sequel of the pages and leaves of each book; an improvement contrived for the direction of the bookbinders; which yet was not practised or invented at the time when this book is supposed to be printed; for we find no signatures in the books of Faust or Schoeffer at Mentz, nor in the improved or beautiful impressions of John de Spira and Jenfon at Venice, till several years later. We have a book in our library, that seems to fix the very time of their invention, at least in Venice; the place where the art itself received the greatest improvements: *Baldi lectura super Codic. &c.* printed by John de Colonia and Jo. Manthem de Gherretzem, anno MCCCCLXXXIII. It is a large and fair volume in folio, without signatures, till about the middle of the book, in which they are first introduced, and so continued forward: which makes it probable, that the first thought of them was suggested during the impression; for we have likewise *Lectura Bartholi super Codic. &c.* in two noble and beautiful volumes in folio, printed the year before at the same place, by Vindelin de Spira, without them: yet from this time forward they are generally found in all the works of the Venetian printers, and from them propagated to the other printers of Europe. They were used at (L) Cologne, in 1475; at Paris, 1476; by Caxton, not before 1480: but if the discovery had been brought into England, and practised at Oxford 12 years before, it is not probable that he would have printed so long at Westminster without them. Mr Palmer indeed tells us, p. 54, 180, that Anthony Zarot was esteemed the inventor of signatures; and that they are found in a Terence printed by him at Milan in the year 1470, in which he first printed. I have not seen that Terence; and can only say, that I have observed the want of them in some later works of this,

(L) Dr Middleton is mistaken in the time and place of the invention of signatures. They are to be found even in very ancient MSS. which the earliest printers very studiously imitated; and they were even used in some editions from the office of Lawrence Coster (whence Corfellis came), which consisted of wooden cuts, as in *Figurae typicae et antitypicae Novi Testamenti*; and in some editions with metal types, as in *Gasp. Pergamenis epistola*, published at Paris, without a date, but printed A. D. 1470, (Maittaire*, *Annal.* vol. i. p. 25.); and in *Mammetreclus*, printed by Helias de Llouffien, at Bern in Switzerland, 1470; and in *De Tondeli visione*, at Antwerp, 1472. Venice, therefore, was not the place where they were first introduced.—They began to be used in Baldus, it seems, when the book was half finished. The printer of that book might not know, or did not think, of the use of them before. See *Meerman*, vol. ii. p. 18.; and *Phil. Trans.* vol. xxiii. N^o 208. p. 1509.

* See Maittaire.

Printing. this, as well as of other excellent printers of the same place. But, allowing them to be in the Terence, and Zarot the inventor, it confutes the date of our Oxford book as effectually as if they were of later origin at Venice; as I had reason to imagine, from the testimony of all the books that I have hitherto met with."—As to these proofs, first, the neatness of the letter, and the regularity of the page, prove, if any thing, the very reverse of what the Doctor asserts. The art of printing was almost in its infancy brought to perfection; but afterwards debased by later printers, who consulted rather the cheapness than the neatness of their work. Our learned dissertator cannot be unacquainted with the labours of Fust and Jenfon. He must know, that though other printers may have printed more correctly, yet scarce any excel them, either in the neatness of the letter, or the regularity of the page. The same may be observed in our English printers. Caxton and Rood were indifferently good printers; De Worde and Pynfon were worse; and those that follow them most abominable. This our *anonymous Oxford printer* excels them all; and for this very reason we should judge him to be the most ancient of all. Our dissertator lays great stress on the use of signatures. But no certain conclusion can be drawn either from the use or non-use of these lesser improvements of printing. They have in different places come in use at different times, and have not been continued regularly even at the same places. If Anthony Zarot used them at Milan in 1470, it is certain later printers there did not follow his example; and the like might happen also in England. But, what is more full to our purpose, we have in the Bodleian library an *Æsop's Fables* printed by Caxton. This is, it is believed, the first book which has *the leaves numbered*. But yet this improvement, though more useful than that of the signatures, was disused both by Caxton himself and other later printers in England. It is therefore not at all surprising (if true) that the signatures, though invented by our Oxford printer, might not immediately come into general use. And consequently, this particular carries with it no such certain or effectual confutation as our dissertator boasts of.

3. What the Doctor thinks farther confirms his opinion is, "That, from the time of the pretended date of this book, anno 1468, we have no other fruit or production from the press at Oxford for 11 years next following; and it cannot be imagined that a press, established with so much pains and expence, could be suffered to be so long idle and useles."—To this it may be answered, in the words of Oxonides, 1st, That his books may have been lost. Our first printers, in those days of ignorance, met with but small encouragement; they printed but few books, and but few copies of those books. In after-times, when the same books were reprinted more correctly, those first editions, which were not as yet become curiosities, were put to common uses. This is the reason that we have so few remains of our first printers. We have only four books of Theodoric Rood, who seems by his own verses to have been a very celebrated printer. Of John Lettou-William de Machlinia, and the schoolmaster of St Alban's, we have scarce any remains. If this be considered, it will not appear *impossible* that our printer should have followed his business from 1468 to 1479, and yet time have destroyed his intermediate works. But, 2dly, We may account still

another way for this distance of time, without altering the date. The Civil Wars broke out in 1469: this might probably oblige our Oxford printer to shut up his press; and both himself and his readers be otherwise engaged. If this were the case, he might not return to his work again till 1479; and the next year, not meeting with that encouragement he deserved, he might remove to some other country with his types.

Dr Middleton concludes with apologizing for his "spending so much pains on an argument so inconsiderable, to which he was led by his zeal to do a piece of justice to the memory of our worthy countryman William Caxton; nor suffer him to be robbed of the glory, so clearly due to him, of having *first imported into this kingdom* an art of great use and benefit to mankind: a kind of merit that, in the sense of all nations, gives the best title to true praise, and the best claim to be commemorated with honour to posterity."

The fact, however, against which he contends, but which it seems impossible to overturn, does by no means derogate from the honour of Caxton, who, as has been shown, was the first person in England that practised the art of printing with *fusile types*, and consequently the first who brought it to perfection; whereas Corfellis printed with *separate cut types in wood*, being the only method which he had learned at Harlem. Into this detail, therefore, we have been led, not so much by the importance of the question, as on account of several anecdotes connected with it, which seemed equally calculated to satisfy curiosity and afford entertainment.

Caxton had been bred very reputably in the way of trade, and served an apprenticeship to one Robert Large a mercer; who, after having been sheriff and lord mayor of London, died in the year 1441, and left by will, as may be seen in the prerogative-office, XXIII merks to his apprentice William Caxton: a considerable legacy in those days, and an early testimonial of his good character and integrity.

From the time of his master's death, he spent the following thirty years beyond sea in the business of merchandise: where, in the year 1464, we find him employed by Edward IV. in a public and honourable negotiation, jointly with one Richard Whitehill, Esq. to transact and conclude a treaty of commerce between the king and his brother-in-law the duke of Burgundy, to whom Flanders belonged. The commission styles them, *ambassiatores, procuratores, nuncios, et deputatos speciales*; and gives to both or either of them full powers to treat, &c.

Whoever turns over his printed works, must contract a respect for him, and be convinced that he preserved the same character through life, of an honest, modest, man; greatly industrious to do good to his country, to the best of his abilities, by spreading among the people such books as he thought useful to religion and good manners, which were chiefly translated from the French. The novelty and usefulness of his art recommended him to the special notice and favour of the great; under whose protection, and at whose expence, the greatest part of his works were published. Some of them are addressed to King Edward IV his brother the duke of Clarence, and their sister the duchess of Burgundy; in whose service and pay he lived many years before he began to print, as he often acknowledges with great gratitude. He printed likewise for the use, and by

Printing.

¹³
The real
claims of
Caxton and
Corfellis re-
spectively.

Printing. the exprefs order, of Henry VII. his fon Prince Arthur, and many of the principal nobility and gentry of that age.

It has been generally afferted and believed, that all his books were printed in the abbey of Weftminfter; yet we have no affurance of it from himfelf, nor any mention of the place before the year 1477: fo that he had been printing feveral years without telling us where.

There is no clear account left of Caxton's age: but he was certainly very old, and probably above fourfcore, at the time of his death. In the year 1471 he complained of the infirmitics of age creeping upon him, and feebling his body: yet he lived 23 years after, and purfued his bufinefs, with extraordinary diligence, in the abbey of Weftminfter, till the year 1494, in which he died; not in the year following, as all who write of him affirm. This appears from fome verfes at the end of a book, called "Hilton's Scale of Perfection," printed in the fame year:

Infynite laude with thankynges many folde
 I yield to God me focouryng with his grace
 This boke to fynfhe which that ye beholde
 Scale of Perfection calde in every place
 Whereof th' auctor Walter Hilton was
 And Wynkyn de Worde this hath sett in print
 In William Caxtons hows fo fyll the cafe,
 God reft his foule. In joy ther mot it ftynt.
 Impreffus anno falutis MCCCCLXXXIII.

Though he had printed for the ufe of Edward IV. and Henry VII. yet there appears no ground for the notion which Palmer takes up, that the firft printers, and particularly Caxton, were fworn fervants and printers to the crown; for Caxton, as far as can be obferved, gives not the leaft hint of any fuch character or title; though it feems to have been instituted not long after his death; for of his two principal workmen, Richard Pynfon and Wynkyn de Worde, the one was made printer to the king, the other to the king's mother the lady Margaret. Pynfon gives himfelf the firft title, in *The Imitation of the Life of Chrift*; printed by him at the commandment of the lady Margaret, who had tranflated the fourth book of it from the French, in the year 1504: and Wynkyn de Worde affumes the fecond, in *The Seven Penitential Pfalms*, expounded by Bifhop Fisher, and printed in the year 1509. But there is the title of a book given by Palmer, that feems to contradict what is here faid of Pynfon: viz. *Pfalterium ex mandato victoriosiffimi Anglie Regis Henrici Septimi, per Gulielmum Fanque, imprefforem regium, anno MDIII*; which being the only work that has ever been found of this printer, makes it probable that he died in the very year of its impreffion, and was fucceeded immediately by Richard Pynfon. No book hath yet been difcovered printed in Scotland in this period, though the Englifh printers were able to export fome of their works to other countries. See Henry's *History of Great Britain*, vol. v. p. 471.

Before 1465, the uniform character was the old *Gothic* or *German*; whence our *Black* was afterwards formed. But in that year an edition of Lactantius was printed in a kind of Semi-Gothic, of great elegance, and approaching nearly to the prefent *Roman* type;

which laft was firft ufed at Rome in 1467, and foon after brought to great perfection in Italy, particularly by Jenfon. Printing.

Towards the end of the 5th century, Aldus invented the *Italic* character which is now in ufe, called, from his name, *Aldine* or *curfivous*. This fort of letter he contrived, to prevent the great number of abbreviations that were then in ufe.

The firft effays in Greek that can be difcovered are a few sentences which occur in the edition of Tully's *Of-fices*, 1465, at Mentz; but thefe were miferably incor-¹⁵rect and barbarous, if we may judge from the fpecimens Mr Maittaire has given us, of which the following is one: ^{Of the firft Greek painting.}

Οτι κατακαρτερηκατα και τατοτωκα.

In the fame year, 1465, was published an edition of Lactantius's *Institutes*, printed in *monasterio Sublacensi*, in the kingdom of Naples, in which the quotations from the Greek authors are printed in a very neat Greek letter. They feem to have had but a *very fmall quantity* of Greek types in the monastery; for, in the firft part of the work, whenever a long fentence occurred, a blank was left, that it might be written in with a pen: after the middle of the work, however, all the Greek that occurs is printed.

The firft printers who fettled at Rome were Conrad Sweynheim and Arnold Pannariz, who introduced the prefent *Roman* type, in 1466, in Cicero's *Epistole Familiars*: in 1469 they printed a beautiful edition of *Aulus Gellius*, with the Greek quotations in a fair character, without accents or fpirits, and with very few abbreviations.

The firft whole book that is yet known is the Greek Grammar of Constantine Lascaris, in quarto, revised by Demetrius Cretensis, and printed by Dionysius Palavinus, at Milan, 1476. In 1481, the Greek *Pfalter* was printed here, with a Latin tranflation, in folio; as was Æfop's Fables in quarto.

Venice foon followed the example of Milan; and in 1486 were published in that city the *Greek Pfalter* and the *Barachomyomachia*, the former by Alexander, and the latter by Laonicus, both natives of Crete. They were printed in a very uncommon character; the latter of them with accents and fpirits, and alfo with *scholia*.

In 1488, however, all former publications in this language were eclipsed by a fine edition of *Homer's Works* at Florence, in folio, printed by Demetrius, a native of Crete. Thus printing, fays Mr Maittaire, (p. 185.) feems to have attained its acme of perfection, after having exhibited moft beautiful fpecimens of Latin, Greek, and Hebrew.

In 1493, a fine edition of *Ifocrates* was printed at Milan, in folio, by Henry German and Sebastian ex Pantremulo.

All the above works are prior in time to thofe of Aldus, who has been erroneoufly fuppofed to be the *firft* Greek printer: the beauty, however, correctnefs, and number of his editions, place him in a much higher rank than his predeceffors; and his characters in general were more elegant than any before ufed. He was born in 1445, and died in 1515.

Though the noble Greek books of Aldus had raifed an univerfal defire of reviving that tongue, the French were backward in introducing it. The only pieces print-

ed

Printing. ed by them were some quotations, so wretchedly performed, that they were rather to be guessed at than read; in a character very rude and uncouth, and without accents. But Francis Tiffard introduced the study of this language at Paris, by his *Βιβλος η γραμμαρικη*, in 1507; and that branch of printing was afterwards successfully practised by Henry, Robert, and Henry Stephens. See the article STEPHENS.

The earliest edition of the *whole Bible* was, strictly speaking, the Complutensian Polyglott of Cardinal Ximenes; but as that edition, though finished in 1517, was not published till 1522, the *Venetian Septuagint* of 1518 may properly be called the first edition of the *whole Greek Bible*; Erasmus having published the *New Testament only* at Basil in 1516.

16
Of the first
Hebrew
printing.

A very satisfactory account of Hebrew printing is thus given by Dr Kennicott in his *Annual Accounts of the Collation of Hebrew MSS.* p. 112. "The method which seems to have been originally observed in printing the Hebrew Bible was just what might have been expected: 1. The Pentateuch in 1482. 2. The Prior Prophets, in 1484. 3. The Posterior Prophets, in 1486. 4. The Hagiographa, in 1487. And, after the four great parts had been thus printed separately (each with a comment), the whole text (without a comment) was printed in one volume in 1488; and the text continued to be printed, as in these first editions, so in several others for 20 or 30 years, without marginal *Keri* or *Masora*, and with greater arguments to the more ancient MSS. till about the year 1520 some of the Jews adopted later MSS. and the *Masora*; which absurd preference has obtained ever since."

Thus much for the ancient editions given by Jews.

In 1642 a Hebrew Bible was printed at Mantua under the care of the most learned Jews in Italy. This Bible had not been heard of among the Christians in this country, nor perhaps in any other; though the nature of it is very extraordinary. The text indeed is nearly the same with that in other modern editions; but at the bottom of each page are various readings, amounting in the whole to above 2000, and many of them of great consequence, collected from manuscripts, printed editions, copies of the Talmud, and the works of the most renowned Rabbies. And in one of the notes is this remark:—"That in several passages of the Hebrew Bible the differences are so many and so great, that they know not which to fix upon as the true readings."

We cannot quit this subject without observing, on Dr Kennicott's authority, that as the first printed Bibles are more correct than the latter ones; so the variations between the first edition, printed in 1488, and the edition of Vander Hooght, in 1705, at Amsterdam, in 2 vols. 8vo, amount, upon the whole, to above 1200. See further *Bowyer and Nichols*, p. 112—117.

17
Anecdotes
of early
printing.

When the art of printing was first discovered, they only made use of one side of a page: they had not yet found out the expedient of impressing the other. When their editions were intended to be curious, they omitted to print the first letter of a chapter, for which they left a blank space, that it might be painted or illuminated at the option of the purchaser. Several ancient volumes of these early times have been found, where these letters are wanting, as they neglected to have them painted.

When the art of printing was first established, it was the glory of the learned to be correctors of the presses to the eminent printers. Physicians, lawyers, and bishops themselves, occupied this department. The printers then added frequently to their names those of the correctors of the presses; and editions were then valued according to the abilities of the corrector.

In the productions of early printing may be distinguished the various splendid editions they made of *Primers* or *Prayer-books*. They were embellished with cuts finished in a most elegant taste: many of them were ludicrous, and several were obscene. In one of them an angel is represented crowning the Virgin Mary, and God the Father himself assisting at the ceremony. We have seen in a book of natural history the Supreme Being represented as *reading* on the seventh day, when he rested from all his works. Sometimes St Michael is seen overcoming Satan; and sometimes St Anthony appears attacked by various devils of most hideous forms. The *Prymer of Salisbury*, 1533, is full of cuts: at the bottom of the title page there is the following remarkable prayer:

God be in my Bede,
And in my Understandynge.
God be in my Eyen,
And in my Lookynge.
God be in my Mouthe,
And in my Spekyng.
God be in my Herte,
And in my thinkinge.
God be at myn ende,
And at my departynge.

18
Stereotype Printing. Different persons in different countries have claimed the merit of this invention; but from Mr Nicholls's Biographical memoirs of William Ged, it appears undeniable that he was the first by whom it was invented. Mr Tilloch, the editor of the *Philosophical Magazine* informs us, that he had turned his attention to the subject for a number of years, and having hit at last upon the discovery, he flattered himself that it was purely original, even feeling vexed when given to understand that he had been anticipated by Mr Ged of Edinburgh, who had printed books from plates about 50 years before. Vol. x.

So far back as the year 1725, we find that Mr Ged had begun to prosecute plate-making. In 1727, he entered into a contract with a person who had a small capital, but who was so intimidated by the insinuations of some printer, that he expended no more than 22l. in the course of two years. In this manner he had printed both bibles and common prayer-books, but the compositors when they corrected one fault, purposely made half a dozen more; and the pressmen when the masters were absent, battered the letter to second the compositors. In consequence of these abominable proceedings, the books were suppressed by authority, and the plates sent to the King's printing-house, and from thence to the foundery.

In consequence of Mr Tilloch's invention and improvement, Stereotype printing was afterwards practised by him in conjunction with Mr Foulis, printer to the university of Glasgow, who obtained patents both for England and Scotland, as Mr Ged's invention had died with

Printing.

with his son. This art, therefore, may be said to have been twice invented in Britain; after which Didot, a French printer, published several Latin classics in the same manner, and to whom some of his countrymen wished to ascribe the merit of the invention, which must be a mistake. We admit it possible that he might have discovered the secret of the art for himself; but it is not supposable that he could be ignorant of Ged's progress and that of Mr Foulis, especially since, when patents are obtained, a specification of the process must be put upon record, of which any one may obtain an office copy at a small expence.

Neither is it at all probable that stereotype printing was the invention of a Dutchman, who is said to have practised the art even before Ged; since we are assured that Ged himself had offers from Holland repeatedly, either to go over there, or sell his invention, which could not possibly have been the case, had they been in possession of their own countryman's.

Founding of pages, on the first view of it, promises many advantages of an economical nature, and to science it holds out what can never be obtained in any other way; we mean editions of books without a single error. From books cast into solid pages, no more copies would be printed than might be wanted for immediate sale; the money thus saved from being sunk in paper, to be piled up in warehouses for years, as is the case at present, would serve as surplus capital to print other works; thus the printer, his workmen, and the booksellers, would all be benefited.

Some are of opinion, that the expence of stereotype precludes the use of it, except in the case of standard authors, whose works are sure of an extensive sale; but the very reverse of this is the truth. If there would be an advantage in applying the stereotype art to books of rapid sale, there would be a still greater one in the case of such whose sale would not be so certain, as at the worst there could only be the loss of the plates, instead of that of the paper and press-work of a whole edition, which in almost every instance would amount to a much larger sum. To the advantages already mentioned we may add a few others; as stated by Mr Wilson, Stereotype office Duke street, Lincoln's Inn Fields. The expence of Stereotype plates is not 20. per cent of that of moveable type pages. A room that is fire-proof will hold Stereotype plates of works, of which the dead stock in printed paper would require a warehouse twenty times the size; and thus warehouse rent and insurance are saved; with the additional advantage, in case of accident by fire, that the stereotype plates may be instantly put to press, instead of going through the tedious operations of moveable type printing; and thus no loss will be sustained from the works being out of print. In stereotype, every page of the most extensive work has a separate plate; of consequence all the pages of the said work must be equally new and beautiful. The types of each sheet are distributed by the old method, by which the subsequent sheets are composed; so that, although the first few sheets of a volume may be well composed, the last part of the volume will appear to be executed in a very inferior manner. Stereotype plates admit of alteration; and it will be found that they will yield at least twice the number of impressions that moveable types are capable of producing. It seems evident upon

the whole, says Mr Wilson, that a saving of from 25 to 40l. per cent. will accrue to the public in the prices of all books of standard reputation and sale, which, he believes, are pretty accurately ascertained to comprehend three-fourths of all the book printing of England, Scotland, and Ireland. It is fair to conclude, therefore, that both foreign and domestic sales will be much increased, and that the duties on paper will be proportionally productive; so that the public will reap advantage in a twofold way by the general adoption and encouragement of the stereotype art.

The advantages of this mode of printing now mentioned, are such as have been suggested by men who were competent judges; but we leave it to our readers to determine for themselves, whether the adoption of the stereotype art of printing would be more beneficial to society at large, than the publishing of books by means of moveable types.

The workmen employed in the art of printing are of two kinds: compositors, who range and dispose the letters into words, lines, pages, &c. according to the copy delivered them by the author; and pressmen, who apply ink upon the same, and take off the impression. The types being cast, the compositor distributes each kind by itself among the divisions of two wooden frames, an upper and an under one, called *cases*; each of which is divided into little cells or boxes. Those of the upper case are in number 98: these are all of the same size; and in them are disposed the capitals, small capitals, accented letters, figures, &c. the capitals being placed in alphabetical order. In the cells of the lower case, which are 54, are placed the small letters, with the points, spaces, &c. The boxes are here of different sizes, the largest being for the letters most used; and these boxes are not in alphabetical order, but the cells which contain the letter ofteneft wanted are nearest the compositor's hand. Each case is placed a little aslope, that the compositor may the more easily reach the upper boxes. The instrument in which the letters are set is called a *composing-stick* (fig. 1.), which consists of a long and narrow plate of brass or iron, &c. on the right side of which arises a ledge, which runs the whole length of the plate, and serves to sustain the letters, the sides of which are to rest against it; along this ledge is a row of holes, which serve for introducing the screw *a*, in order to lengthen or shorten the extent of the line, by moving the sliders *b c* farther from or nearer to the shorter ledge at the end *d*. Where marginal notes are required in a work, the two sliding pieces *b c* are opened to a proper distance from each other in such a manner as that while the distance between *d c* forms the length of the line in the text, the distance between the two sliding-pieces forms the length of the lines for the notes on the side of the page. Before the compositor proceeds to compose, he puts a rule or thin slip of brass-plate, cut to the length of the line, and of the same height as the letter, in the composing-stick, against the ledge, for the letter to bear against. Things thus prepared, the compositor having the copy lying before him, and his stick in his left-hand, his thumb being over the slider *c*; with the right he takes up the letters, spaces, &c. one by one, and places them against the rule, while he supports them with his left thumb by pressing them to the end of the slider *c*, the other hand being constantly

Printing.

19
Method of
printing.Plate
CCCCXL
Fig. 1.

Printing. stantly employed in setting in other letters: the whole being performed with a degree of expedition and address not easy to be imagined.

A line being thus composed, if it end with a word or syllable, and exactly fill the measure, there needs no further care; otherwise, more spaces are to be put in, or else the distances lessened, between the several words, in order to make the measure quite full, so that every line may end even. The spaces here used are pieces of metal exactly shaped like the shanks of the letters: they are of various thicknesses, and serve to support the letters, and to preserve a proper distance between the words; but not reaching so high as the letters, they make no impression when the work is printed. The first line being thus finished, the compositor proceeds to the next; in order to which he moves the brass-rule from behind the former, and places it before it, and thus composes another line against it after the same manner as before; going on thus till his stick is full, when he empties all the lines contained in it into the gally.

The compositor then fills and empties his composing-stick as before, till a complete page be formed; when he ties it up with a cord or pack-thread; and setting it by, proceeds to the next, till the number of pages to be contained in a sheet is completed; which done, he carries them to the imposing-stone, there to be ranged in order, and fastened together in a frame called a *chefs*; and this is termed *imposing*. The *chefs* is a rectangular iron frame, of different dimensions according to the size of the paper to be printed, having two cross-pieces of the same metal, called a *long* and *short cross*, mortised at each end so as to be taken out occasionally. By the different situations of these crosses the *chefs* is fitted for different volumes: for quartos and octavos, one traverses the middle lengthwise, the other broadwise, so as to intersect each other in the centre: for twelves and twenty-fours, the short cross is shifted nearer to one end of the *chefs*; for folios, the long cross is left entirely out, and the short one left in the middle; and for broadsides, both crosses are set aside. To dress the *chefs*, or range and fix the pages therein, the compositor makes use of a set of furniture, consisting of slips of wood of different dimensions, and about half an inch high, that they may be lower than the letters: some of these are placed at the top of the pages, and called *head-sticks*; others between them, to form the inner margin; others on the sides of the crosses, to form the outer margin, where the paper is to be doubled; and others in the form of wedges to the sides and bottoms of the pages. Thus all the pages being placed at their proper distances, and secured from being injured by the *chefs* and furniture placed about them, they are all untied, and fastened together by driving small pieces of wood called *quoins*, cut in the wedge-form, up between the slanting side of the foot and the side-sticks and the *chefs*, by means of a piece of hard wood and a mallet; and all being thus bound fast together, so that none of the letters will fall out, it is ready to be committed to the pressman. In this condition the work is called a *form*; and as there are two of these forms required for every sheet, when both sides are to be printed, it is necessary the distances between the pages in each form should be placed with such exactness, that the impression of the

pages in one form shall fall exactly on the back of the pages of the other, which is called *register*. Printing.

As it is impossible but that there must be some mistakes in the work, either through the oversight of the compositor, or by the casual transposition of letters in the cases; a sheet is printed off, which is called a *proof*, and given to the corrector; who reading it over, and rectifying it by the copy, making the alterations in the margin, it is delivered back to the compositor to be corrected.

The compositor then unlocking the form upon the correcting-stone, by loosening the quoins or wedges which bound the letters together, rectifies the mistakes by picking out the faulty or wrong letters with a slender sharp-pointed steel-bodkin, and putting others into their places. After this another proof is made, sent to the author, and corrected as before; and lastly, there is another proof called a *revise*, which is made in order to see whether all the mistakes marked in the last proof are corrected.

The pressman's business is to work off the forms thus prepared and corrected by the compositor; in doing which there are four things required, paper, ink, balls, and a press. To prepare the paper for use, it is to be first wetted by dipping several sheets together in water: these are afterwards laid in a heap over each other; and to make them take the water equally, they are all pressed close down with a weight at the top. The ink is made of oil and lamp-black; for the manner of preparing which, see *Printing-INK*. The balls, by which the ink is applied on the forms, are a kind of wooden funnels with handles, the cavities of which are filled with wool or hair, as is also a piece of alum leather or pelt nailed over the cavity, and made extremely soft by soaking in urine and by being well rubbed. One of these the pressman takes in each hand; and applying one of them to the ink-block, daubs and works them together to distribute the ink equally; and then blackens the form which is placed on the press, by beating with the balls upon the face of the letter.

The printing-press, represented fig. 2. is a very curious though complex machine. The body consists of two strong cheeks *a, a*, placed perpendicularly, and joined together by four cross-pieces; the cap *b*; the head *c*, which is moveable, being partly sustained by two iron pins or long bolts, that pass the cap; the till or shelf *d d*, by which the spindle and its apparatus are kept in their proper position; and the winter *e*, which bears the carriage, and sustains the effort of the press beneath. The spindle *f* is an upright piece of iron pointed with steel, having a male screw which goes into the female one in the head about four inches. Through the eye *g* of this spindle is fastened the bar *k*, by which the pressman makes the impression. The spindle passes through a hole in the middle of the till; and its point works into a brass pan or nut, supplied with oil, which is fixed to an iron plate let into the top of the platten. The body of the spindle is sustained in the centre of an open frame of polished iron, 1, 1, 2, 2, 3, 3, fixed to it in such a manner as, without obstructing its free play, to keep it in a steady direction; and at the same time to serve for suspending the platten. This frame consists of two parts; the upper called the *garter*, 1, 1; the under, called the *crane*, 2, 2. These are connected together

Printing. together by two short legs or bolts, 3, 3.; which being fixed below in the two ends of the crane, pass upward, through two holes in the till, and are received at top into two eyes at the ends of the garter, where they are secured by screws. The carriage *ll* is placed a foot below the platten, having its fore-part supported by a prop called the *fore-stay*, while the other rests on the winter. On this carriage, which sustains the plank, are nailed two long iron bars or ribs; and on the plank are nailed short pieces of iron or steel called *crampirons*, equally tempered with the ribs, and which slide upon them when the plank is turned in or out. Under the carriage is fixed a long piece of iron called the *spit*, with a double wheel in the middle, round which leather-girts are fastened, nailed to each end of the plank: and to the outside of the spit is fixed a rounce *m*, or handle to turn round the wheel. Upon the plank is a square frame or coffin, in which is inclosed a polished stone on which the form *n* is laid; at the end of the coffin are three frames, *viz.* the two tympan and frisket: the tympan *o* are square, and made of three slips of very thin wood, and at the top a piece of iron still thinner; that called the *outer tympan* is fastened with hinges to the coffin: they are both covered with parchment; and between the two are placed blankets, which are necessary to take off the impression of the letters upon the paper. The frisket *p* is a square frame of thin iron, fastened with hinges to the tympan: it is covered with paper cut in the necessary places, that the sheet, which is put between the frisket and the great or outward tympan, may receive the ink, and that nothing may hurt the margins. To regulate the margins, a sheet of paper is fastened upon this tympan, which is called the *tympan sheet*; and on each side is fixed an iron point, which makes two holes in the sheet, which is to be placed on the same points when the impression is to be made on the other side. In preparing the press for working, the parchment which covers the outer tympan is wetted till it is very soft, in order to render the impression more equable; the blankets are then put in, and secured from slipping by the inner tympan: then while one pressman is beating the letter with the balls *q*, covered with ink taken from the ink-block, the other person places a sheet of white paper on the tympan-sheet; turns down the frisket upon it, to keep the paper clean and prevent its slipping; then bringing the tympan upon the form, and turning the rounce, he brings the form with the stone, &c. weighing about 300 lbs. weight, under the platten; pulls with the bar, by which means the platten presses the blankets and paper close upon the letter, whereby half the form is printed; then easing the bar, he draws the form still forward; gives a second pull; and letting go the bar, turns back the form, takes up the tympan and frisket, takes out the printed sheet, and lays on a fresh one; and this is repeated till he has taken off the impression upon the full number of sheets the edition is to consist of. One side of the sheet being thus printed, the form for the other is laid upon the press, and worked off in the same manner.

To the above description of the printing press, we shall add that of one invented by Mr Nicholson, and for which a patent was granted in 1790. This machine is recommended by the inventor as being superior to other printing presses in cheapness, accuracy, and neatness, and

is adapted with some slight variations in its construction for printing on paper, linen, cotton, and woollen. Three particulars are to be attended to in the invention.

1st, The manner of preparing and placing the types, engravings, or carvings, from which the impression is to be made; *2^{dly}*, In applying the ink or colouring matter to types or engravings; and, *3^{dly}*, In taking off the impression.

1st, The moulds, punches, and matrices, for casting letters, are made in the same manner, and with the same materials, as other letter-founders do, excepting that, instead of leaving a space in the mould for the stem of one letter only, he leaves spaces for two, three, or more letters, to be cast at one pouring of the metal; and at the lower extremity of each of those spaces (which communicate by a common groove at top) he places a matrix, or piece of copper, with the letter punched upon its face in the usual way. And moreover, he brings the stem of his letters to a due form and finish, not only by rubbing it upon a stone, and scraping it when arranged in the finishing-stick, but likewise by scraping it, on one or more sides, in a finishing-stick whose hollowed part is less deep at the inner than the outer side. He calls that side of the groove which is nearest the face of the disposed letter, the outer side; and the purpose accomplished by this method of scraping is, that of rendering the tail of the letter gradually smaller the more remote it is, or farther from the face. Such letters may be firmly imposed upon a cylindrical surface, in the same manner as common letters are imposed upon a flat stone.

2^{dly}, The ink or colouring matter is applied to the types, forms, or plates, by causing the surface of a cylinder, smeared or wetted with the colouring matter, to roll over the surfaces of the said forms or plates, or by causing the forms or plates apply themselves successively to the surface of the cylinder. The surface of this colouring cylinder is covered with leather, or with woollen, linen, or cotton-cloth. When the colour to be used is thin, as in calico-printing, and in almost every case, the covering is supported by a firm elastic stuffing, consisting of hair, or wool, or woollen cloth wrapped one or more folds round the cylinder. When the covering consists of woollen cloth, the stuffing must be defended by leather, or oilskin, to prevent its imbibing too much colour, and by that means losing its elasticity. It is absolutely necessary that the colouring matter be evenly distributed over the surface of the cylinder; and for this purpose, when the colour is thick and stiff, as in letter-press printing, he applies two, three, or more small cylinders, called distributing-rollers, longitudinally against the colouring cylinders, so that they may be turned by the motion of the latter; and the effect of this application is, that every lump or mass of colour which may be redundant, or irregularly placed upon the face of the colouring cylinder, will be pressed, spread, and partly taken up, and carried by the small rollers to the other parts of the colouring cylinder; so that this last will very speedily acquire and preserve an even face of colour. But if the colouring matter be thinner, he does not apply more than one or two of these distributing-rollers; and, if it be very thin, he applies an even blunt edge of metal, or wood, or a straight brush, or both of these last, against the colouring cylinder, for the purpose of rendering its colour uniform. When he applies colour to an engraved plate, or cylinder, or through

Fig. 1.



Fig. 2.



Fig. 3.

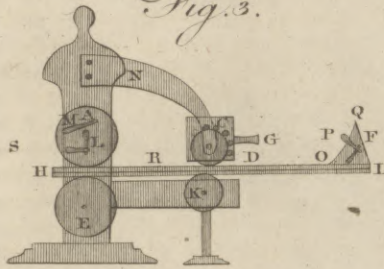


Fig. 4.

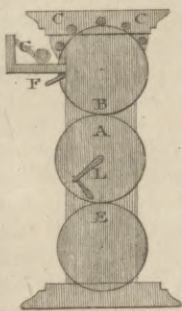


Fig. 5.

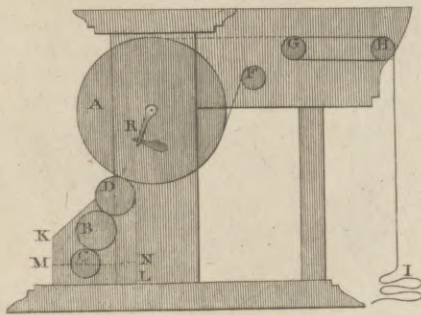


Fig. 6.

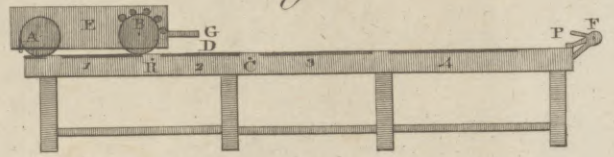


Fig. 10.

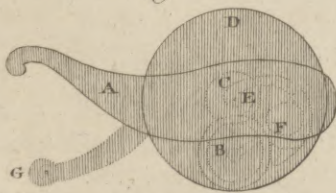


Fig. 11.

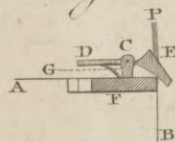


Fig. 7.

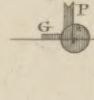


Fig. 8.

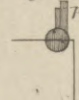


Fig. 9.

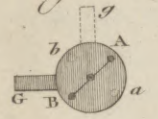


Fig. 15.

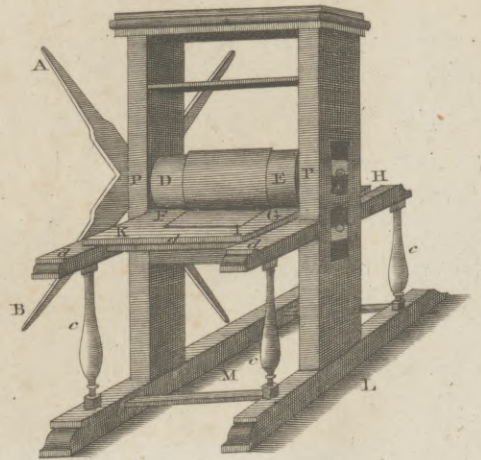


Fig. 12.

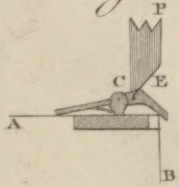


Fig. 13.

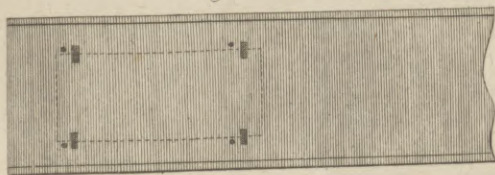
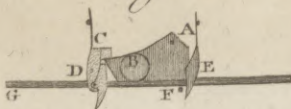


Fig. 14.



Printing. through the interstices of a perforated pattern, as in the manufacturing of some kinds of paper-hangings, he uses a cylinder entirely covered with hair or bristles in the manner of a brush.

Fig. 3. 3dly, The impressions, even in letter-press printing, are performed by the action of a cylinder or cylindrical surface. The following is the construction of this machine. Fig. 3. represents a printing press, more especially applicable to the printing of books. A and E are two cylinders, running or turning in a strong frame of wood, or metal, or both. The cylinder A is faced with woollen cloth, and is capable of being pressed with more or less force upon HI, by means of the lever M. HI is a long table, which is capable of moving endwise, backwards and forwards, upon the rollers E and K. The roller A acts upon this table by means of a cog wheel, or by straps, so as to draw it backwards and forwards by the motion of its handle L. The table is kept in the same line by grooves on its sides, which contain the cylinder A. D is a chest, containing letter set up and imposed. B is a box, containing a colouring-roller, with its distributing-rollers CC; it is supported by the arm N. O is a cylinder faced with leather, and lying across an ink-block; this cylinder is fixed by the middle to a bended lever moveable on the joint Q.

The action. When D, or the letter, is drawn beneath the cylinder B, it receives ink; and when it has passed into the position R, a workman places or turns down a tympan with paper upon it (this tympan differs in no respect from the usual one, except that its hinge opens sidewise); it then proceeds to pass under the cylinder A, which presses it successively through its whole surface. On the other side, at S, the workman takes off the paper, and leaves the tympan up. This motion causes the cylinder B to revolve continually, and consequently renders its inked surface very uniform, by the action of its distributing-rollers CC; and, when the table has passed to its extreme distance in the direction now spoken of, the arm G touches the lever P, and raises the cylinder O off the ink-block, by which means it dabs against one of the distributing-rollers, and gives it a small quantity of ink. The returning motion of the table carries the letter again under the roller B, which again inks it, and the process of printing another sheet goes on as before.

Fig. 4. is another printing-press. In this, B is the inking-roller; A is a cylinder, having the letter imposed upon its surface; and E is a cylinder, having its uniform surface covered with woollen cloth: these three cylinders are connected, either by cogs or straps at the edges of each. The machine is uniformly turned in one direction by the handle L. The workman applies a sheet of paper to the surface of E, where it is retained, either by points in the usual manner, or by the apparatus to be described in treating of fig. 4. The paper passes between E and A, and receives an impression; after which the workman takes it off, and applies another sheet; and in the mean time the letter on the surface of A passes round against the surface of B, and receives ink during the rotation of B. The distributing-rollers CC do their office as in the machine fig. 1.; and once in every revolution the tail F, affixed to B, raises the inking-piece G, so as to cause it to touch one of the distributing-rollers, and supply it with ink. In this way therefore the repeated printing of sheet after sheet goes on.

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Fig. 5. is a printing press, more particularly adapted to print cottons, silks, paper-hangings, or other articles which run of a considerable length. A is a cylinder covered with woollen cloth, or other soft substance. The web or piece of cotton, or other goods, is passed round this cylinder, from the carrying-roller F to the receiving-rollers GH; which are connected by a piece of linen, woollen, or hair-cloth, in the manner of a jack-towel, sewed round them; the rotation of this towel carries away the printed stuff or goods, and deposits them at I. KL is a moveable box, containing three rollers, which move against each other in rotation. The lowest roller C revolves in a mass of colour, contained in a trough or vessel in the bottom part of the box KL; the surface of this colour is represented by the line MN. The next roller B is stuffed and covered as described in section 2. The pressure of B against C prevents the cylinder B from receiving too much colour. D is a cut or carved cylinder, which receives colour, during the rotation, from the roller B, and impresses it upon the web as it passes round the cylinder A; in this way the constant and effectual action of the machine is sufficiently obvious. It must be observed, that the cylinders ADB and G are connected together by cog-wheels, straps, or other well-known equivalent contrivances; so that the handle P drives the whole, without their necessarily depending on any adhesion or friction at their surfaces. The pressure of B against D is governed by an adjustment of the axis of D, whose sockets are capable of a small motion; and the pressure of D against A is governed by the position of the whole box KL. When it is required to print more than one colour upon the same piece, it must pass two or more times through the machine; or, in those cases where the materials are liable to change their dimensions, it is necessary to apply, at one and the same time, two or more such boxes as KL, with their respective cylinders, so that the pattern cylinder of each may make its impression upon the web or material to be printed on.

Fig. 6. is a printing-press, chiefly of use for books and papers. 1, 2, 3, 4, represent a long table, with ledges on each side; so that the two cylinders A and B can run backwards and forwards without any side shake. In one of these ledges is placed a strip or plate of metal cut into teeth, which lock into correspondent teeth in each cylinder; by which means the two cylinders roll along, without the possibility of changing the relative positions of their surfaces at any determinate part of the table. This may also be effected by straps, and may indeed be accomplished, with tolerable accuracy, by the mere rolling of the cylinders on the smooth or flat ledges without any provision. A is the printing-cylinder, covered with woollen cloth, and B is the inking-cylinder, with its distributing-rollers. The table may be divided into four compartments, marked with a thicker bounding line than the rest, and numbered 1, 2, 3, 4. At 1 is placed a sheet of paper; at 2 is the form or chest, containing letter set and imposed; at 3 is an apparatus for receiving the printed sheet; and 4 is employed in no other use than as a place of standing for the carriage E, after it has passed through one operation, and when it takes ink at F. Its action is as follows: the carriage is thrust forward by the workman, and as the roller A passes over the space numbered 1, it takes up the sheet of paper previously laid there, while the roller B runs over the form and inks the letter. The sheet of paper, being wrapped

3 B

round

Printing.

round the cylinder A, is pressed against the form as that cylinder proceeds, and consequently it receives an impression. When A arrives at the space numbered 3, it lets go the sheet of paper, while the prominent part of the carriage G strikes the lever P, and raises the inking-piece, which applies itself against one of the distributing-rollers. In this manner therefore the cylinder A returns empty, and the cylinder B inked, and in the mean time the workman places another sheet of paper ready in the space numbered 1. Thus it is that the operation proceeds in the printing of one sheet after another.

Fig. 11, 12.

The preceding description is not encumbered with an account of the apparatus by which the paper is taken up and laid down. This may be done in several ways: Fig 11. and 12. represent one of the methods. DE is a lever, moving on the centre pin C, and having its end D pressed upwards by the action of the spring G. The shoulder which contains the pin C is fixed in another piece F, which is inserted in a groove in the surface of the cylinder A (fig. 6.), so that it is capable of moving in and out, in a direction parallel to the axis of that cylinder. As that cylinder proceeds, it meets a pin in the table; which (letter P, fig. 11.) acting on the inclined plane at the other end of the lever, throws the whole inwards, in the position represented in fig. 12.; in which case the extremity D shoots inwards, and applies itself against the side of the cylinder.

Fig. 13.

In fig. 13. is a representation of part of the table; the dotted square represents a sheet of paper, and the four small shaded squares denote holes in the board, with pins standing beside them. When the lever DE (fig. 12.) shoots forward, it is situated in one of these holes, and advances under the edge of the paper, which consequently it presses and retains against the cylinder with its extremity D. Nothing more remains to be said respecting the taking up, but that the cylinder is provided with two pair of these clasps or levers, which are so fixed as to correspond with four holes represented in fig. 13. It will be easy to understand how the paper is deposited in the compartment N^o 3. (fig. 6.) A pin P (fig. 12.) rising out of the platform or table, acts against a pin E, projecting sidewise out of the lever, and must of course draw the slider and its lever to the original position; the paper consequently will be let go, and its disengagement is rendered certain by an apparatus fixed in the compartment numbered 3. (fig. 6.) of exactly the same kind as that upon the cylinder, and which, by the action of a pin duly placed in the surface of the cylinder A, takes the paper from the cylinder in precisely the same manner as that cylinder originally took it up in the compartment numbered 1 (fig. 6.).

Fig. 7, 8, 9.

Figs. 7, 8, and 9, represent a simpler apparatus for accomplishing the same purpose. If A a B b (fig. 9.) be supposed to represent a thick plate of metal of a circular form, with two pins, A and B, proceeding sidewise or perpendicularly out of its plane, and diametrically opposite to each other, and G another pin proceeding in the direction of that plane, then it is obvious that any force applied to the pin A, so as to press it into the position a (by turning the plate on its axis or centre X), will at the same time cause the pin G to acquire the position g; and, on the other hand, when B is at b, or the dotted representation of the side-pin, if any pressure be applied to

restore its original position at B, the pin g will return back to G. Now the figures 7 and 8 exhibit an apparatus of this kind, applied to the cylinder A; and that cylinder, by rolling over the pins P and p, properly fixed in the table to re-act upon the apparatus, will cause its prominent part G either to apply to the cylinder and clasp the paper, or to rise up and let it go. The compartment numbered 3 (fig. 6.) must of course have an apparatus of the same kind to be acted upon by pins from A, in order that it may take the paper from that cylinder.

There is one other circumstance belonging to this machine which remains to be explained. When the carriage E (fig. 6.) goes out in the direction of the numbers 1, 2, 3, 4, both rollers, A and B, press the form of letter in their passage; but in their return back again the roller A, having no paper upon it, would itself become soiled, by taking a faint impression from the letter, if it were not prevented from touching it: the manner of effecting this may be understood from fig. 14. The apparatus there represented is fixed upon the outside of the carriage E, near the lower corner, in the vicinity of the roller A; the whole of this projects sidewise beyond the ledge of the table, except the small truck or wheel B. The irregularly-triangular piece, which is shaded by the stroke of the pen, carries this wheel, and also a catch moveable on the axis or pin E. The whole piece is moveable on the pin A, which connects it to the carriage. CD, or the part which is shaded by dotting, is a detent, which serves to hold the piece down in a certain position. It may be observed, that both the detent and the triangular piece are furnished each with a claw, which holds in one direction, but trips or yields in the other, like the jacks of a harpsichord, or resembling certain pieces used in clock and watch making, as is clearly represented in the figure. These claws overhang the side of the table, and their effect is as follows: There is a pin C (fig. 6.) between the compartments of the table numbered 2 and 3, but which is marked F in fig. 14. where GH represents the table. In the outward run of the carriage these claws strike that pin, but with no other effect than that they yield for an instant, and as instantly resume their original position by the action of their respective slender back-springs. When the carriage returns, the claw of the detent indeed strikes the pin, but with as little effect as before, because its derangement is instantly removed by the action of the back spring of the detent itself; but, when the claw of the triangular piece takes the pin, the whole piece is made to revolve on its axis or pin A, the wheel B is forced down, so as to lift that end of the carriage, and the detent, catching on the piece at C, prevents the former position from being recovered. The consequence of this is, that the carriage runs upon the truck B (and its correspondent truck on the opposite side) instead of the cylinder A, which is too much raised to take the letter, and soil itself; but as soon as the end of the carriage has passed clear of the letter, another pin R (fig. 6.) takes the claw of the detent, and draws it off the triangular piece; at which instant the cylinder A subsides to its usual place, and performs its functions as before. This last pin R does not affect the claw of the triangular piece, because it is placed too low; and the claw of the detent is made the longest, on purpose that it may strike this pin.

Fig.

Printing.

Printing.

Fig. 10.

Fig. 10. represents an instrument for printing floor-cloths, paper-hangings, and the like, with stiff paint and a brush. D is a copper or metallic cylinder fixed in a frame A, like a garden-roller; its carved part is thin, and is cut through in various places, according to the desired pattern. A strong axis passes through the cylinder, and its extremities are firmly attached to the frame A. To this axis is fixed a vessel or box of the same kind, and answering the same purpose as the box KL in fig. 5. It carries a cylinder P, which revolves in the colour; another cylinder E, which revolves in contact with P; and a third cylinder B, whose exterior surface is covered with hair, after the manner of a brush, and revolves in contact with E. This cylinder B is adjusted by its axis, in such a manner that its brush-part sweeps in the perforated parts of the metallic cylinder D. The circle C represents a cog-wheel fixed concentric to the cylinder D, and revolving with it; this wheel takes another wheel concentric to, and fixed to, B; hence the action is as follows: When the metallic cylinder is wheeled or rolled along any surface, its cog-wheel C drives the brush B in the contrary direction; and this brush cylinder, being connected by cogs or otherwise with E and P, causes those also to revolve and supply it with colour. As the successive openings of the cylinder D, therefore, come in contact with the ground, the several parts of the brush will traverse the uncovered part of that ground, and paint the pattern upon it. The wheel G, being kept lightly on the ground, serves to determine the line of contact, that it shall be the part opposite to B, and no other.

Chinese PRINTING, is performed from wooden planks or blocks, cut like those used in printing of callico, paper, cards, &c.

Rolling-press PRINTING, is employed in taking off prints or impressions from copperplates engraven, etched, or scraped, as in mezzotintos. See ENGRAVING.

This art is said to have been as ancient as the year 1540, and to owe its origin to Finiguerra, a Florentine goldsmith, who pouring some melted brimstone on an engraven plate, found the exact impression of the engraving left in the cold brimstone, marked with black taken out of the strokes by the liquid sulphur: upon this he attempted to do the same on silver plates with wet paper, by rolling it smoothly with a roller; and this succeeded; but this art was not used in England till the reign of King James I. when it was brought from Antwerp by Speed. The form of the rolling-press, the composition of the ink used therein, and the manner of applying both in taking off prints, are as follows:

Fig. 15.

The rolling-press AL, fig. 15. may be divided into two parts, the body and carriage: the body consists of two wooden checks PP, placed perpendicularly on a stand or foot LM, which sustains the whole press. From the foot likewise are four other perpendicular pieces, *c, c, c, c*, joined by other cross or horizontal ones, *d, d, d, d*, which serve to sustain a smooth even plank or table HIK, about four feet and a half long, two feet and a half broad, and an inch and a half thick. Into the cheeks go two wooden cylinders or rollers, DE, FG, about six inches in diameter, borne up at each end by the cheeks, whose ends, which are lessened to about two inches diameter, and called *trunnions*, turn in the cheeks about two pieces of wood in form of half-moons, lined with polished iron to facilitate the mo-

tion. Lastly, To one of the trunnions of the upper roller is fastened a cross, consisting of two levers AB, or pieces of wood, traversing each other, the arms of which cross serve instead of the bar or handle of the letter-press, by turning the upper roller, and when the plank is between the two rollers, giving the same motion to the under one, by drawing the plank forward and backward.

The ink used for copperplates, is a composition made of the stones of peaches and apricots, the bones of sheep and ivory, all well burnt, and called *Frankfort black*, mixed with nut-oil that has been well boiled, and ground together on a marble, after the same manner as painters do their colours.

The method of printing from copperplates is as follows: They take a small quantity of this ink on a rubber made of linen-rags, strongly bound about each other, and therewith smear the whole face of the plate as it lies on a grate over a charcoal fire. The plate being sufficiently inked, they first wipe it over with a foul rag, then with the palm of their left hand, and then with that of the right; and to dry the hand and forward the wiping, they rub it from time to time in whiting. In wiping the plate perfectly clean, yet without taking the ink out of the engraving, the address of the workman consists. The plate thus prepared, is laid on the plank of the press; over the plate is laid the paper, first well moistened, to receive the impression; and over the paper two or three folds of flannel. Things thus disposed, the arms of the cross are pulled, and by that means the plate with its furniture passed through between the rollers, which pinching very strongly, yet equally, press the moistened paper into the strokes of the engraving, whence it licks out the ink.

PRINTS, the impression taken from a copperplate. See the last article, and ENGRAVING.

From the facility of being multiplied, prints have derived an advantage over paintings by no means inconsiderable. They are found to be more durable; which may, however, in some degree be attributed to the different methods in which they are preserved. Many of the best paintings of the early masters have generally had the misfortune to be either painted on walls, or deposited in large and unrequented, and consequently damp and destructive buildings; whilst a print, passing, at distant intervals, from the *porte feuille* of one collector to that of another, is preserved without any great exertion of its owner: And hence it happens, that whilst the pictures of Raphael have mouldered from their walls, or deserted their canvas, the prints of his friend and contemporary Mark Antonio Raimondi continue in full perfection to this day, and give us a lively idea of the beauties of these paintings, which, without their assistance, had been lost to us forever; or at least, could have been only known to us, like those of Zeuxis and Apelles, by the descriptions which former writers on these subjects have left us.

Independent of the advantages which prints afford us, when considered as accurate representations of paintings, and imitations of superior productions, they are no less valuable for their positive merit, as immediate representations of nature. For it must be recollected, that the art of engraving has not always been confined to the copying of other productions, but has frequent-

Printing,
Prints.

Prints.

ly itself aspired to originality, and has, in this light, produced more instances of its excellence than in the other. Albert Durer, Goltzius, and Rembrandt, amongst the Dutch and Germans; Parmigiano and Della Bella amongst the Italians, and Callot amongst the French, have published many prints, the subjects of which, there is great reason to suppose, were never painted. These prints may therefore be considered as original pictures of those masters, deficient only in those particulars in which a print must necessarily be inferior to a painting.

The preceding distinction may perhaps throw some light on the proper method of arranging and classing a collection of prints, which has been a matter of no small difficulty. As an art imitating another, the principal should take the lead, and the design, composition, and drawing, in a print, being previous requisites to the manner of execution and finishing; prints engraved after paintings should be arranged under the name of the painter; and every person who looks upon engraving only as auxiliary to painting, will consequently adopt this mode of arrangement. But when engraving is considered as an original art, as imitating nature without the intervention of other methods, then it will certainly be proper to regulate the arrangement according to the names of the engravers.

PRINTS, method of cleaning. The following method of cleaning prints, is recommended as safe and efficacious.

“ Provide a certain quantity of the common muriatic acid, for example three ounces, in a glass bottle, with a ground stopper, of such a capacity that it may be only half full. Half an ounce of minium must then be added; immediately after which the stopper is to be put in, and the bottle set in a cold and dark place. The heat, which soon becomes perceptible, shews the beginning of the new combination. The minium abandons the greatest part of its oxygen with which the fluid remains impregnated, at the same time that it acquires a fine golden yellow, and emits the detestable smell of oxygenated muriatic acid. It contains a small portion of muriat of lead; but this is not at all noxious in the subsequent process. It is also necessary to be observed, that the bottle must be strong, and the stopper not too firmly fixed, otherwise the active elastic vapour might burst it. The method of using this prepared acid is as follows:

“ Provide a sufficiently large plate of glass, upon which one or more prints may be separately spread out. Near the edges let there be raised a border of soft white wax half an inch high, adhering well to the glass and flat at top. In this kind of trough the print is to be placed in a bath of fresh urine, or water containing a small quantity of ox-gall, and kept in this situation for three or four hours. The fluid is then to be decanted off, and pure warm water poured on, which must be changed every three or four hours until it passes limpid and clear. The impurities are sometimes of a resinous nature, and resist the action of pure water. When this is the case, the washed print must be left to dry, and alcohol is then to be poured on and left for a time. After the print is thus cleaned, and all the moisture drained off, the muriatic acid prepared with minium is to be poured on in sufficient quantity to cover the print; immediately after which another plate of glass is

to be laid in contact with the rim of wax, in order to prevent the inconvenient exhalation of the oxygenated acid. In this situation the yellowest print will be seen to recover its original whiteness in a very short time. One or two hours are sufficient to produce the desired effect; but the print will receive no injury if it be left in the acid for a whole night. Nothing more is necessary to complete the work, than to decant off the remaining acid, and wash away every trace of acidity, by repeated affusions of pure water. The print being then left to dry (in the sun if possible) will be found white, clear, firm, and in no respect damaged, either in the texture of the paper, or the tone and appearance of the impression.”

It is farther recommended to those who shall adopt the whole process for clearing prints, to make the first trial with a print of little value, and in this way he will discover what portion of water should be employed in diluting the acid to prevent the corrosive action of the latter on the paper. *Nichol. Journ.* ii. 265. 4to.

PRIOR, in general, something before or nearer the beginning than another, to which it is compared.

PRIOR, more particularly denotes the superior of a convent of monks, or the next under the abbot. See ABBOT.

Priors are either *claustral* or *conventual*. *Conventual* are the same as abbots. *Claustral* prior, is he who governs the religious of an abbey or priory in *commendam*, having his jurisdiction wholly from the abbot.

Grand PRIOR, is the superior of a large abbey, where several superiors are required.

PRIOR, *Matthew*, an eminent English poet, was born at London in 1664. His father dying while he was very young, an uncle, a vintner, having given him some education at Westminster school, took him home in order to breed him up to his trade. However, at his leisure hours he prosecuted his study of the classics, and particularly of his favourite Horace. This introduced him to some polite company who frequented his uncle's house; among whom the earl of Dorset took particular notice of him, and procured him to be sent to St John's college in Cambridge, where, in 1686, he took the degree of A. B. and afterwards became fellow of that college. Upon the revolution, Mr Prior was brought to court by the earl of Dorset; and in 1690 he was made secretary to the earl of Berkeley, plenipotentiary at the Hague; as he was afterward to the ambassador and plenipotentiaries at the treaty of Ryswick in 1697; and the year following to the earl of Portland, ambassador to the court of France. He was in 1697 made secretary of state for Ireland; and in 1700 was appointed one of the lords commissioners of trade and plantations. In 1710, he was supposed to have had a share in writing *The Examiner*. In 1711, he was made one of the commissioners of the customs; and was sent minister plenipotentiary to France, for the negotiating a peace with that kingdom. Soon after the accession of George I. to the throne in 1714, he presented a memorial to the court of France, requiring the demolishing of the canal and new works at Mardyke. The year following he was recalled; and upon his arrival was taken up by a warrant from the house of commons, and strictly examined by a committee of the privy-council. Robert Walpole, Esq; moved the house of commons for an impeachment against him; and Mr Prior was ordered into

Prints,
Prior.

Priories. into clofe custody. In 1717, he was excepted out of the act of grace; however, at the clofe of that year, he was fet at liberty. The remainder of his days he fpent in tranquillity and retirement, and died in 1721. His poems are well known, and juftly admired. He is faid to have written the following epitaph for himfelf:

“ Nobles and heralds, by your leave,
Here lie the bones of Matthew Prior,
The fon of Adam and of Eve:
Let Bourbon or Naflau go higher.”

Alien PRIORIES, were cells of the religious houfes in England which belonged to foreign monafteries: for when manors or titles were given to foreign convents, the monks, either to increafe their own rule, or rather to have faithful ftewards of their revenues, built a fmall convent here for the reception of fuch a number as they thought proper, and conftituted priors over them.— Within thefe cells there was the fame diftinction as in thofe priories which were cells fubordinate to fome great abbey; fome of thefe were conventual, and, having priors of their own choofing, thereby became entire focieties within themfelves, and received the revenues belonging to their feveral houfes for their own ufe and benefit, paying only the ancient apport (A), acknowledgement, or obvention, at firft the furplufage, to the foreign houfe; but others depended entirely on the foreign houfes, who appointed and removed their priors at pleafure. Thefe tranfmitted all their revenues to the foreign head houfes; for which reafon their eftates were generally feized to carry on the wars between England and France, and reftored to them again on return of peace. Thefe alien priories were moft of them founded by fuch as had foreign abbeys founded by themfelves or by fome of their family.

The whole number is not exactly afcertained; the Monaficon hath given a lift of 100: Weever, p. 338. fays 110.

Some of thefe cells were made indigenou or denizon, or cndenized. The alien priories were firft feized by Edward I. 1285, on the breaking out of the war between France and England; and it appears from a roll, that Edward II. alfo feized them, though this is not mentioned by our hiftorians; and to thefe the act of reftitution, 1 Ed. III. feems to refer.

In 1237, Edward III. confiscated their eftates, and let out the priories themfelves with all their lands and tenements, at his pleafure, for 23 years; at the end of which term, peace being concluded between the two nations, he reftored their eftates 1361, as appears by his letters patent to that of Montacute, county of Somerfet, printed at large in Rymer, vol. vi. p. 311. and tranflated in Weever's *Funeral Monuments*, p. 339. At other times he granted their lands, or lay penfions out of them, to divers noblemen. They were alfo fequeftered during Richard II.'s reign, and the head monafteries abroad had the king's licence to fell their lands to other religious houfes here, or to any particular perfons who wanted to endow others.

Priories || Prifon. Henry IV. began his reign with fhewing fome favour to the alien priories, reftoring all the conventual ones, only referving to himfelf in time of war what they paid in time of peace to the foreign abbeys.

They were all diffolved by act of parliament 2 Henry V. and all their eftates vefted in the crown, except fome lands granted to the college of Fotheringhay. The act of diffolution is not printed in the ftatute books, but it is to be found entire in Rymer's *Fædera*, ix. 283. and in the Parliament Rolls, vol. iv. p. 22. In general, thefe lands were appropriated to religious ufes. Henry VI. endowed his foundations at Eton and Cambridge with the lands of the alien priories in purfuance of his father's defign to appropriate them all to a noble college at Oxford. Others were granted in fee to the prelates, nobility, or private perfons. Such as remained in the crown were granted by Henry VI. 1440, to Archbishop Chicheley, &c. and they became part of his and the royal foundations. See *Some Account of Alien-Priories*, &c. in two volumes octavo.

PRIORITY, the relation of fomething confidered as prior to another.

PRIORITY, in *Law*, denotes an antiquity of tenure, in comparifon of another lefs ancient.

PRISCIANUS, an eminent grammarian, born at Cæfarca, taught at Conftantinople with great reputation about the year 525. Laurentius Valla calls Prifcian, Donatus, and Servius, *triumviri in re grammatica*; and thinks none of the ancients who wrote after them fit to be mentioned with them. He compofed a work *De arte grammatica*, which was firft printed by Aldus at Venice in 1476; and another *De naturalibus quaeftionibus*, which he dedicated to Chofroes king of Perfia: befide which, he tranflated Dionyfius's defcription of the world into Latin verfe. A perfon who writes falfe Latin, is proverbially faid to “break Prifcian's head.”

PRISCILLIANISTS, in *Church-hiftory*, Chriftian heretics, fo called from their leader Prifcillian, a Spaniard by birth, and bifhop of Avila. He is faid to have praftifed magic, and to have maintained the principal errors of the Manichees; but his peculiar tenet was, That it is lawful to make falfe oaths in order to fupport one's caufe and interefts.

PRISM, in *Geometry*, is a folid body, whofe two ends are any plane figures which are parallel, equal, and fimilar; and its fides, connecting thofe ends, are parallelograms.

PRISMOID, is a folid body, fomewhat refembling a prism, but its ends are any diffimilar parallel plane figures of the fame number of fides, the upright fides being trapezoids. If the ends of the prismoid be bounded by diffimilar curves, it is fometimes called a *cy-lindroid*.

PRISON, a gaol, or place of confinement.

Lord Coke obferves, that a prifon is only a place of fafe custody, *falva cuftodia*, not a place of punifhment. If this be the cafe, prifons ought not to be, what they have been in moft, and ftill are in fome places of Europe,

(A) *Apportus* or *apportagium* (from *portare*), an acknowledgement, oblation, or obvention, to the mother houfe or church. *Du Cange*.

Prison.

rope, loathsome dungeons. Any place where a person is confined may be said to be a prison; and when a process is issued against one, he must, when arrested thereon, either be committed to prison, or be bound in a recognizance with sureties, or else give bail, according to the nature of the case, to appear at a certain day in court, there to make answer to what is alleged against him. Where a person is taken and sent to prison, in a civil case, he may be released by the plaintiff in the suit; but if it be for treason or felony, he may not regularly be discharged, until he is indicted of the fact and acquitted. See INDICTMENT.

But a prison is not only to be considered as a place of safe custody, according to its original design, but also as a place of temporary punishment for certain crimes, and perhaps this punishment might be substituted more frequently than it is, for transportation and death. Probably this is done in no country to better purpose than in Pennsylvania; and no where has imprisonment been more abused than in Venice under the old government.

By the laws of Pennsylvania, imprisonment is imposed, not merely as an expiation for past offences, but also for the reformation of the criminal's morals. The regulations of the gaol are calculated to produce this effect in the speediest manner possible, so that such a building may rather be denominated a *penitentiary house*, than a *gaol*. When a criminal is committed to prison, he is made to wash; his hair is shorn, and he is furnished with clean apparel, if he has no decent clothes of his own. He is then put into a solitary cell, where he is excluded from the sight of every living being except the gaoler, whose duty it is to attend to his mere necessities, but not to converse with him upon any account. If committed for an atrocious crime, he is even debarred from the light of heaven. The treatment of each prisoner varies in proportion to the nature of his crime, and his symptoms of repentance. The longest period of confinement is for a rape, which is not to be less than ten years, nor to exceed 21; and for high treason it is not to be under 6, nor above 12.

The prisoners must bathe twice in the week, having proper conveniences within the prison, and they are regularly supplied with a change of linen. Prisoners in solitary confinement subsist upon bread and water such as labour are allowed broth, puddings, &c. They are allowed meat in small quantities twice a week, and no beverage except water is brought into the prison. One room is set apart for shoe-makers, another for taylor, and so of every other trade. There are stone-cutters, smiths, nailors, &c. in the yards. Such a prison has all the advantages of the rasping house of Amsterdam, without any of its enormous defects.

The following account of the common prison at Venice, is given by Dr Mosely who visited this horrible place in September 1787.

"I was conducted (says he) through the prison by one of its inferior dependants. We had a torch with us. We crept along narrow passages as dark as pitch. In some of them two people could scarcely pass each other. The cells are made of maffy marble; the architecture of the celebrated Sansovini.

"The cells are not only dark, and black as ink, but being surrounded and confined with huge walls, the smallest breath of air can scarcely find circulation in

Prison.

them. They are about nine feet square on the floor, arched at the top, and between six and seven feet high in the highest part. There is to each cell a round hole of eight inches diameter, through which the prisoner's daily allowance of twelve ounces of bread and a pot of water is delivered. There is a small iron door to the cell. The furniture of the cell is a little straw and a small tub; nothing else. The straw is renewed and the tub emptied through the iron door occasionally.

"The diet is ingeniously contrived for the perdurance of punishment. Animal food, or a cordial nutritious regimen, in such a situation, would bring on disease, and defeat the end of this Venetian justice. Neither can the soul, if so inclined, steal away, wrapt up in slumbering delusion, or sink to rest; from the admonition of her sad existence, by the gaoler's daily return.

"I saw one man who had been in a cell thirty years; two who had been twelve years; and several who had been eight and nine years in their respective cells.

"By my taper's light I could discover the prisoners horrid countenances. They were all naked. The man who had been there thirty years, in face and body was covered with long hair. He had lost the arrangement of words and order of language. When I spoke to him, he made an unintelligible noise, and expressed fear and surprise; and, like some wild animals in deserts, which have suffered by the treachery of the human race, or have an instinctive abhorrence of it, he would have fled like lightning from me if he could.

"One whose faculties were not so obliterated; who still recollected the difference between day and night; whose eyes and ears, though long closed with a silent blank, still languished to perform their natural functions—implored, in the most piercing manner, that I would prevail on the gaoler to murder him, or to give him some instrument to destroy himself. I told him I had no power to serve him in this request. He then entreated I would use my endeavours with the inquisitors to get him hanged, or drowned in the Canal' Orfano. But even in this I could not serve him: death was a favour I had not interest enough to procure for him.

"This kindness of death, however, was, during my stay in Venice, granted to one man, who had been 'from the cheerful ways of man cut off' thirteen years.

"Before he left his dungeon I had some conversation with him; this was six days previous to his execution. His transport at the prospect of death was surprising. He longed for the happy moment. No saint ever exhibited more fervour in anticipating the joys of a future state, than this man did at the thoughts of being released from life, during the four days mockery of his trial.

"It is the Canal' Orfano where vessels from Turkey and the Levant perform quarantine. This place is the watery grave of many who have committed political or personal offences against the state or senate, and of many who have committed no offences at all. They are carried out of the city in the middle of the night, tied up in a sack with a large stone fastened to it, and thrown into the water. Fishermen are prohibited, on forfeiture of

Prison
||
Privateers.

of their lives, against fishing in this district. The presence is the plague. This is the secret history of people being lost in Venice.

“The government, with age, grew feeble; was afraid of the discussion of legal process and of public executions; and navigated this rotten Bucentaur of the Adriatic by spies, prisons, assassination, and the Canal Orfano.”

PRISONER, a person restrained or kept in prison upon an action civil or criminal, or upon commendment: and one may be a prisoner on matter of record or matter of fact. A prisoner upon matter of record, is he who, being present in court, is by the court committed to prison; and the other is one carried to prison upon an arrest, whether it be by the sheriff, constable, or other officer.

PRISTIS, the **SAWFISH**, is generally considered as a species of the *Squalus* or *shark* genus, comprehending under it several varieties. See **SQUALUS**, **ICHTHOLOGY Index**. But Mr Latham is of opinion that it ought to be considered as a distinct genus, and that the characteristics of the several varieties are sufficient to constitute distinct species.

PRIVATEERS, are a kind of private men of war, the persons concerned wherein administer at their own costs a part of a war, by fitting out these ships of force, and providing them with all military stores; and they have, instead of pay, leave to keep what they take from the enemy, allowing the admiral his share, &c.

Privateers may not attempt any thing against the laws of nations; as to assault an enemy in a port or haven, under the protection of any prince or republic, whether he be friend, ally, or neuter; for the peace of such places must be inviolably kept; therefore, by a treaty made by King William and the States of Holland, before a commission shall be granted to any privateer, the commander is to give security, if the ship be not above 150 tons, in 1500l., and if the ship exceeds that burden, in 3000l., that they will make satisfaction for all damages which they shall commit in their courses at sea, contrary to the treaties with that state, on pain of forfeiting their commissions; and the ship is made liable.

Besides these private commissions, there are special commissions for privateers, granted to commanders of ships, &c. who take pay; who are under a marine discipline; and if they do not obey their orders, may be punished with death: and the wars in later ages have given occasion to princes to issue these commissions, to annoy the enemies in their commerce, and hinder such supplies as might strengthen them or lengthen out the war; and likewise to prevent the separation of ships of greater force from their fleets or squadrons.

Ships taken by privateers were to be divided into five parts; four parts whereof to go to the persons interested in the privateer, and the fifth to his Majesty: and as a farther encouragement, privateers, &c. destroying any French man of war or privateer, shall receive, for every piece of ordnance in the ship so taken, 10l. reward, &c.

By a particular statute lately made, the lord admiral, or commissioners of the admiralty, may grant commissions to commanders of privateers, for taking ships, &c.

which being adjudged prize, and the tenth part paid to the admiral, &c. wholly belong to the owners of the privateers and the captors, in proportions agreed on between themselves.

PRIVATION, in a general sense, denotes the absence or want of something; in which sense darkness is only the privation of light.

PRIVATIVE, in *Grammar*, a particle, which, prefixed to a word, changes it into a contrary sense. Thus, among the Greeks, the α is used as a privative; as in $\alpha\text{-}\theta\epsilon\omicron\varsigma$ *atheist*, *acephalus*, &c.—The Latins have their privative *in*; as, *incorrigibilis*, *indeclinabilis*, &c.—The English, French, &c. on occasion borrow both the Latin and Greek privatives.

PRIVERNUM, (Livy, Virgil); a town of the Volsci, in Latium, to the east of Setia. *Privernates*, the people. Whose ambassadors being asked, What punishment they deserved for their revolt? answered, What those deserve who deem themselves worthy of liberty. And again, being asked by the Roman consul, should the punishment be remitted, What peace was to be expected with them? If you grant a good peace, you may hope to have it sincere and lasting; but if a bad one, you may well expect it of short continuance. At which answer, the Romans were so far from being displeased, that by a vote of the people they had the freedom of the city granted them. *Privernas*, *-atis*, the epithet. The town is now called *Piperno Vecchio*, situated in the Campania of Rome. E. Long. 10. 0. N. Lat. 41. 30.

PRIVET. See **LIGUSTRUM**, **BOTANY Index**.

PRIVILEGE, in *Law*, some peculiar benefit granted to certain persons or places, contrary to the usual course of the law.

Privileges are said to be *personal* or *real*.

Personal privileges are such as are extended to peers, ambassadors, members of parliament, and of the convocation, &c. See **LORDS**, **AMBASSADOR**, **PARLIAMENT**, **ARREST**, &c.

A *real* privilege is that granted to some particular place; as the king's palace, the courts at Westminster, the universities, &c.

PRIVILEGES of the Clergy. See **CLERGY**.

PRIVY, in *Law*, is a partaker, or person having an interest, in any action or thing. In this sense they say, privies in blood: every heir in tail is privy to recover the land intailed. In old law-books, merchants privy are opposed to merchants strangers. Coke mentions four kinds of privies. Privies in blood, as the heir to his father; privies in representation, as executors and administrators to the deceased; privies in estate, as he in reversion and he in remainder, donor and donee, lessor and lessee: lastly, privy in tenure, as the lord by escheat; *i. e.* when land escheats to the lord for want of heirs.

PRIVY-Council. See **COUNCIL**. The king's will is the sole constituent of a privy-counsellor; and it also regulates their number, which in ancient times was about twelve. Afterwards it increased to so large a number, that it was found inconvenient for secrecy and dispatch; and therefore Charles II. in 1679, limited it to 30; whereof 15 were principal officers of state, and to be counsellors *ex officio*; and the other 15 were composed of 10 lords and five commoners of the king's choosing. Since that time however the number

Privation
||
Privy-Council.

Jacob's
Law Dict.

Privy-Council.

has been much augmented, and now continues indefinite. At the same time also, the ancient office of lord president of the council was revived, in the person of Anthony earl of Shaftesbury. Privy-counsellors are made by the king's nomination, without either patent or grant; and, on taking the necessary oaths, they become immediately privy counsellors during the life of the king that chooses them, but subject to removal at his discretion.

Any natural born subject of England is capable of being a member of the privy-council; taking the proper oaths for security of the government, and the test for security of the church. By the act of settlement, 12 and 13 W. III. cap. 2. it is enacted, that no person born out of the dominions of the crown of England, unless born of English parents, even though naturalized by parliament, shall be capable of being of the privy-council. The duty of a privy-counsellor appears from the oath of office, which consists of seven articles. 1. To advise the king according to the best of his cunning and discretion. 2. To advise for the king's honour and good of the public, without partiality, through affection, love, meed, doubt, or dread. 3. To keep the king's counsel secret. 4. To avoid corruption. 5. To help and strengthen the execution of what shall be there resolved. 6. To withstand all persons who would attempt the contrary. And, lastly, in general, 7. To observe, keep, and do all that a good and true counsellor ought to do to his sovereign lord.

The privy council is the *primum mobile* of the state, and that which gives the motion and direction to all the inferior parts. It is likewise a court of justice of great antiquity; the primitive and ordinary way of government in England being by the king and privy-council. It has been frequently used by all our kings for determining controversies of great importance: the ordinary judges have sometimes declined giving judgment till they had consulted the king and privy-council; and the parliament have frequently referred matters of high moment to the same, as being by long experience better able to judge of, and, by their secrecy and expedition, to transact some state affairs, than the lords and commons. At present, the privy-council takes cognizance of few or no matters except such as cannot well be determined by the known laws and ordinary courts; such as matters of complaint and sudden emergencies: their constant business being to consult for the public good in affairs of state. This power of the privy-council is to inquire into all offences against the government, and to commit the offenders to safe custody, in order to take their trial in some of the courts of law. But their jurisdiction herein is only to inquire, and not to punish; and the persons committed by them are intitled to their *habeas corpus* by statute 16 Car. I. cap. 10. as much as if committed by an ordinary justice of the peace.

In plantation or admiralty causes, which arise out of the jurisdiction of this kingdom, and in matters of lunacy and idiocy, the privy-council has cognizance, even in questions of extensive property, being the court of appeal in such causes; or, rather, the appeal lies to the king's majesty himself in council. From all the dominions of the crown, excepting Great Britain and Ireland, an appellate jurisdiction (in the last resort) is

vested in this tribunal; which usually exercises its judicial authority in a committee of the whole privy-council, who hear the allegations and proofs, and make their report to his majesty in council, by whom the judgment is finally given.

Anciently, to strike in the house of a privy-counsellor, or elsewhere in his presence, was grievously punished: by 3 Hen. VII. cap. 14. if any of the king's servants of his household conspire or imagine to take away the life of a privy-counsellor, it is felony, though nothing shall be done upon it; and by 9 Ann. cap. 16. it is enacted, that any persons who shall unlawfully attempt to kill, or shall unlawfully assault, and strike, or wound, any privy-counsellor in the execution of his office, shall be felons, and suffer death as such. With advice of this council, the king issues proclamations that bind the subject, provided they be not contrary to law. In debates, the lowest delivers his opinion first, the king last; and thereby determines the matter. A council is never held without the presence of a secretary of state.

The dissolution of the privy-council depends upon the king's pleasure; and he may, whenever he thinks proper, discharge any particular member, or the whole of it, and appoint another. By the common law also it was dissolved *ipso facto* by the king's demise, as deriving all its authority from him. But now, to prevent the inconveniences of having no council in being at the accession of a new prince, it is enacted, by 6 Ann. cap. 7. that the privy-council shall continue for six months after the demise of the crown, unless sooner determined by the successor. *Blackst. Com.* book i. p. 229, &c.

The officers of the privy-council are four clerks of the council in ordinary, three clerks extraordinary, a keeper of the records, and two keepers of the council-chamber. See PRESIDENT.

PRIVY Seal, a seal which the king uses previously to such grants, &c. as are afterwards to pass the great seal.

The privy seal is also sometimes used in matters of less consequence, which do not require the great seal.

Lord PRIVY Seal. See *KEEPER of the Privy Seal. Clerks of the PRIVY Seal*. See *CLERK*.

PRIVY Chamber. See *CHAMBER*.

PRIZE, or *PRISE*, in maritime affairs, a vessel taken at sea from the enemies of a state, or from pirates; and that either by a man of war, a privateer, &c. having a commission for that purpose.

Vessels are looked on as prize, if they fight under any other standard than that of the state from which they have their commission; if they have no charter-party, invoice, or bill of lading aboard; if loaded with effects belonging to the king's enemies, or with contraband goods.

In ships of war, the prizes are to be divided among the officers, seamen, &c. as his Majesty shall appoint by proclamation; but among privateers, the division is according to the agreement between the owners.

By stat. 13 Geo. II. c. 4. judges and officers, failing of their duty in respect to the condemnation of prizes, forfeit 500l., with full costs of suit; one moiety to the king, and the other to the informer.

PROA, FLYING, in navigation, is a name given to a vessel used in the South seas, because with a brisk trade-wind

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Proa, Probability

trade-wind it fails near 20 miles an hour. In the construction of the proa, the head and stern are exactly alike, but the sides are very different; the side intended to be always the lee-side being flat; and the windward side made rounding, in the manner of other vessels; and, to prevent her over-letting, which from her small breadth, and the straight run of her leeward side, would, without this precaution, infallibly happen, there is a frame laid out from her to windward, to the end of which is fastened a log, fashioned into the shape of a small boat, and made hollow. The weight of the frame is intended to balance the proa, and the small boat is by its buoyancy (as it is always in the water) to prevent her over-letting to windward; and this frame is usually called an outrigger. The body of the vessel is made of two pieces joined endwise, and sewed together with bark, for there is no iron used about her; she is about two inches thick at the bottom, which, at the gunwale, is reduced to less than one. The sail is made of matting, and the mast, yard, boom, and outriggers, are all made of bamboo. See *Anson's Voyage*, quarto, p. 341.

PROBABILITY is a word of nearly the same import with likelihood. It denotes the appearance of truth, or that evidence arising from the preponderation of argument which produces opinion. (See OPINION.) Locke classes all arguments under the heads of *demonstrative* and *probable*: Hume with greater accuracy divides them into *demonstrations*, *proofs*, and *probabilities*. Demonstration produces *science*; proof, *belief*; and probability, *opinion*.

Hardly any thing is susceptible of strict demonstration besides the mathematical sciences, and a few propositions in metaphysical theology. Physics rest upon principles, capable, some of them, of complete proof by experience, and others of nothing more than probability by analogical reasoning. What has *uniformly* happened, we expect with the fullest confidence to happen again in similar circumstances; what has *frequently* happened, we likewise expect to happen again; but our expectation is not confident. Uniform experience is proof; frequent experience is probability. The strongest man has *always* been able to lift the greatest weight; and, therefore, knowing that one man is stronger than another, we expect, with confidence, that the former will lift more than the latter. The best disciplined army has *generally* proved victorious, when all other circumstances were equal. We therefore expect that an army of veterans will, upon fair ground, defeat an equal number of new levied troops: but as sudden panics have sometimes seized the oldest soldiers, this expectation is accompanied with doubt, and the utmost that we can say of the expected event is, that it is *probable*; whereas in the competition between the two men, we look upon it as *morally certain*. (See METAPHYSICS, Part I. chap. vii. sec. 3.) When two or three persons of known veracity attest the same thing as consistent with their knowledge, their testimony amounts to *proof*, if not contradicted by the testimony of others; if contradicted, it can, at the utmost, amount only to probability. In common language we talk of *circumstantial* proofs and *presumptive* proofs; but the expressions are improper, for such evidence amounts to nothing more than probability. Of probability there are indeed various degrees, from the confines of certainty down to the confines of impossibility; and a variety

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of circumstances tending to the same point, though they amount not to what, in strictness of language, should be called *proof*, afford to the mind a very high degree of evidence, upon which, with the addition of one direct testimony, the laws of many countries take away the life of a man.

Probability || Probity.

PROBABILITY of an Event, in the *Doctrine of Chances*, is greater or less according to the number of chances by which it may happen or fail. (See EXPECTATION). The *probability of life* is liable to rules of computation. In the *Encyclopedie Methodique*, we find a table of the probabilities of the duration of life, constructed from that which is to be found in the seventh volume of the *Supplemens à l'Histoire de M. de Buffon*; of which the following is an abridgement.

Of 23994 children born at the same time, there will probably die

$\frac{1}{2}$	In one year	-	-	7998
$\frac{1}{2}$	Remaining $\frac{1}{2}$ or 11996			
$\frac{1}{4}$	In eight years	-	-	11997
$\frac{1}{4}$	Remaining $\frac{1}{4}$ or 11997			
$\frac{1}{8}$	In thirty-eight years	-	-	15996
$\frac{1}{8}$	Remaining $\frac{1}{8}$ or 7998			
$\frac{1}{16}$	In fifty years	-	-	17994
$\frac{1}{16}$	Remaining $\frac{1}{16}$ or 5998			
$\frac{1}{32}$	In sixty-one years	-	-	19995
$\frac{1}{32}$	Remaining $\frac{1}{32}$ or 3999			
$\frac{1}{64}$	In seventy years	-	-	21595
$\frac{1}{64}$	Remaining $\frac{1}{64}$ or 2399			
$\frac{1}{128}$	In eighty years	-	-	22395
$\frac{1}{128}$	Remaining $\frac{1}{128}$ or 599			
$\frac{1}{256}$	In ninety years	-	-	23914
$\frac{1}{256}$	Remaining $\frac{1}{256}$ or 80			
	In a hundred years	-	-	23992
	Remaining $\frac{1}{256}$ or 2.			See Bills of MORTA-

LITY.

PROBATE of a will or testament, in *Law*, is the exhibiting and proving of last wills and testaments before the ecclesiastical judge delegated by the bishop, who is ordinary of the place where the party died.

PROBATION, in the universities, is the examination and trial of a student who is about to take his degrees.

PROBATION, in a monastic sense, signifies the year of a novitiate, which a religious must pass in a convent, to prove his virtue and vocation, and whether he can bear the severities of the rule.

PROBATION, in *Scots Law*. See LAW INDEX.

PROBATIONER, in the church of Scotland, a student in divinity, who bringing a certificate from a professor in an university of his good morals, and his having performed his exercises to approbation, is admitted to undergo several trials; and, upon his acquitting himself properly in these, receives a licence to preach.

PROBATUM EST (*It is proved*), a term frequently subjoined to a receipt for the cure of some disease.

PROBE, a surgeon's instrument for examining the circumstances of wounds, ulcers, and other cavities, searching for stones in the bladder, &c.

PROBITY means honesty, sincerity, or veracity; and consists in the habit of actions useful to society, and in the constant observance of the laws which justice

Probity
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Process.

and conscience impose on us. The man who obeys all the laws of society with an exact punctuality is not therefore a man of probity; laws can only respect the external and definite parts of human conduct, but probity respects our more private actions, and such as it is impossible in all cases to define; and it appears to be in morals what charity is in religion. Probity teaches us to perform in society those actions which no external power can oblige us to perform, and is that quality in the human mind from which we claim the performance of the *rights* commonly called *imperfect*. See MORAL PHILOSOPHY.

PROBLEM, in *Logic*, is a proposition that neither appears absolutely true nor false; and, consequently, may be asserted either in the affirmative or negative.

PROBLEM, in *Geometry*, is a proposition, wherein some operation or construction is required; as to divide a line or angle, erect or let fall perpendiculars, &c. See GEOMETRY.

PROBOSCIS, in *Natural History*, is the trunk or snout of an elephant, and some other animals and insects.

Flies, gnats, &c. are furnished with a proboscis or trunk; by means of which they suck the blood of animals, the juice of vegetables, &c. for their food.

PROBUS, MARCUS AURELIUS, was the son of a gardener, and became, by his great valour as a soldier, and his eminent virtues, emperor of Rome, to which dignity he was raised by the army. Having subdued the barbarous nations who made incursions into different parts of the empire, where they committed horrid cruelties, he managed the affairs of government with great wisdom and clemency. He was massacred in the year 282, and the 7th of his reign, by some soldiers who were weary of the public works at which he made them labour.

PROCATARCTIC CAUSE, in *Medicine*, the pre-existing, or predisposing cause or occasion of a disease.

PROCELEUSMATICUS, in the ancient poetry, a foot consisting of four short syllables, or two pyrrhichiuses; as *hominibus*.

PROCELLARIA, a genus of birds, belonging to the order of anseres. See ORNITHOLOGY *Index*. Clusius makes the procellaria pelagica or stormy petrel the Camilla of the sea.

*Vel mare per medium fluctu suspensa tumentii
Ferret iter, celeres nec tingeret æquore plantas.* VIRG.

She swept the seas; and, as she skim'd along,
Her flying feet unbath'd on billows hung. DRYDEN.

These birds are the *cypseli* of Pliny, which he places among the *apodes* of Aristotle; not because they wanted feet, but were *κροκοδι*, or had bad or useless ones; an attribute he gives to these species, on a supposition that they were almost always on the wing.

PROCESS, in *Law*, denotes the proceedings in any cause, real or personal, civil or criminal, from the original writ to the end thereof.

In a more limited sense, process denotes that by which a man is called first into any temporal court.

It is the next step for carrying on the suit, after suing out the original writ. See SUIT and WRIT.

It is the method taken by the law to compel a compliance with the original writ, of which the primary

step is by giving the party notice to obey it. This notice is given upon all real *praecipies*; and also upon all personal writs for injuries not against the peace, by *summons*; which is a warning to appear in court at the return of the original writ, given to the defendant by two of the sheriff's messengers called *summoners*, either in person, or left at his house or land: in like manner as in the civil law the first process is by personal citation, *in jus vocando*. This warning on the land is given, in real actions, by erecting a white stick or wand on the defendant's grounds (which stick or wand among the northern nations is called the *baculus nunciatorius*), and by statute 31 Eliz. c. 3. the notice must also be proclaimed on some Sunday before the door of the parish-church.

If the defendant disobeys this verbal monition, the next process is by writ of *attachment*, or *pone*; so called from the words of the writ, *pone per vadium et salvos plegios*, "put by gage and safe pledges A. B. the defendant," &c. This is a writ not issuing out of chancery, but out of the court of common-pleas, being grounded on the non-appearance of the defendant at the return of the original writ; and thereby the sheriff is commanded to attach him, by taking *gage*, that is, certain of his goods, which he shall forfeit if he doth not appear; or by making him find *safe pledges* or sureties, which shall be amerced in case of his non-appearance. This is also the first and immediate process, without any previous summons, upon actions of trespass *vi et armis*, or for other injuries, which, though not forcible, are yet trespasses against the peace, as *deceit* and *conspiracy*; where the violence of the wrong requires a more speedy remedy, and therefore the original writ commands the defendant to be at once attached, without any precedent warning.

If, after attachment, the defendant neglects to appear, he not only forfeits this security, but is moreover to be farther compelled by writ of *distingas*, or distress infinite: which is a subsequent process issuing from the court of common-pleas, commanding the sheriff to distress the defendant from time to time, and continually afterwards, by taking his goods and the profits of his lands, which are called *issues*, and which he forfeits to the king if he doth not appear. But the issues may be sold, if the court shall so direct, in order to defray the reasonable costs of the plaintiff. In like manner, by the civil law, if the defendant absconds, so that the citation is of no effect, *mittitur adversarius in possessionem bonorum ejus*.

And here, by the common as well as the civil law, the process ended in case of injuries without force: the defendant if he had any substance, being gradually stripped of it all by repeated distresses, till he rendered obedience to the king's writ; and, if he had no substance, the law held him incapable of making satisfaction, and therefore looked upon all farther process as nugatory. And besides, upon feudal principles, the person of a feudatory was not liable to be attached for injuries merely civil, lest thereby his lord should be deprived of his personal services. But, in cases of injury accompanied with force, the law, to punish the breach of the peace and prevent its disturbance for the future, provided also a process against the defendant's person, in case he neglected to appear upon the former process of attachment, or had no substance whereby to be attached; sub-

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jecting his body to imprisonment by the writ of *capias ad respondendum*. But this immunity of the defendant's person, in case of peaceable though fraudulent injuries, producing great contempt of the law in indigent wrongdoers, a *capias* was also allowed, to arrest the person in actions of account, though no breach of the peace be suggested, by the statutes of Marlbridge, 52 Hen. III. c. 23. and Westm. 2. 13 Edw. I. c. 11. in actions of debt and detinue, by statute 25 Edw. III. c. 17. and in all actions on the case, by statute 19 Hen. VII. c. 9. Before which last statute a practice had been introduced of commencing the suit by bringing an original writ of trespass *quare clausum fregit*, by breaking the plaintiff's close, *vi et armis*; which by the old common law subjected the defendant's person to be arrested by writ of *capias*: and then afterwards, by connivance of the court, the plaintiff might proceed to prosecute for any other less forcible injury. This practice (through custom rather than necessity, and for saving some trouble and expence, in suing out a special original adapted to the particular injury) still continues in almost all cases, except in actions of debt; though now, by virtue of the statutes above cited and others, a *capias* might be had upon almost every species of complaint.

If therefore the defendant, being summoned or attached, makes default, and neglects to appear; or if the sheriff returns a *nihil*, or that the defendant hath nothing whereby he may be summoned, attached, or distrained, the *capias* now usually issues: being a writ commanding the sheriff to take the body of the defendant, if he may be found in his bailiwick or county, and him safely to keep, so that he may have him in court on the day of the return, to answer to the plaintiff of a plea of debt, or trespass, &c. as the case may be. This writ, and all others subsequent to the original writ, not issuing out of chancery, but from the court into which the original was returnable, and being grounded on what has passed in that court in consequence of the sheriff's return, are called *judicial*, not *original*, writs; they issue under the private seal of that court, and not under the great seal of England; and are *tested*, not in the king's name, but in that of the chief justice only. And these several writs being grounded on the sheriff's return, must respectively bear date the same day on which the writ immediately preceding was returnable.

This is the regular and orderly method of process. But it is now usual in practice to sue out the *capias* in the first instance, upon a supposed return of the sheriff; especially if it be suspected that the defendant, upon notice of the action, will abscond; and afterwards a fictitious original is drawn up, with a proper return thereupon, in order to give the proceedings a colour of regularity. When this *capias* is delivered to the sheriff, he by his under-sheriff grants a warrant to his inferior officers or bailiffs to execute it on the defendant. And, if the sheriff of Oxfordshire (in which county the injury is supposed to be committed and the action is laid) cannot find the defendant in his jurisdiction, he returns that he is not found, *non est inventus*, in his bailiwick: whereupon another writ issues, called a *testatum capias*, directed to the sheriff of the county where the defendant is supposed to reside, as of Berkshire, reciting the former writ, and that it is testified, *testatum est*, that the defendant lurks or wanders in his bailiwick, where he is commanded to take him, as in the former *capias*. But

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here also, when the action is brought in one county and the defendant lives in another, it is usual, for saving trouble, time, and expence, to make out a *testatum capias* at the first; supposing not only an original, but also a former *capias*, to have been granted; which in fact never was. And this fiction, being beneficial to all parties, is readily acquiesced in, and is now become the settled practice; being one among many instances to illustrate that maxim of law, that *in fictione juris consistit equitas*.

But where a defendant absconds, and the plaintiff would proceed to an outlawry against him, an original writ must then be sued out regularly, and after that a *capias*. And if the sheriff cannot find the defendant upon the first writ of *capias*, and returns a *non est inventus*, there issues out an *alias* writ, and after that a *pluries*, to the same effect as the former: only after these words "we command you," this clause is inserted, "as we have formerly," or, "as we have often commanded you;"—"sicut alias," or, "sicut pluries, *præcepimus*." And if a *non est inventus* is returned upon all of them, then a writ of *exigent* or *exigi facias* may be sued out, which requires the sheriff to cause the defendant to be proclaimed, required or exacted, in five county-counts successively, to render himself; and if he does, then to take him, as in a *capias*: but if he does not appear, and is returned *quinto exactus*, he shall then be outlawed by the coroners of the county. Also by statute 6 Hen. VIII. c. 4. and 31 Eliz. c. 3. whether the defendant dwells within the same or another county than that wherein the *exigent* is sued out, a *writ of proclamation* shall issue out at the same time with the *exigent*, commanding the sheriff of the county, wherein the defendant dwells, to make three proclamations thereof in places the most notorious, and most likely to come to his knowledge, a month before the outlawry shall take place. Such outlawry is putting a man out of the protection of the law, so that he is incapable to bring an action for redress of injuries; and it is also attended with a forfeiture of all one's goods and chattels to the king. And therefore, till some time after the conquest, no man could be outlawed but for felony: but in Bracton's time, and somewhat earlier, process of outlawry was ordained to lie in all actions for trespasses *vi et armis*. And since, by a variety of statutes (the same which allow the writ of *capias* before mentioned) process of outlawry doth lie in divers actions that are merely civil; providing they be commenced by original and not by bill. If after outlawry the defendant appears publicly, he may be arrested by a writ of *capias utlagatum*, and committed till the outlawry be reversed. Which reversal may be had by the defendant's appearing personally in court (and in the king's bench without any personal appearance, so that he appears by attorney, according to statute 4 & 5 W. & M. c. 18.) and any plausible cause, however slight, will in general be sufficient to reverse it, it being considered only as a process to compel an appearance. But then the defendant must pay full costs, and put the plaintiff in the same condition as if he had appeared before the writ of *exigi facias* was awarded.

Such is the first process in the court of common pleas. In the king's bench they may also (and frequently do) proceed in certain causes, particularly in actions of ejectment and trespass, by *original* writ, with *attachment* and *capias* thereon; returnable, not at Westminster, where

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the common pleas are now fixed in consequence of *magna charta*, but *ubicunque fuerimus in Anglia*, wheresoever the king shall then be in England; the king's bench being removeable into any part of England at the pleasure and discretion of the crown. But the more usual method of proceeding therein is without any original, but by a peculiar species of process entitled a *bill of Middlesex*; and therefore so entitled, because the court now sits in that county; for if it sat in Kent, it would then be a bill of Kent. For though, as the justices of this court have, by its fundamental constitution, power to determine all offences and trespasses, by the common law and custom of the realm, it needed no original writ from the crown to give it cognizance of any misdemeanour in the county wherein it resides; yet as, by this court's coming into any county, it immediately superseded the ordinary administration of justice by the general commissions of *eyre* and of *oyer and terminer*, a process of its own became necessary, within the county where it sat, to bring in such persons as were accused of committing any forcible injury. The bill of Middlesex (which was formerly always founded on a plea of trespass *quare clausum fregit*, entered on the records of the court) is a kind of *capias*, directed to the sheriff of that county, and commanding him to take the defendant, and have him before our lord the king at Westminster on a day prefixed, to answer to the plaintiff of a plea of trespass. For this accusation of trespass it is that gives the court of king's bench jurisdiction in other civil causes, since, when once the defendant is taken into custody of the marshal, or prison-keeper of this court, for the supposed trespass, he, being then a prisoner of this court, may here be prosecuted for any other species of injury. Yet, in order to found this jurisdiction, it is not necessary that the defendant be actually the marshal's prisoner; for, as soon as he appears, or puts in bail, to the process, he is deemed by so doing to be in such custody of the marshal as will give the court a jurisdiction to proceed. And, upon these accounts, in the bill or process, a complaint of trespass is always suggested, whatever else may be the real cause of action. This bill of Middlesex must be served on the defendant by the sheriff, if he finds him in that county: but if he returns, *non est inventus*, then there issues out a writ of *latitat*, to the sheriff of another county, as Berks; which is similar to the *testatum capias* in the common pleas, and recites the bill of Middlesex and the proceedings thereon, and that it is testified that the defendant *latitat et discurrit*, lurks and wanders about in Berks; and therefore commands the sheriff to take him, and have his body in court on the day of the return. But as in the common pleas the *testatum capias* may be sued out upon only a supposed, and not an actual preceding, *capias*; so in the king's bench a *latitat* is usually sued out upon only a supposed, and not an actual, bill of Middlesex. So that, in fact, a *latitat* may be called the first process in the court of king's bench, as the *testatum capias* is in the common pleas. Yet, as in the common pleas, if the defendant lives in the county wherein the action is laid, a common *capias* suffices; so in the king's bench likewise, if he lives in Middlesex, the process must still be by bill of Middlesex only.

In the exchequer the first process is by writ of *quo minus*, in order to give the court a jurisdiction over pleas between party and party. In which writ the

plaintiff is alleged to be the king's farmer or debtor, and that the defendant hath done him the injury complained of, *quo minus sufficiens existit*, by which he is less able to pay the king his rent or debt. And upon this the defendant may be arrested as upon a *capias* from the common pleas.

Thus differently do the three courts set out at first, in the commencement of a suit, in order to intitle the two courts of king's bench and exchequer to hold plea in subjects causes, which by the original constitution of Westminster-hall they were not empowered to do. Afterwards, when the cause is once drawn into the respective courts, the method of pursuing it is pretty much the same in all of them.

If the sheriff had found the defendant upon any of the former writs, the *capias latitat*, &c. he was anciently obliged to take him into custody, in order to produce him in court upon the return, however small and minute the cause of action might be. For, not having obeyed the original summons, he had shown a contempt of the court, and was no longer to be trusted at large. But when the summons fell into disuse, and the *capias* became in fact the first process, it was thought hard to imprison a man for a contempt which was only supposed: and therefore, in common cases, by the gradual indulgence of the courts (at length authorized by statute 12 Geo. I. c. 29. which was amended by statute 5 Geo. II. c. 27. and made perpetual by statute 21 Geo. II. c. 3.) the sheriff or his officer can now only personally serve the defendant with the copy of the writ or process, and with notice in writing to appear by his attorney in court to defend this action; which in effect reduces it to a mere summons. And if the defendant think proper to appear upon this notice, his appearance is recorded, and he puts in sureties for his future attendance and obedience; which sureties are called *common bail*, being the same two imaginary persons that were pledges for the plaintiff's prosecution, John Doe and Richard Roe. Or, if the defendant does not appear upon the return of the writ, or within four (or in some cases eight) days after, the plaintiff may enter an appearance for him, as if he had really appeared; and may file common bail in the defendant's name, and proceed thereupon as if the defendant had done it himself.

But if the plaintiff will make affidavit, or assert upon oath, that the cause of action amounts to ten pounds or upwards, then in order to arrest the defendant, and make him put in substantial sureties for his appearance, called *special bail*, it is required by statute 13 Car. II. stat. 2. c. 2. that the true cause of action should be expressed in the body of the writ or process; else no security can be taken in a greater sum than 40l. This statute (without any such intention in the makers) had like to have ousted the king's bench of all its jurisdiction over civil injuries without force: for, as the bill of Middlesex was framed only for actions of trespass, a defendant could not be arrested and held to bail thereupon for breaches of civil contracts. But to remedy this inconvenience, the officers of the king's bench devised a method of adding what is called a clause of *ac etiam* to the usual complaint of trespass; the bill of Middlesex commanding the defendant to be brought in to answer the plaintiff of a plea of trespass, and also to a bill of debt: the complaint or trespass giving cognizance to the court, and that of debt authorizing the arrest.

Procefs.

Process.

rest. In imitation of which, lord chief justice North, a few years afterwards, in order to save the suitors of his court the trouble and expence of suing out special originals, directed, that in the common pleas, besides the usual complaint of breaking the plaintiff's close, a clause of *ac etiam* might be also added to the writ of *capias*, containing the true cause of action; as, "that the said Charles the defendant may answer to the plaintiff of a plea of trespass in breaking his close: and also, *ac etiam* may answer him, according to the custom of the court, in a certain plea of trespass upon the case, upon promises, to the value of 20l. &c." The sum sworn to by the plaintiff is marked upon the back of the writ; and the sheriff, or his officer the bailiff, is then obliged actually to arrest or take into custody the body of the defendant, and, having so done, to return the writ with a *cepi corpus* indorsed thereon. See ARREST.

When the defendant is regularly arrested, he must either go to prison, for safe custody; or put in *special bail* to the sheriff. For, the intent of the arrest being only to compel an appearance in court at the return of the writ, that purpose is equally answered, whether the sheriff detains his person, or takes sufficient security for his appearance, called *bail* (from the French word *bailier*, "to deliver"), because the defendant is bailed, or delivered, to his sureties, upon their giving security for his appearance; and is supposed to continue in their friendly custody instead of going to goal. See BAIL. The method of putting in bail to the sheriff is by entering into a bond or obligation, with one or more sureties, (not fictitious persons, as in the former case of common bail, but real, substantial, responsible bondsmen), to insure the defendant's appearance at the return of the writ; which obligation is called the *bail bond*. The sheriff, if he pleases, may let the defendant go without any sureties; but that is at his own peril: for, after once taking him, the sheriff is bound to keep him safely, so as to be forthcoming in court; otherwise an action lies against him for an escape. But, on the other hand, he is obliged, by statute 23 Hen. VI. c. 10. to take (if it be tendered) a sufficient bail-bond; and, by statute 12 Geo. I. c. 29. the sheriff shall take bail for no other sum than such as is sworn to by the plaintiff, and indorsed on the back of the writ.

Upon the return of the writ, or within four days after, the defendant must appear according to the exigency of the writ. This appearance is effected by putting in and justifying bail to the action; which is commonly called *putting in bail above*. If this be not done, and the bail that were taken by the sheriff below are responsible persons, the plaintiff may take an assignment from the sheriff of the bail-bond (under the statute 4 and 5 Ann. c. 16.) and bring an action thereupon against the sheriff's bail. But if the bail so accepted by the sheriff be insolvent persons, the plaintiff may proceed against the sheriff himself, by calling upon him, first to return the writ (if not already done), and afterwards to bring in the body of the defendant. And if the sheriff does not then cause sufficient bail to be put in above, he will himself be responsible to the plaintiff.

The bail above, or bail to the action, must be put in either in open court, or before one of the judges thereof; or else, in the country, before a commissioner appointed for that purpose by virtue of the statute 4 W. and M. c. 4. which must be transmitted to the court.

Process.

These bail, who must at least be two in number, must enter into a recognizance in court, or before the judge or commissioner, whereby they do jointly and severally undertake, that if the defendant be condemned in the action, he shall pay the costs and condemnation, or render himself a prisoner, or that they will pay it for him: which recognizance is transmitted to the court in a slip of parchment, intitled a *bail piece*. And, if required, the bail must justify themselves in court, or before the commissioner in the country, by swearing themselves housekeepers, and each of them to be worth double the sum for which they are bail, after payment of all their debts. This answers in some measure to the *stipulatio* or *fidejussio* of the Roman laws, which is mutually given by each litigant party to the other: by the plaintiff that he will prosecute his suit, and pay the costs if he loses his cause; in like manner as our law still requires nominal pledges of prosecution from the plaintiff: by the defendant, that he shall continue in court, and abide the sentence of the judge, much like our special bail; but with this difference, that the *fidejussores* were absolutely bound *judicatum solvere*, to see the costs and condemnation paid at all events: whereas our special bail may be discharged, by surrendering the defendant into custody within the time allowed by law; for which purpose they are at all times entitled to a warrant to apprehend him.

Special bail is required (as of course) only upon actions of debt, or actions on the case in trover, or for money due, where the plaintiff can swear that the cause of action amounts to ten pounds: but in actions where the damages are precarious, being to be assessed *ad libitum* by a jury, as in actions for words, ejectment, or trespass, it is very seldom possible for a plaintiff to swear to the amount of his cause of action; and therefore no special bail is taken thereon, unless by a judge's order, or the particular directions of the court, in some particular species of injuries, as in cases of mayhem or atrocious battery; or upon such special circumstances as make it absolutely necessary that the defendant should be kept within the reach of justice. Also in actions against heirs, executors, and administrators, for debts of the deceased, special bail is not demandable; for the action is not so properly against them in person, as against the effects of the deceased in their possession. But special bail is required even of them, in actions for a *devastavit*, or wasting the goods of the deceased; that wrong being of their own committing.

Thus much for *process*; which is only meant to bring the defendant into court, in order to contest the suit, and abide the determination of the law. When he appears either in person as a prisoner, or out upon bail, then follow the *pleadings* between the parties. See PLEADINGS.

PROCESS upon an Indictment. See PROSECUTION. The proper process on an indictment for any petty misdemeanor, or on a penal statute, is a writ of *venire facias*, which is in the nature of a summons to cause the party to appear. And if by the return to such *venire* it appears that the party hath lands in the county whereby he may be distrained, then a *distrains infinite* shall be issued from time to time till he appears. But if the sheriff returns, that he hath no lands in his bailiwick, then (upon his non-appearance) a writ of *capias* shall issue, which commands the sheriff to take his body, and have

Process.

have him at the next assizes; and if he cannot be taken upon the first *capias*, a second and a third shall issue, called an *alias*, and a *pluries capias*. But, on indictments for treason or felony, a *capias* is the first process: and, for treason or homicide, only one shall be allowed to issue, or two in the case of other felonies, by statute 25 Edw. III. c. 14. though the usage is to issue only one in any felony; the provisions of this statute being in most cases found impracticable. And so, in the case of misdemeanors, it is now the usual practice for any judge of the court of king's bench, upon certificate of an indictment found, to award a writ of *capias* immediately, in order to bring in the defendant. But if he absconds, and it is thought proper to pursue him to an outlawry, then a greater exactness is necessary. For, in such case, after the several writs have issued in a regular number, according to the nature of the respective crimes, without any effect, the offender shall be put in the *exigent* in order to his outlawry: that is, he shall be exacted, proclaimed, or required, to surrender, at five county-courts; and if he be returned *quinto exactus*, and does not appear at the fifth exaction or requisition, then he is adjudged to be *outlawed*, or put out of the protection of the law; so that he is incapable of taking the benefit of it in any respect, either by bringing actions or otherwise.

The punishment for outlawries upon indictments for misdemeanors, is the same as for outlawries upon civil actions; viz. forfeiture of goods and chattels. But an outlawry in treason or felony amounts to a conviction and attainder of the offence charged in the indictment, as much as if the offender had been found guilty by his country. His life is, however, still under the protection of the law, as hath elsewhere been observed; (see HOMICIDE): that though anciently an outlawed felon was said to have *caput lupinum*, and might be knocked on the head like a wolf, by any one that should meet him; because, having renounced all law, he was to be dealt with as in a state of nature, when every one that should find him might slay him: yet now, to avoid such inhumanity, it is holden that no man is intitled to kill him wantonly or wilfully; but in so doing is guilty of murder, unless it happens in the endeavour to apprehend him. For any person may arrest an outlaw on a criminal prosecution, either of his own head, or by writ or warrant of *capias utlagatum*, in order to bring him to execution. But such outlawry may be frequently reversed by writ of error, the proceedings therein being (as it is fit they should be) exceedingly nice and circumstantial; and if any single minute point be omitted or misconducted, the whole outlawry is illegal, and may be reversed: upon which reversal the party accused is admitted to plead to, and defend himself against, the indictment.

Thus much for process to bring in the offender after indictment found; during which stage of the prosecution it is that writs of *certiorari facias* are usually had, though they may be had at any time before trial, to certify and remove the indictment, with all the proceedings thereon, from any inferior court of criminal jurisdiction into the court of king's bench; which is the sovereign ordinary court of justice in causes criminal. And this is frequently done for one of these four purposes; either, 1. To consider and determine the validity of appeals or indictments and the proceedings thereon; and to quash or confirm them as there is cause; or, 2. Where it is

furnished that a partial or insufficient trial will probably be had in the court below, the indictment is removed, in order to have the prisoner or defendant tried at the bar of the court of king's bench, or before the justices of *nisi prius*: or, 3. It is so removed, in order to plead the king's pardon there: or, 4. To issue process of outlawry against the offender, in those counties or places where the process of the inferior judges will not reach him. Such writ of *certiorari*, when issued and delivered to the inferior court for removing any record or other proceeding, as well upon indictment as otherwise, supercedes the jurisdiction of such inferior court, and makes all subsequent proceedings therein entirely erroneous and illegal; unless the court of king's bench remands the record to the court below, to be there tried and determined. A *certiorari* may be granted at the instance of either the prosecutor or the defendant: the former as a matter of right, the latter as a matter of discretion; and therefore it is seldom granted to remove indictments from the justices of goal-delivery, or after issue joined, or confession of the fact in any of the courts below.

At this stage of prosecution also it is, that indictments found by the grand jury against a peer, must, in consequence of a writ of *certiorari*, be certified and transmitted into the court of parliament, or into that of the lord high steward of Great Britain; and that, in places of exclusive jurisdiction, as the two universities, indictments must be delivered (upon challenge and claim of cognizance) to the courts therein established by charter, and confirmed by act of parliament, to be there respectively tried and determined. See PLEA.

PROCESS, in *Chemistry*, the whole course of an experiment or series of operations, tending to produce something new.

PROCESS, in *Anatomy*, denotes any protuberance or eminence in a bone.

PROCESSION, a ceremony in the Romish church, consisting of a formal march of the clergy and people, putting up prayers, &c. and in this manner visiting some church, &c. They have also processions of the host or sacrament, &c. See HOST.

PROCHEIN AMY, in *Law*, the person next a-kin to a child in non-age, and who, in that respect, is allowed to act for him, and be his guardian, &c. if he hold land in soccage.

To sue, an infant is not allowed to make an attorney; but the court will admit his next friend as plaintiff, or his guardian as defendant.

PROCKIA, a genus of plants belonging to the polyandria class; and in the natural method ranking with those of which the order is doubtful. See BOTANY Index.

PROCLAMATION, a public notice given of any thing of which the king thinks proper to advertise his subjects.

Proclamations are a branch of the king's prerogative*; and have then a binding force, when (as Sir Edward Coke observes) they are grounded upon and enforce the laws of the realm. For though the making of laws is entirely the work of a distinct part, the legislative branch of the sovereign power, yet the manner, time, and circumstances of putting those laws in execution, must frequently be left to the discretion of the executive magistrate. And therefore his constitutions or edicts, concerning those points which we call

Proclamations,

Process
||
Proclamation.

* See Prerogative.

Proclama-
tion
||
Procopius.

Proclamations, are binding upon the subject, where they do not either contradict the old laws, or tend to establish new ones; but only enforce the execution of such laws as are already in being, in such manner as the king shall judge necessary. Thus the established law is, that the king may prohibit any of his subjects from leaving the realm: a proclamation therefore forbidding this in general for three weeks, by laying an embargo upon all shipping in time of war, will be equally binding as an act of parliament, because founded upon a prior law. But a proclamation to lay an embargo in time of peace upon all vessels laden with wheat, (though in the time of a public scarcity), being contrary to law, and particularly to statute 22 Car. II. c. 13. the advisers of such a proclamation, and all persons acting under it, found it necessary to be indemnified by a special act of parliament, 7 Geo. III. c. 7. A proclamation for disarming Papists is also binding, being only in execution of what the legislature has first ordained: but a proclamation for allowing arms to Papists, or for disarming any Protestant subjects, will not bind; because the first would be to assume a dispensing power, the latter a legislative one; to the vesting of either of which in any single person the laws of England are absolutely strangers. Indeed, by the statute 31 Hen. VIII. c. 8. it was enacted, that the king's proclamations should have the force of acts of parliament: a statute, which was calculated to introduce the most despotic tyranny; and which must have proved fatal to the liberties of this kingdom, had it not been luckily repealed in the minority of his successor, about five years after. By a late act of parliament the king is empowered to raise regiments of Roman Catholics to serve in the present war.

PROCLUS, surnamed DIADOCUS, a Greek philosopher and mathematician, was born in Lycia, and lived about the year 500. He was the disciple of Syrianus, and had a great share in the friendship of the emperor Anastasius. It is said, that when Vitalian laid siege to Constantinople, Proclus burnt his ships with large brazen speculums. This philosopher was a Pagan, and wrote against the Christian religion. There are still extant his Commentaries on some of Plato's books, and other of his works written in Greek.

PROCONSUL, a Roman magistrate, sent to govern a province with consular authority.

The proconsuls were appointed out of the body of the senate; and usually as the year of any one's consulate expired, he was sent proconsul into some province.

The proconsuls decided cases of equity and justice, either privately in their pretorium or palace, where they received petitions, heard complaints, granted writs under their seal, and the like; or else publicly, in the common hall, with the usual formalities observed in the court of judicature at Rome. They had besides, by virtue of their edicts; the power of ordering all things relating to the tributes, taxes, contributions, and provisions of corn and money, &c. Their office lasted only a year. See CONSUL.

PROCOPIUS, a famous Greek historian, born in Cæsaria, acquired great reputation by his works in the reign of Justinian, and was secretary to Belisarius during all the wars carried on by that general in Persia, Africa, and Italy. He at length became senator, ob-

tained the title of *illustrious*, and was made pretor of Procreation Constantinople.

PROCREATION, the begetting and bringing forth young. See GENERATION and SEMEN.

PROCTOR, a person commissioned to manage another person's cause in any court of the civil or ecclesiastical law.

PROCTOR, in the English universities. See UNIVERSITY.

PROCURATION, an act or instrument by which a person is empowered to treat, transact, receive, &c. in another person's name.

PROCURATOR. See PROCTOR.

PROCYON, in *Astronomy*, a fixed star of the second magnitude, situated in canis minor, or the little dog.

PRODIGALITY, means extravagance, profusion, waste, or excessive liberality, and is the opposite extreme to the vice of parsimony. By the Roman law, if a man by notorious prodigality was in danger of wasting his estate, he was looked upon as *non compos*, and committed to the care of curators, or tutors, by the praetor. And by the laws of Solon, such prodigals were branded with perpetual infamy.

PRODUCT, in *Arithmetic* and *Geometry*, the factum of two or more numbers, or lines, &c. into one another: thus $5 \times 4 = 20$ the product required.

PROEDRI, among the Athenians, were magistrates, who had the first seats in the public assemblies, and whose office it was to propose at each assembly the things to be deliberated upon and determined. Their office always ended with the meeting: Their number was nine, so long as the tribes were ten in number.

PROFANATION, the acting disrespectfully to sacred things.

PROFANE, a term used in opposition to *holy*; and in general is applied to all persons who have not the sacred character, and to things which do not belong to the service of religion.

PROFESSION means a calling, vocation, or known employment. In Knox's *Essays*, vol. i. page 234, we find an excellent paper on the choice of a profession, which that elegant writer concludes thus: "All the occupations of life (says he) are found to have their advantages and disadvantages admirably adapted to preserve the just equilibrium of happiness. This we may confidently assert, that, whatever are the inconveniences of any of them, they are all preferable to a life of inaction; to that wretched listlessness, which is constrained to pursue pleasure as a business, and by rendering it the object of severe and unvaried attention, destroys its very essence."

Among the Romanists profession denotes the entering into a religious order, whereby a person offers himself to God by a vow of inviolably observing obedience, chastity, and poverty.

PROFESSOR, in the universities, a person who teaches or reads public lectures in some art or science from a chair for that purpose.

PROFILE, in *Architecture*, the draught of a building, fortification, &c. wherein are expressed the several heights, widths, and thickneses, such as they would appear were the building cut down perpendicularly from the roof to the foundation. Whence the profile is also called the *section*, sometimes *orthographical section*, and by Vitruvius also *sciagraphy*.

Profile,

Procreation
||
Profile.

Profile
||
Prognostic.

Profile, in this sense, amounts to the same with *elevation*; and stands opposed to *plan* or *ichnography*.
PROFILE is also used for the contour or outline of a figure, building, member of architecture, or the like; as a base, a cornice, &c. Hence *profiling* is sometimes used for designing, or describing the member with rule, compass, &c.

PROFILE, in sculpture and painting.—A head, a portrait &c. are said to be in *profile*, when they are represented sidewise, or in a side-view; as, when in a portrait there is but one side of the face, one eye, one cheek, &c. shown, and nothing of the other.—On almost all medals, the faces are represented in *profile*.

PROFLUVIUM, in *Medicine*, denotes a flux, or liquid evacuation of any thing.

PROGNOSTIC, among physicians, signifies a judge-

Thus $\left\{ \begin{array}{l} a, a+d, a+2d, a+3d, \&c. \text{ increasing} \\ a, a-d, a-2d, a-3d, \&c. \text{ decreasing} \end{array} \right\}$ by the difference d .
In numbers $\left\{ \begin{array}{l} 2, 4, 6, 8, 10, \&c. \text{ increasing} \\ 10, 8, 6, 4, 2, \&c. \text{ decreasing} \end{array} \right\}$ by the difference 2.

Geometric Progression, or *Continued Geometric Proportion*, is when the terms do increase or decrease by equal ratios: thus,

$\left. \begin{array}{l} a, ar, ar^2, ar^3, \&c. \text{ increasing} \\ a, \frac{a}{r}, \frac{a}{r^2}, \frac{a}{r^3}, \&c. \text{ decreasing} \end{array} \right\}$ from a continual $\left\{ \begin{array}{l} \text{multiplication} \\ \text{division} \end{array} \right\}$ by r .
 $\left. \begin{array}{l} 2, 4, 8, 16, 32, 64, \text{ increasing} \\ 64, 32, 16, 8, 4, 2, \text{ decreasing} \end{array} \right\}$ from a continual $\left\{ \begin{array}{l} \text{multiplication} \\ \text{division} \end{array} \right\}$ by 2.

See the articles FLUXIONS, GEOMETRY, and SERIES.

Program-
ma,
Progression.

ment concerning the event of a disease; as whether it shall end in life or death, be short or long, mild or malignant, &c.

PROGRAMMA, anciently signified a letter sealed with the king's seal.

Programma is also an university term for a billet or advertisement, posted up or given into the hand, by way of invitation to an oration, &c. containing the argument, or so much as is necessary for understanding thereof.

PROGRESSION, in general, denotes a regular advancing, or going forwards, in the same course and manner.

PROGRESSION, in *Mathematics*, is either arithmetical or geometrical. Continued arithmetic proportion is, where the terms do increase and decrease by equal differences, and is called *arithmetical progression*:

PROJECTILES.

1
Object of
the science.

THIS is the name for that part of mechanical philosophy which treats of the motion of bodies anyhow projected from the surface of this earth, and influenced by the action of terrestrial gravity.

2
Effect of
gravity on
projected
bodies.

It is demonstrated in the physical part of astronomy, that a body so projected must describe a conic section, having the centre of the earth in one focus; and that it will describe round that focus areas proportional to the times. And it follows from the principles of that science, that if the velocity of projection exceeds 36700 feet in a second, the body (if not resisted by the air) would describe a hyperbola; if it be just 36700, it would describe a parabola; and if it be less than this, it would describe an ellipsis. If projected directly upwards, in the first case, it would never return, but proceed for ever; its velocity continually diminishing, but never becoming less than an assignable portion of the excess of the initial velocity above 36700 feet in a second; in the second case, it would never return, its velocity would diminish without end, but never be extinguished. In the third case, it would proceed till its velocity was reduced to an assignable portion of the difference between 36700 and its initial velocity; and would then return, regaining its velocity by the same degrees, and in the same places, as it lost it. These are necessary consequences of a gravity directed to the centre of the earth, and inversely proportional to the square of the distance. But in the greatest projections that we are able to make, the gravitations are so nearly equal, and in directions so nearly parallel,

that it would be ridiculous affectation to pay any regard to the deviations from equality and parallelism. A bullet rising a mile above the surface of the earth loses only $\frac{1}{10000}$ of its weight, and a horizontal range of 4 miles makes only 4' of deviation from parallelism.

Let us therefore assume gravitation as equal and parallel. The errors arising from this assumption are quite insensible in all the uses which can be made of this theory.

The theory itself will ever be regarded with some veneration and affection by the learned. It was the first fruits of mathematical philosophy. Galileo was the first who applied mathematical knowledge to the motions of free bodies, and this was the subject on which he exercised his fine genius.

Gravity must be considered by us as a constant or uniform³ accelerating or retarding force, according as it produces the descent, or retards the ascent, of a body. A constant or invariable accelerating force is one which produces an uniform acceleration; that is, which in equal times produces equal increments of velocity, and therefore produces increments of velocity proportional to the times in which they are produced. Forces are of themselves imperceptible, and are seen only in their effects; and they have no measure but the effect, or what measures the effect; and every thing which we can discover with regard to those measures, we must affirm with regard to the things of which we assume them as the measures. Therefore,

4
Consequences of
this fact;

The motion of a falling body, or of a body projected directly downwards, is uniformly accelerated; and that of a body projected directly upwards is uniformly retarded: that is, the acquired velocities are as the times in which they are acquired by falling, and the extinguished velocities are as the times in which they are extinguished.

5
Corollaries
drawn from
it.

Cor. 1. If bodies simply fall, not being projected downwards by an external force, the times of the falls are proportional to the final velocities; and the times of ascents, which terminate by the action of gravity alone, are proportional to the initial velocities.

2. The spaces described by a heavy body falling from rest are as the squares of the acquired velocities; and the differences of these spaces are as the differences of the squares of the acquired velocities: and, on the other hand, the heights to which bodies projected upwards will rise, before their motions be extinguished, are as the squares of the initial velocities.

3. The spaces described by falling bodies are proportional to the squares of the times from the beginning of the fall; and the spaces described by bodies projected directly upwards are as the squares of the times of the ascents.

4. The space described by a body falling from rest is one half of the space which the body would have uniformly described in the same time, with the velocity acquired by the fall.—And the height to which a body will rise, in opposition to the action of gravity, is one half of the space which it would uniformly describe in the same time with the initial velocity.

In like manner the difference of the spaces which a falling or rising body describes in any equal successive parts of its fall or rise, is one half of the space which it would uniformly describe in the same time with the difference of the initial and final velocities.

This proposition will be more conveniently expressed for our purpose thus:

A body moving uniformly during the time of any fall with the velocity acquired thereby, will in that time describe a space double of that fall; and a body projected directly upwards will rise to a height which is one half of the space which it would, uniformly continued, describe in the time of its ascent with the initial velocity of projection.

These theorems have been already demonstrated in a popular way, in the article GUNNERY. But we would recommend to our readers the 39th prop. of the first book of Newton's *Principia*, as giving the most general investigation of this subject; equally easy with these more loose methods of demonstration, and infinitely superior to them, by being equally applicable to every variation of the accelerating force. See an excellent application of this proposition by Mr Robins, for defining the motion of a ball discharged from a cannon, in the article GUNNERY, N^o 15.

6
The force
of gravity
in falling
bodies can
be ascer-
tained.

5. It is a matter of observation and experience, that a heavy body falls 16 feet and an inch English measure in a second of time; and therefore acquires the velocity of 32 feet 2 inches per second. This cannot be ascertained directly, with the precision that is necessary. A second is too small a portion of time to be exactly measured and compared with the space described; but it is done with the greatest accuracy by comparing the motion of a falling body with that of a pendulum. The time of a vibration is to the time of falling through

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half the length of the pendulum, as the circumference of a circle is to its diameter. The length of a pendulum can be ascertained with great precision; and it can be lengthened or shortened till it makes just 86,400 vibrations in a day: and this is the way in which the space fallen through in a second has been accurately ascertained.

As all other forces are ascertained by the accelerations which they produce, they are conveniently measured by comparing their accelerations with the acceleration of gravity. This therefore has been assumed by all the later and best writers on mechanical philosophy, as the unit by which every other force is measured. It gives us a perfectly distinct notion of the force which retains the moon in its orbit, when we say it is the 3600th part of the weight of the moon at the surface of the earth. We mean by this, that if a bullet were here weighed by a spring steelyard, and pulled it out to the mark 3600; if it were then taken to the distance of the moon, it would pull it out only to the mark 1. And we make this assertion on the authority of our having observed that a body at the distance of the moon falls from that distance $\frac{1}{3600}$ part of 16 feet in a second. We do not, therefore, compare the forces, which are imperceptible things; we compare the accelerations, which are their indications, effects, and measures.

This has made philosophers so anxious to determine with precision, the fall of heavy bodies, in order to have an exact value of the accelerating power of terrestrial gravity. Now we must here observe, that this measure may be taken in two ways: we may take the space through which the heavy body falls in a second; or we may take the velocity which it acquires in consequence of gravity having acted on it during a second. The last is the proper measure; for the last is the immediate effect on the body. The action of gravity has changed the state of the body—in what way? by giving it a determination to motion downwards this both points out the kind and the degree or intensity of the force of gravity. The space described in a second by falling, is not an invariable measure; for, in the successive seconds, the body falls through 16, 48, 80, 112, &c. feet, but the changes of the body's state in each second is the same. At the beginning it had no determination to move with any appreciable velocity; at the end of the first second it had a determination by which it would have gone on for ever (had no subsequent force acted on it) at the rate of 32 feet per second. At the end of the second second, it had a determination by which it would have moved for ever, at the rate of 64 feet per second. At the end of the third second, it had a determination by which it would have moved for ever, at the rate of 96 feet per second, &c. &c. The difference of these determinations is a determination to the rate of 32 feet per second. This is therefore constant, and the indication and proper measure of the constant or invariable force of gravity. The space fallen through in the first second is of use only as it is one half of the measure of this determination; and as halves have the proportion of their wholes, different accelerating forces may be safely affirmed to be in the proportion of the spaces through which they uniformly impel bodies in the same time. But we should always recollect, that this is but one half of the true measure of the accelerating force. Mathematicians of the first rank

7
Two modes
of deter-
mining the
fall of heavy
bodies.

8
Mistakes of
mathemati-
cians on
this subject
have

have committed great mistakes by not attending to this; and it is necessary to notice it just now, because cases will occur in the prosecution of this subject, where we shall be very apt to confound our reasonings by a confusion in the use of those measures. Those mathematicians who are accustomed to the geometrical consideration of curvilinear motions, are generally disposed to take the *actual deflection* from the tangent as the measure of the deflecting force; while those who treat the same subject algebraically, by the assistance of fluxions, take the *change of velocity*, which is measured by *twice* the deflection. The reason is this: when a body passes through the point B of a curve ABC, fig. 1. if the deflecting force were to cease at that instant, the body would describe the tangent BD in the same time in which it describes the arch BC of the curve, and DC is the deflection, and is therefore taken for the measure of the deflecting force. But the algebraist is accustomed to consider the curve by means of an equation between the abscissæ H a, H b, H c, and their respective ordinates A a, B b, C c; and he measures the deflections by the changes made on the increments of the ordinates. Thus the increment of the ordinate A a, while the body describes the arch AB of the curve, is BG. If the deflecting force were to cease when the body is at B, the next increment would have been equal to BG, that is, it would have been EF; but in consequence of the deflection, it is only CF: therefore he takes EC for the measure of the deflection, and of the deflecting force. Now EC is ultimately twice DC; and thus the measure of the algebraist (derived solely from the nature of the differential method, and without any regard to physical considerations) happens to coincide with the true physical measure. There is therefore

9
Particularly
of Leibnitz.

great danger of mixing these measures. Of this we cannot give a more remarkable instance than Leibnitz's attempt to demonstrate the elliptical motion of the planets in the *Leipfic Acts*, 1689. He first considers the subject mechanically, and takes the deflection or DC for the measure of the deflecting force. He then introduces his differential calculus, where he takes the difference of the increments for the measure; and thus brings himself into a confusion, which luckily compensates for the false reasoning in the preceding part of his paper, and gives his result the appearance of a demonstration of Newton's great discovery, while, in fact, it is a confused jumble of assumptions, self-contradictory, and inconsistent with the very laws of mechanics which are used by him in the investigation. Seventeen years after this, in 1706, having been criticised for his bad reasoning, or rather accused of an envious and unsuccessful attempt to appropriate Newton's invention to himself, he gives a correction of his paralogism, which he calls a correction of language. But he either had not observed where the paralogism lay, or would not let himself down by acknowledging a mistake in what he wished the world to think his own calculus (fluxions); he applied the correction where no fault had been committed, for he had measured both the centrifugal force and the solicitation of gravity in the same way, but had applied the fluxionary expression to the last and not to the first, and, by so doing, he completely destroyed all coincidence between his result and the planetary motions. We mention this instance, not only as a caution to our mathematical readers, but also as a very curious literary anecdote. This dissertation of

Leibnitz is one of the most obscure of his obscure writings, but deserves the attention of an intelligent and curious reader, and cannot fail of making an indelible impression on his mind, with relation to the modesty, candour, and probity of the author. It is preceded by a dissertation on the subject which we are now entering upon, the motion of projectiles in a resisting medium. Newton's *Principia* had been published a few years before, and had been reviewed in a manner shamefully slight, in the *Leipfic Acts*. Both these subjects make the capital articles of that immortal work. Mr Leibnitz published these dissertations, without (says he) having seen Newton's book, in order to show the world that he had, some years before, discovered the same theorems. Mr Nicholas Fatio carried a copy of the *Principia* from the author to Hanover in 1686, where he expected to find Mr Leibnitz; he was then absent, but Fatio saw him often before his return to France in 1687, and does not say that the book was not given him. Read along with these dissertations Dr Keill's letter to John Bernoulli and others, published in the *Journal Littéraire de la Hayée* 1714, and to John Bernoulli in 1719.

Newton has been accused of a similar oversight by John Bernoulli, (who indeed calls it a mistake in principle) in his Proposition x. book 2. on the very subject we are now considering. But Dr Keill has shown it to be only an oversight, in drawing the tangent on the wrong side of the ordinate. For in this very proposition Newton exhibits, in the strictest and most beautiful manner, the difference between the geometrical and algebraical manner of considering the subject; and expressly warns the reader, that *his* algebraical symbol expresses the deflection only, and not the variation of the increment of the ordinate. It is therefore in the last degree improbable that he would make this mistake. He most expressly does not; and to the real mistake, which he corrected in the second edition, the writer of this article has in his possession a manuscript copy of notes and illustrations on the whole *Principia*, written in 1693 by Dr David Gregory, Savilian professor of astronomy at Oxford, at the desire of Mr Newton, as preparatory for a new edition, where he has rectified this and several other mistakes in that work, and says that Mr Newton had seen and approved of the amendments. We mention these particulars, because Mr Bernoulli published an elegant dissertation on this subject in the *Leipfic Acts* in 1713; in which he charges Newton (though with many protestations of admiration and respect) with this mistake in principle; and says, that he communicated his correction to Mr Newton, by his nephew Nicholas Bernoulli, that it might be corrected in the new edition, which he heard was in the press. And he afterwards adds, that it appears by some sheets being cancelled, and new ones substituted in this part of the work, that the mistake would have continued, had he not corrected it. We would desire our readers to consult this dissertation, which is extremely elegant, and will be of service to us in this article; and let them compare the civil things which is here said of the *vir incomparabilis*, the *omni laude major*, the *summus Newtonus*, with what the same author, in the same year, in the *Leipfic Acts*, but under a borrowed name, says of him. Our readers will have no hesitation in ascribing this letter to this author. For, after praising John Bernoulli as *summus geometra,*

10
Newton ac-
cused of a
similar mis-
take by J.
Bernoulli,

11
But fallibly.

12
Infrincerity
of Bernoulli
with re-
spect to
Newton.

natus.

natus ad summorum geometarum paralogismos corrigendos, summi candoris ut et modestiæ, he betrays himself by an unguarded warmth, when defending J. B.'s demonstration of the inverse problem of centripetal forces, by calling it MEAM demonstrationem.

Let our readers now consider the scope and intention of this dissertation on projectiles, and judge whether the author's aim was to instruct the world, or to acquire fame, by correcting Newton. The dissertation does not contain one theorem, one corollary, nor one step of argument, which is not to be found in Newton's first edition; nor has he gone farther than Newton's single proposition the xth. To us it appears an exact companion to his proposition on centripetal forces, which he boasts of having first demonstrated, although it is in every step a transcript of the 42d of the 1st Book of Newton's Principia, the geometrical language of Newton being changed into algebraic, as he has in the present case changed Newton's algebraic analysis into a very elegant geometrical one.

We hope to be forgiven for this long digression. It is a very curious piece of literary history, and shows the combination which envy and want of honourable principle had formed against the reputation of our illustrious countryman; and we think it our duty to embrace any opportunity of doing it justice.—To return to our subject:

13
Accurate measure of the accelerative power of gravity.

The accurate measure of the accelerative power of gravity, is the fall $16\frac{1}{2}$ feet, if we measure it by the space, or the velocity of $32\frac{1}{2}$ feet per second, if we take the velocity. It will greatly facilitate calculation, and will be sufficiently exact for all our purposes, if we take 16 and 32, supposing that a body falls 16 feet in a second, and acquires the velocity of 32 feet per second. Then, because the heights are as the squares of the times, and as the squares of the acquired velocities, a body will fall one foot in one fourth of a second, and will acquire the velocity of eight feet per second. Now let h express the height in feet, and call it the PRODUCING HEIGHT; v the velocity in feet per second, and call it the PRODUCED VELOCITY, the velocity DUE; and t the time in seconds.—We shall have the following formulæ, which are of easy recollection, and will serve, without tables, to answer all questions relative to projectiles.

14
General formulæ deduced.

$$\begin{aligned} \text{I. } v &= 8\sqrt{h}, = 8 \times 4t, = 32t \\ \text{II. } t &= \frac{\sqrt{h}}{4}, = \frac{v}{32} \\ \text{III. } \sqrt{h} &= \frac{v}{8}, = 4t \\ \text{IV. } h &= \frac{v^2}{64}, = 16t^2. \end{aligned}$$

15
Examples of their use in falling bodies.

To give some examples of their use, let it be required,
1. To find the time of falling through 256 feet. Here $h=256$, $\sqrt{256}=16$, and $\frac{16}{4}=4$. Answer 4".
2. To find the velocity acquired by falling four seconds. $t=4$. $32 \times 4=128$ feet per second.
3. To find the velocity acquired by falling 625 feet. $h=625$. $\sqrt{h}=25$. $8 \cdot \sqrt{h}=200$ feet per second.
4. To find the height to which a body will rise when projected with the velocity of 56 feet per second,

or the height through which a body must fall to acquire this velocity.

16
In bodies projected upwards,

$$\begin{aligned} v &= 56 \cdot \frac{56}{8} = 7, = \sqrt{h} \cdot 7^2 = h, = 49 \text{ feet.} \\ \text{or } 56^2 &= 3136 \cdot \frac{3136}{64} = 49 \text{ feet.} \end{aligned}$$

5. Suppose a body projected directly downwards with the velocity of 10 feet per second; what will be its velocity after four seconds? In four seconds it will have acquired, by the action of gravity, the velocity of 4×32 , or 128 feet, and therefore its whole velocity will be 138 feet per second.

17
and direct-ly downwards.

6. To find how far it will have moved, compound its motion of projection, which will be 40 feet in four seconds, with the motion which gravity alone would have given it in that time, which is 256 feet; and the whole motion will be 296 feet.

7. Suppose the body projected as already mentioned, and that it is required to determine the time it will take to go 296 feet downwards, and the velocity it will have acquired.

Find the height x , through which it must fall to acquire the velocity of projection, 10 feet, and the time y of falling from this height. Then find the time z of falling through the height $296+x$, and the velocity v acquired by this fall. The time of describing the 296 feet will be $z-y$, and v is the velocity required.

From such examples, it is easy to see the way of answering every question of the kind.

18
More general formulæ.

Writers on the higher parts of mechanics always compute the actions of other accelerating and retarding forces by comparing them with the acceleration of gravity, and in order to render their expressions more general, use a symbol, such as g for gravity, leaving the reader to convert it into numbers. Agreeably to this view, the general formulæ will stand thus:

$$\begin{aligned} \text{I. } v &= \sqrt{2g h}, \text{ i. e. } \sqrt{2} \sqrt{g} \sqrt{h}, = g t, \\ \text{II. } t &= \frac{v}{g}, = \frac{\sqrt{4h}}{\sqrt{2g}}, = \sqrt{\frac{4h}{2g}}, = \sqrt{\frac{2h}{g}} \\ \text{III. } h &= \frac{v^2}{2g}, = \frac{g t^2}{2} \end{aligned}$$

In all these equations, gravity, or its accelerating power, is estimated, as it ought to be, by the change of velocity which it generates in a particle of matter in an unit of time. But many mathematicians, in their investigations of curvilinear and other varied motions, measure it by the deflection which it produces in this time from the tangent of the curve, or by the increment by which the space described in an unit of time exceeds the space described in the preceding unit. This is but one half of the increment which gravity would have produced, had the body moved through the whole moment with the acquired addition of velocity. In this sense of the symbol g , the equations stand thus:

$$\begin{aligned} \text{I. } v &= 2\sqrt{g h} = 2g t \\ \text{II. } t &= \sqrt{\frac{h}{g}}, = \frac{v}{2g} \\ \text{IV. } h &= \frac{v^2}{4g}, = g t^2, \text{ and } \sqrt{h} = \frac{v}{2\sqrt{g}} \end{aligned}$$

It is also very usual to consider the accelerating force of

of gravity as the unit of comparifon. This renders the expreffions much more fimple. In this way, v expreffes not the velocity, but the height neceffary for acquiring it, and the velocity itfelf is expreffed by \sqrt{v} . To reduce fuch an expreffion of a velocity to numbers, we muft multiply it by $\sqrt{2g}$, or by $2\sqrt{g}$, according as we make g to be the generated velocity, or the fpace fallen through in the unit of time.

19
Bodies projected obliquely.

This will fuffice for the perpendicular afcents or defcents of heavy bodies, and we proceed to confider their motions when projected obliquely. The circumftance which renders this an interefting fubject, is, that the flight of cannon fhots and fhells are inftances of fuch motion, and the art of gunnery muft in a great meafure depend on this doctrine.

Fig. 2.

Let a body B (fig. 2.), be projected in any direction BC, not perpendicular to the horizon, and with any velocity. Let AB be the height producing this velocity; that is, let the velocity be that which a heavy body would acquire by falling freely through AB. It is required to determine the path of the body, and all the circumftances of its motion in this path?

1. It is evident, that by the continual action of gravity, the body will be continually deflected from the line BC, and will defcribe a curve line BVG, concave towards the earth.

20
Describes a parabola.

2. This curve line is a parabola, of which the vertical line ABE is a diameter, B the vertex of this diameter and BC a tangent in B.

Through any two points V, G of the curve draw VC, GH parallel to AB, meeting BC in C and H, and draw VE, GK parallel to BC, meeting AB in E, K. It follows, from the compofition of motions, that the body would arrive at the points V, G of the curve in the fame time that it would have uniformly defcribed BC, BH, with the velocity of projection; or that it would have fallen through BE, BK, with a motion uniformly accelerated by gravity; therefore the times of defcribing BC, BH, uniformly, are the fame with the times of falling through BE, BK. But, becaufe the motion along BH is uniform, BC is to BH as the time of defcribing BC to the time of defcribing BH, which we may exprefs thus, $BC : BH = T$, $BC : T, BH, = T, BE : T, BK$. But, becaufe the motion along BK is uniformly accelerated, we have $BE : BK = T^2, BE : T^2, BK, = BC^2 : BH^2, = EV^2 : KG^2$; therefore the curve BVG is fuch, that the abfciffæ BE, BK are as the fquares of the correfponding ordinates EV, KG; that is, the curve BVG is a parabola, and BC, parallel to the ordinates, is a tangent in the point B.

3. If through the point A there be drawn the horizontal line AD d , it is the directrix of the parabola.

Let BE be taken equal to AB. The time of falling through BE is equal to the time of falling through AB; but BC is defcribed with the velocity acquired by falling through AB: and therefore by N^o 4. of perpendicular defcents, BC is double of AB, and EV is double of BE; therefore $EV^2 = 4BE^2, = 4BE \times AB, = BE \times 4AB$, and $4AB$ is the parameter or *latus rectum* of the parabola BVG, and AB being one-fourth of the parameter, AD is the directrix.

4. The times of defcribing the different arches BV,

VG of the parabola are as the portions BC, BH of the tangent, or as the portions AD, A d of the directrix, intercepted by the fame vertical lines AB, CV, HG; for the times of defcribing BV, BVG are the fame with thofe of defcribing the correfponding parts BC, BH of the tangent, and are proportional to thefe parts, becaufe the motion along BH is uniform; and BC, BH are proportional to AD, A d .

Therefore the motion eftimated horizontally is uniform.

5. The velocity in any point G of the curve is the fame with that which a heavy body would acquire by falling from the directrix along dG . Draw the tangent GT, cutting the vertical AB in T; take the points a, f , equidiftant from A and d , and extremely near them, and draw the verticals ab, fg ; let the points a, f , continually approach A and d , and ultimately coincide with them. It is evident that B b will ultimately be to gG , in the ratio of the velocity at B to the velocity at G; for the portions of the tangent ultimately coincide with the portions of the curve, and are defcribed in equal times; but B b is to gG as BH to TG: therefore the velocity at B is to that at G as BH to TG. But, by the properties of the parabola, BH^2 is to TG^2 as AB to dG ; and AB is to dG as the fquare of the velocity acquired by falling through AB to the fquare of the velocity acquired by falling through dG ; and the velocity in BH, or in the point B of the parabola, is the velocity acquired by falling along AB; therefore the velocity in TG, or in the point G of the parabola, is the velocity acquired by falling along dG .

Thefe few fimple propofitions contain all the theory of the motion of projectiles in vacuo, or independent on the refiftance of the air; and being a very eafy and neat piece of mathematical philofophy, and connected with very interefting practice, and a very refpectable profeflion, they have been much commented on, and have furnifhed matter for many fplendid volumes. But the air's refiftance occafions fuch a prodigious diminution of motion in the great velocities of military projectiles, that this parabolic theory, as it is called, is hardly of any ufe. A mufket ball, difcharged with the ordinary allotment of powder, iffues from the piece with the velocity of 1670 feet per fecond: this velocity would be acquired by falling from the height of eight miles. If the piece be elevated to an angle of 45° , the parabola fhould be of fuch extent that it would reach 16 miles on the horizontal plain; whereas it does not reach above half a mile. Similar deficiencies are obferved in the ranges of cannon fhots.

21
The parabolic theory ingenious, but of little ufe in practice.

We do not propofe, therefore, to dwell much on this A theory, and fhall only give fuch a fynoptical view of it as fhall make our readers underftand the more general circumftances of the theory, and be mafters of the language of the art.

Let OB (fig. 3.) be a vertical line. About the centres A and B, with the diftance AB, defcribe the femicircles ODB, AHK, and with the axis AB, and femiaxis GE, equal to AB, defcribe the femi-ellipfe AEB: with the focus B, vertex A, diameter AB, and tangent AD, parallel to the horizon, defcribe the parabola APS.

22
A fhort view of it.

Let a body be projected from B, in any direction BC,

BC, with the velocity acquired by falling through AB. By what has already been demonstrated, it will describe a parabola BVPM. Then,

1. ADL parallel to the horizon is the directrix of every parabola which can be described by a body projected from B with this velocity. This is evident.

2. The semicircle AHK is the locus of all the foci of these parabolas: For the distance BH of a point B of any parabola from the directrix AD is equal to its distance BF from the focus F of that parabola; therefore the foci of all the parabolas which pass through B, and have AD for their directrix, must be in the circumference of the circle which has AB for its radius, and B for its centre.

3. If the line of direction BC cut the upper semicircle in C, and the vertical line CF be drawn, cutting the lower semicircle in F, F is the focus of the parabola BVPM, described by the body which is projected in the direction BC, with the velocity acquired by falling through BA: for drawing AC, BF, it is evident that ACFB is a rhombus, and that the angle ABF is bisected by BC, and therefore the focus lies in the line BF; but it also lies in the circumference AFK, and therefore in F.

If C is in the upper quadrant of ODB, F is in the upper quadrant of AFK; and if C be in the lower quadrant of ODB (as when BC is the line of direction) then the focus of the corresponding parabola BvM is in the lower quadrant of AHK, as at f.

4. The ellipse AEB is the focus of the vertex of all the parabolas, and the vertex V of any one of them BVPM is in the intersection of this ellipse with the vertical CF: for let this vertical cut the horizontal lines AD, GE, BN, in θ, λ, N . Then it is plain that $N\lambda$ is half of $N\theta$, and λV is half of $C'\theta$; therefore NV is half of NC, and V is the vertex of the axis.

If the focus is in the upper or lower quadrant of the circle AHK, the vertex is in the upper or the lower quadrant of the ellipse AEG.

5. If BFP be drawn through the focus of any one of the parabolas, such as BVM, cutting the parabola APS in P, the parabola BVM touches the parabola APS in P: for drawing P δ parallel to AB, cutting the directrix O α of the parabola APS in α , and the directrix AL of the parabola BVM in δ , then PB = P α ; but BF = BA, = AO, = $\alpha\delta$: therefore P δ = PF, and the point P is in the parabola BVM. Also the tangents to both parabolas in P coincide, for they bisect the angle αPB ; therefore the two parabolas having a common tangent, touch each other in P.

Cor. All the parabolas which can be described by a body projected from B, with the velocity acquired by falling through AB, will touch the concavity of the parabola APS, and lie wholly within it.

6. P is the most distant point of the line BP which can be hit by a body projected from B with the velocity acquired by falling through AB. For if the direction is more elevated than BC, the focus of the parabola described by the body will lie between F and A, and the parabola will touch APS in some point between P and A; and being wholly within the parabola APS, it must cut the line BP in some point within P. The same thing may be shown when the direction is less elevated than BC.

7. The parabola APS is the focus of the greatest

ranges on any planes BP, BS, &c. and no point lying without this parabola can be struck.

8. The greatest range on any plane BP is produced when the line of direction BC bisects the angle OBP formed by that plane with the vertical: for the parabola described by the body in this case touches APS in P, and its focus is in the line BP, and therefore the tangent BC bisects the angle OBP.

Cor. The greatest range on a horizontal plane is made with an elevation of 45° .

9. A point M in any plane BS, lying between B and S, may be struck with two directions, BC and Bc; and these directions are equidistant from the direction Bt, which gives the greatest range on that plane: for if about the centre M, with the distance ML from the directrix AL, we describe a circle LFf, it will cut the circle AHK in two points F and f, which are evidently the foci of two parabolas BVM, BvM, having the directrix AL and diameter ABK. The intersection of the circle ODB, with the verticals FC, fc, determine the directions BC, Bc of the tangents. Draw At parallel to BS, and join tB, Cc, Ff; then OBt = $\frac{1}{2}$ GBS, and Bt is the direction which gives the greatest range on the plane BS: but because Ff is a chord of the circles described round the centres B and M, Ff is perpendicular to BM, and Cc to At, and the arches Ct, ct are equal; and therefore the angles CBt, cBt are equal.

Thus we have given a general view of the subject, which shows the connection and dependence of every circumstance which can influence the result; for it is evident that to every velocity of projection there belongs a set of parabolas, with their directions and ranges; and every change of velocity has a line AB corresponding to it, to which all the others are proportional. As the height necessary for acquiring any velocity increases or diminishes in the duplicate proportion of that velocity, it is evident that all the ranges with given elevations will vary in the same proportion, a double velocity giving a quadruple range, a triple velocity giving a nonuple range, &c. And, on the other hand, when the ranges are determined beforehand (which is the usual case), the velocities are in the subduplicate proportion of the ranges. A quadruple range will require a double velocity, &c.

ON the principles now established is founded the ordinary theory of gunnery, furnishing rules which are to direct the art of throwing shot and shells, so as to hit the mark with a determined velocity.

But we must observe, that this theory is of little service for directing us in the practice of cannonading. Here it is necessary to come as near as we can to the object aimed at, and the hurry of service allows no time for geometrical methods of pointing the piece after each discharge. The gunner either points the cannon directly to the object, when within 200 or 300 yards of it, in which case he is said to shoot point blank (*pointer au blanc*, i. e. at the white mark in the middle of the gunners target); or, if at a greater distance, he estimates to the best of his judgment the deflection corresponding to his distance, and points the cannon accordingly. In this he is aided by the greater thickness at the breech of a piece of ordnance. Or, lastly, when the intention is not to batter, but to rake along a line

23
Experience
principally
directs the
practical
gunner.

occupied

occupied by the enemy, the cannon is elevated at a considerable angle, and the shot discharged with a small force, so that it drops into the enemy's post, and bounds along the line. In all these services the gunner is directed entirely by trial, and we cannot say that this parabolic theory can do him any service.

The principal use of it is to direct the bombardier in throwing shells. With these it is proposed to break down or set fire to buildings, to break through the vaulted roofs of magazines, or to intimidate and kill troops by burling among them. These objects are always under cover of the enemy's works, and cannot be touched by a direct shot. The bombs and carcasses are therefore thrown upwards, so as to get over the defences and produce their effect.

These shells are of very great weight, frequently exceeding 200lbs. The mortars from which they are discharged must therefore be very strong, that they may resist the explosion of gunpowder which is necessary for throwing such a mass of matter to a distance; they are consequently unwieldy, and it is found most convenient to make them almost a solid and immoveable lump. Very little change can be made in their elevation, and therefore their ranges are regulated by the velocities given to the shell. These again are produced by the quantities of powder in the charge; and experience (confirming the best theoretical notions that we can form of the subject) has taught us, that the ranges are nearly proportional to the quantities of powder employed, only not increasing quite so fast. This method is much easier than by differences of elevation; for we can select the elevation which gives the greatest range on the given plane, and then we are certain that we are employing the smallest quantity of powder with which the service can be performed: and we have another advantage, that the deviations which unavoidable causes produce in the real directions of the bomb will then produce the smallest possible deviation from the intended range. This is the case in most mathematical maxima.

In military projectiles the velocity is produced by the explosion of a quantity of gunpowder; but in our theory it is conceived as produced by a fall from a certain height, by the proportions of which we can accurately determine its quantity. Thus a velocity of 1600 feet per second is produced by a fall from the height of 4000 feet, or 1333 yards.

The height CA (fig. 4.) for producing the velocity of projection is called, in the language of gunnery, the IMPETUS. We shall express it by the symbol *h*.

The distance AB to which the shell goes on any plane AB is called the AMPLITUDE or the RANGE *r*.

It is evident that $AZ : AD = S, ADZ : S, AZD = S, DBA : S, DAB = S, p : S, e$
 And $AD : DB = S, DBA : S, DAB = S, p : S, e$
 And $DB : AB = S, DAB : S, ADB = S, e : S, z$
 Therefore $AZ : AB = S^2, p \times S, e : S^2, e \times S, z = S^2, p : S, e \times S, z$
 Or $4h : r = S^2, p : S, e \times S, z$, and $4h \times S, e \times S, z = r^2 \times S^2, p$

Hence we obtain the relations wanted.

Thus $h = \frac{r \times S^2, p}{4S, e \times S, z}$, and $r = \frac{4h \times S, e \times S, z}{S^2, p}$

And $S, z = \frac{r \times S^2, p}{4h \times S, e}$, and $S, e = \frac{r \times S^2, p}{4h \times S, z}$.

The only other circumstance in which we are interest-

The angle DBA, made by the vertical line and the plane AB, may be called the angle of POSITION of that plane, *p*.

The angle DAB, made by the axis or direction of the piece, and the direction of the object, may be called the angle of ELEVATION of the piece above the plane AB, *e*.

The angle ZAD, made by the vertical line, and the direction of the piece, may be called the ZENITH distance, *z*.

The relations between all the circumstances of velocity, distance, position, elevation, and time, may be included in the following propositions:

I. Let a shell be projected from A, with the velocity acquired by falling through CA, with the intention of hitting the mark B situated in the given line AB.

Make $ZA = AC$, and draw BD perpendicular to the horizon. Describe on ZA an arch of a circle ZDA, containing an angle equal to DBA, and draw AD to the intersection of this circle with DB; then will a body projected from A, in the direction AD, with the velocity acquired by falling through CA, hit the mark B.

For, produce CA downwards, and draw BF parallel to AD, and draw ZD. It is evident from the construction that AB touches the circle in B, and that the angles ADZ, DBA, are equal, as also the angles AZD, DAB; therefore the triangles ZAD, ADB are similar.

Therefore $BD : DA = DA : AZ$,
 And $DA^2 = BD \times AZ$;
 Therefore $BF^2 = AF \times AZ = AF \times AC$.

Therefore a parabola, of which AF is a diameter, and AZ its parameter, will pass through B, and this parabola will be the path of the shell projected as already mentioned.

Remark. When BD cuts this circle, it cuts it in two points D, *d*; and there are two directions which will solve the problem. If B'D' only touches the circle in D', there is but one direction, and AB' is the greatest possible range with this velocity. If the vertical line through B does not meet the circle, the problem is impossible, the velocity being too small. When B'D' touches the circle, the two directions AD' and A*d*' coalesce into one direction, producing the greatest range, and bisecting the angle ZAB; and the other two directions AD, A*d*, producing the same range AB, are equidistant from AD', agreeably to the general proposition.

ed is the time of the flight. A knowledge of this is necessary for the bombardier, that he may cut the fuzes of his shells to such lengths as that they may burst at the very instant of their hitting the mark.

Now $AB : DB = \sin, ADB : \sin, DAB = S, z : S, e$, and $DB = \frac{r \times S, e}{S, z}$. But the time of the flight is

24
The moving force in theory different from that in practice.

Fig. 4.

25
Relations between the velocity & distance, &c.

26
To calculate the time of flight.

the same with the time of falling through DB, and 16 feet : DB = $v'' : v'^2$. Hence $v'^2 = \frac{v'' \times 16}{16S, 2}$, and we have the following easy rule.

From the sum of the logarithms of the range, and of the sine of elevation, subtract the sum of the logarithms of 16, and of the sine of the zenith distance, half the remainder is the logarithm of the time in seconds.

This becomes still easier in practice; for the mortar should be so elevated that the range is a maximum: in which case AB = DB, and then half the difference of the logarithms of AB and of 16 is the logarithm of the time in seconds.

Such are the deductions from the general propositions which constitute the ordinary theory of gunnery. It remains to compare them with experiment.

In such experiments as can be performed with great accuracy in a chamber, the coincidence is as great as can be wished. A jet of water, or mercury, gives us the finest example, because we have the whole parabola exhibited to us in the simultaneous places of the succeeding particles. Yet even in these experiments a deviation can be observed. When the jet is made on a horizontal plane, and the curve carefully traced on a perpendicular plane held close by it, it is found that the distance between the highest point of the curve and the mark is less than the distance between it and the spout, and that the descending branch of the curve is more perpendicular than the ascending branch. And this difference is more remarkable as the jet is made with greater velocity, and reaches to a greater distance. This is evidently produced by the resistance of the air, which diminishes the velocity, without affecting the gravity of the projectile. It is still more sensible in the motion of bombs. These can be traced through the air by the light of their fuzes; and we see that their highest point is always much nearer to the mark than to the mortar on a horizontal plane.

The greatest horizontal range on this plane should be when the elevation is 45° . It is always found to be much lower.

The ranges on this plane should be as the sines of twice the elevation.

A ball discharged at the elev. $19^\circ. 5'$ ranged 448 yards
 at 9.45 330
 It should have ranged by theory 241

The range at an elevation of 45° should be twice the impetus. Mr Robins found that a musket-ball, discharged with the usual allotment of powder, had the velocity of 1700 feet in a second. This requires a fall of 45156 feet, and the range should be 90312, or $17\frac{1}{8}$ miles; whereas it does not much exceed half a mile. A 24 pound ball discharged with 16 pounds of powder should range about 16 miles; whereas it is generally short of 3 miles.

Such facts show incontrovertibly how deficient the parabolic theory is, and how unfit for directing the practice of the artillerist. A very simple consideration is sufficient for rendering this obvious to the most unstructed. The resistance of the air to a very light body may greatly exceed its weight. Any one will feel this in trying to move a fan very rapidly through the air; therefore this resistance would occasion a greater deviation from uniform motion than gravity would in that body. Its path, therefore, through the air may differ

more from a parabola than the parabola itself deviates from the straight line.

It is for such cogent reasons that we presume to say, that the voluminous treatises which have been published on this subject are nothing but ingenious amusements for young mathematicians. Few persons who have been much engaged in the study of mechanical philosophy have missed this opportunity in the beginning of their studies. The subject is easy. Some property of the parabola occurs, by which they can give a neat and systematic solution of all the questions; and at this time of study it seems a considerable essay of skill. They are tempted to write a book on the subject; and it finds readers among other young mechanicians, and employs all the mathematical knowledge that most of the young gentlemen of the military profession are possessed of. But these performances deserve little attention from the practical artillerist. All that seems possible to do for his education is, to multiply judicious experiments on real pieces of ordnance, with the charges that are used in actual service, and to furnish him with tables calculated from such experiments.

These observations will serve to justify us for having given so concise an account of this doctrine of the parabolic flight of bodies.

But it is the business of a philosopher to inquire into the causes of such a prodigious deviation from a well-founded theory, and having discovered them, to ascertain precisely the deviations they occasion. Thus we shall obtain another theory, either in the form of the parabolic theory corrected, or as a subject of independent discussion. This we shall now attempt.

The motion of projectiles is performed in the atmosphere. The air is displaced, or put in motion. Whatever motion it acquires must be taken from the bullet. The motion communicated to the air must be in the proportion of the quantity of air put in motion, and of the velocity communicated to it. If, therefore, the displaced air be always *similarly displaced*, whatever be the velocity of the bullet, the motion communicated to it, and lost by the bullet, must be proportional to the square of the velocity of the bullet and to the density of the air jointly. Therefore the diminution of its motion must be greater when the motion itself is greater, and in the very great velocity of shot and shells it must be prodigious. It appears from Mr Robins's experiments that a globe of $4\frac{1}{2}$ inches in diameter, moving with the velocity of 25 feet in a second, sustained a resistance of 315 grains, nearly $\frac{1}{4}$ of an ounce. Suppose this ball to move 800 feet in a second, that is 32 times faster, its resistance would be 32×32 times $\frac{1}{4}$ of an ounce, or 768 ounces or 48 pounds. This is four times the weight of a ball of cast iron of this diameter; and if the initial velocity had been 1600 feet per second, the resistance would be at least 16 times the weight of the ball. It is indeed much greater than this.

This resistance, operating constantly and uniformly on the ball, must take away four times as much from its velocity as its gravity would do in the same time. We know that in one second gravity would reduce the velocity 800 to 768 if the ball were projected straight upwards. This resistance of the air would therefore reduce it in one second to 672, if it operated uniformly; but as the velocity diminishes continually by the resistance, and the resistance diminishes along with the velocity,

27
 The theory of gunnery compared with experiment.

29
 Causes of this deficiency.

30
 Effect of the atmosphere.

28
 This comparison shows the deficiency of the theory.

31
 compared with that of gravity.

city, the real diminution will be somewhat less than 128 feet. We shall, however, see afterwards that in one second its velocity will be reduced from 800 to 687. From this simple instance, we see that the resistance of the air must occasion great deviation from parabolic motion.

32
and considered as a retarding force.

In order to judge accurately of its effect, we must consider it as a retarding force, in the same way as we consider gravity. The weight W of a body is the aggregate of the action of the force of gravity g on each particle of the body. Suppose the number of equal particles, or the quantity of matter, of a body to be M , then W is equivalent to gM . In like manner, the resistance R , which we observe in any experiment, is the aggregate of the action of a retarding force R' on each particle, and is equivalent to $R'M$: and as g is equal to $\frac{W}{M}$, so R' is equal to $\frac{R}{M}$. We shall keep this distinction in view, by adding the differential mark ' to the letter R or r , which expresses the aggregate resistance.

33
The resistance of the air not uniform.

If we, in this manner, consider resistance as a retarding force, we can compare it with any other such force by means of the retardation which it produces in similar circumstances. We would compare it with gravity by comparing the diminution of velocity which its uniform action produces in a given time with the diminution produced in the same time by gravity. But we have no opportunity of doing this directly; for when the resistance of the air diminishes the velocity of a body, it diminishes it gradually, which occasions a gradual diminution of its own intensity. This is not the case with gravity, which has the same action on a body in motion or at rest. We cannot, therefore, observe the uniform action of the air's resistance as a retarding force. We must fall on some other way of making the comparison. We can state them both as dead pressures. A ball may be fitted to the rod of a spring stilyard, and exposed to impulse of the wind. This will compress the stilyard to the mark 3, for instance. Perhaps the weight of the ball will compress it to the mark 6. We know that half this weight would compress it to 3. We account this equal to the pressure of the air, because they balance the same elasticity of the spring. And in this way we can estimate the resistance by weights, whose pressures are equal to its pressure, and we can thus compare it with other resistances, weights, or any other pressures. In fact, we are measuring them all by the elasticity of the spring. This elasticity in its different positions is supposed to have the proportions of the weights which keep it in these positions. Thus we reason from the nature of gravity, no longer considered as a dead pressure, but as a retarding force; and we apply our conclusions to resistances which exhibit the same pressures, but which we cannot make to act uniformly. This sense of the words must be carefully remembered whenever we speak of resistances in pounds and ounces.

34
Gravity and resistance compared when they are equal.

The most direct and convenient way of stating the comparison between the resistance of the air and the accelerating force of gravity, is to take a case in which we know that they are equal. Since the resistance is here assumed as proportional to the square of the velocity, it is evident that the velocity may be so increased that the resistance shall equal or exceed the weight of the body. If a body be already moving downwards with this velocity, it cannot accelerate; because the accelerating force of gravity is balanced by an equal retarding

force of resistance. It follows from this remark, that this velocity is the greatest that a body can acquire by the force of gravity only. Nay, we shall afterwards see that it never can completely attain it; because as it approaches to this velocity, the remaining accelerating force decreases faster than the velocity increases. It may therefore be called the limiting or *TERMINAL* velocity by gravity.

Let a be the height through which a heavy body must fall, in vacuo, to acquire its terminal velocity in air. If projected directly upwards with this velocity, it will rise again to this height, and the height is half the space which it would describe uniformly, with this velocity, in the time of its ascent. Therefore the resistance to this velocity being equal to the weight of the body, it would extinguish this velocity, by its *uniform* action, in the same time, and after the same distance, that gravity would.

Now let g be the velocity which gravity generates or extinguishes during an unit of time, and let u be the terminal velocity of any particular body. The theorems for perpendicular ascents give us $g = \frac{u^2}{2a}$, u and a being both numbers representing units of space; therefore, in the present case, we have $r' = \frac{u^2}{2a}$. For the whole resistance r , or $r'M$, is supposed equal to the weight, or to gM ; and therefore r' is equal to $g = \frac{u^2}{2a}$, and $2a = \frac{u^2}{g}$. There is a consideration which ought to have place

here. A body descends in air, not by the whole of its weight, but by the excess of its weight above that of the air which it displaces. It descends by its *specific* gravity only as a stone does in water. Suppose a body 32 times heavier than air, it will be buoyed up by a force equal to $\frac{1}{32}$ of its weight; and instead of acquiring the velocity of 32 feet in a second, it will only acquire a velocity of 31, even though it sustained no resistance from the *inertia* of the air. Let p be the weight of the body and π that of an equal bulk of air: the accelerative force of relative gravity on each particle will be $g \times 1 - \frac{\pi}{p}$; and this relative accelerating force might be distinguished by another symbol γ . But in all cases in which we have any interest, and particularly in military projectiles, $\frac{\pi}{p}$ is so small a quantity that it would be pedantic affectation to attend to it. It is much more than compensated when we make $g = 32$ feet instead of $32\frac{1}{32}$ which it should be.

Let e be the time of this ascent in opposition to gravity. The same theorems give us $eu = 2a$; and since the resistance competent to this terminal velocity is equal to gravity, e will also be the time in which it would be extinguished by the uniform action of the resistance; for which reason we may call it the extinguishing time for this velocity. Let R and E mark the resistance and extinguishing time for the same body moving with the velocity 1.

Since the resistances are as the squares of the velocities, and the resistance to the velocity u is $\frac{u^2}{2a}$, R will

be

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