ENCYCLOPÆDIA BRITANNICA.

Book-binding.

BOOK-BINDING is the art of gathering together and ſewing the ſheets of a book, and covering it with a back, &c." It is performed thus: The leaves are firſt folded with a folding-ſtick, and laid over each other in the order of the ſignature; then beaten on a ſtone with a hammer, to make them ſmooth and open well; and afterwards preſſed. They are ſewed upon bands, which are pieces of cord or packthread; ſix bands to a folio book; five to a quarto, octavo, &c.; which is done by drawing a thread through the middle of each ſheet, and giving it a turn round each band, beginning with the firſt and proceeding to the laſt. After this the books are glued, and the bands opened and ſcraped, for the better fixing the paſteboards; the back is turned with a hammer, and the book fixed in a preſs between two boards, in order to make a groove for fixing the paſteboards; theſe being applied, holes are made for fixing them to the book, which is preſſed a third time. Then the book is at laſt put to the cutting preſs, betwixt two boards; the one lying even with the preſs, for the knife to run upon; the other above it, for the knife to run againſt: after which the paſteboards are ſquared.

The next operation is the ſprinkling the leaves of the book; which is done by dipping a bruſh into vermilion and ſap-green, holding the bruſh in one hand, and ſpreading the hair with the other; by which motion the edges of the leaves are ſprinkled in a regular manner, without any ſpots being bigger than the other. Book-binding.

Then remain the covers, which are either of calf-ſkin or of ſheep-ſkin: theſe being moiſtened in water, are cut out to the ſize of the book; then ſmeared over with paſte made of wheat flour; and afterwards ſtretched over the paſteboard on the outſide, and doubled over the edges withinſide; after having firſt taken off the four angles, and indented and platted the cover at the head-band: which done, the book is covered, and bound firmly between two bands, and then ſet to dry. Afterwards it is waſhed over with a little paſte and water, and then ſprinkled with a fine bruſh, unleſs it ſhould be marbled; when the ſpots are to be made larger by mixing the ink with vitriol. After this the book is glazed twice with the white of an egg beaten, and at laſt poliſhed with a poliſhing iron paſſed hot over the glazed cover.

BOOK-KEEPING

Book-keeping.

IS the art of recording mercantile tranſactions in a regular and ſyſtematic manner.

1. A merchant's books ſhould contain every particular which relates to the affairs of the owner. They ſhould exhibit the ſtate of all the branches of his buſineſs, the connexion of the different parts, the amount and ſucceſs of the whole. They ſhould be ſo full and ſo well arranged, as to afford a ready information in every point for which they may be conſulted.

The matter which the books ſhould contain is comprehended under the three following heads: Firſt, The debts which are owing to the owner, and the debts which he owes to others. Secondly, The goods and other articles of property which belonged to him; the quantity and value ſold, or otherwiſe diſpoſed on; and the quantity and value which ſtill remain in his poſſeſſion. Thirdly, The amount of his ſtock when the books were opened; the profits he has obtained, and the loſſes he has ſuffered, ſince; and the amount of his ſtock at preſent.

Book-keeping.

That method of book-keeping which anſwers theſe purpoſes moſt clearly and conciſely, is the beſt. The Italian method, by *double entry*, is generally preferred; at leaſt, it is founded upon the moſt univerſal principles, and is the moſt convenient in extenſive and complicated buſineſs: and the accountant who underſtands it, will find little difficulty in following, or even in inventing, other methods that are better accommodated to any particular purpoſe.

The Italian method requires three principal books; the Waſte-Book, Journal, and Leger.

SECT. I. *Of the* WASTE-BOOK.

2. The waſte-book, or day-book, contains an exact regiſter of all occurrences in buſineſs in the ſame order as

Waſte-Book.

as they take place. It begins with an inventory of every thing belonging to the owner, a liſt of the debts due to him, and of the debts he owes to others: It is carried on with a full relation of all the money he receives or pays; of all the goods he buys or ſells; and of every other occurrence in his buſineſs. Each article ſhould be entered as ſoon as the tranſaction takes place, and ſhould be clearly expreſſed in the plaineſt language. It ſhould require no ſupply from the accountant's memory, but ſhould be fully intelligible to any perſon, however unacquainted with the buſineſs; at the ſame time, it ſhould be written with all convenient brevity; and, therefore, ſometimes refers to invoices and other accounts, for particulars. The accountant's firſt care ſhould be to have nothing defective or ambiguous; his ſecond, to have nothing ſuperfluous.

3. The date is written in text on the top of each page. The articles are ſeparated from each other by a line: and the tranſactions of one day are ſeparated from thoſe of another by a double line, in the middle of which there is left a blank ſpace for inſerting the day of the month. This book muſt be kept with the greater care, as it contains the materials from which the other books are compoſed; and any error or defect will occaſion a like one in the others. Beſides, it is the book whoſe authority is truſted to, and which muſt be exhibited to judges, or arbiters, when an account is diſputed. As the journal is filled up from the waſte-book, the authority of the former is eſteemed more authentic, unleſs there be an obvious miſtake through hurry; and either of theſe books is depended on rather than the leger, which, from its form, is more liable to error, and may be more eaſily vitiated by a fraudulent deſign.

4. As the waſte-book contains the whole ſubſtance of the buſineſs, it may be applied ſo as to afford any information that can be wanted: but the labour of conſulting it would be very great. For inſtance, if it were required to know how much any perſon owes us, we muſt look over the book from the beginning, and mark down every article in which we have dealt with him; or, if it were required to know what quantity of goods we ſhould have on hand, we muſt look over the whole book, and mark down every article bought or ſold. This operation would not only be found very tedious, but much expoſed to the riſk of omiſſions. To prevent theſe inconveniences, another book is uſed in which the articles are arranged in a methodical order. This book is called the *Leger*, and we ſhall conſider it next; becauſe the journal, though it comes before it in the order of writing, cannot be well underſtood, till the nature of the leger be explained.

Sect. II. *Of the* Leger.

5. In the leger, articles of the ſame kind are collected together; and, for that purpoſe, it is divided into many accounts, under which the different branches of buſineſs are arranged. Each account is introduced by a proper title, to explain the nature of the articles it contains; and articles of oppoſite kinds, which belong to the ſame account, are placed on the oppoſite pages of the ſame folio: for inſtance, money received on the one ſide, and money paid on the other; or goods bought on the one ſide, and goods ſold on the other. The left-hand page is called the *Debtor* or *Dr.* ſide of the account, and the right-hand page the *Creditor* or *Cr.* ſide. The difference between the ſums of the Dr. and Cr. ſides is called the *Balance*. Leger.

Accounts in the leger are of three kinds, which anſwer to the three purpoſes of book-keeping mentioned § 1.

6. Firſt, Perſonal Accounts. It is neceſſary to open an account for every perſon or company with whom there are any dealings on credit. At opening the books, if they be indebted to the owner, the debt is entered on the Dr.; but, if he be indebted to them, it is entered on the Cr. During the courſe of the buſineſs, goods ſold on truſt, money paid, and every thing for which they are accountable to him, is entered on the Dr.; but goods bought on truſt, money received, and every thing for which he is accountable to them, is entered on the Cr. The balance ſhows how much they owe him, when the Dr. ſide is greateſt: and how much he owes them, when the Cr. ſide is greater.

7. Secondly, Real accounts. By this we underſtand accounts of property of whatever kind, ſuch as ready money, goods, houſes, lands, ſhips, ſhares in public companies, and the like.

The account of ready money is entitled *Caſh*. On the Dr. ſide, the money on hand at opening the books is entered, and afterwards every article of money received. On the Cr. ſide, there is entered every article of money paid out; and the balance ſhows how much ought to be on hand. The ſum of the Dr. ſide of this account is always greater than that of the Cr. ſide.

8. Accounts of goods are generally ruled with inner columns for entering the quantities. When the books are opened, the goods on hand are entered on the Dr. ſide of the reſpective accounts; the quantities being placed in the inner, and the values in the outer column. Goods bought are entered in the ſame manner, and goods ſold are entered on the Cr. ſide; the quantities and values being placed in the proper columns. Charges laid out on goods are entered on the Dr. ſide; and, when an incidental advantage ariſes from them, ſuch as public bounty, it is entered on the Cr.

If the ſums of the inner columns on the oppoſite ſides be equal, it ſhows that the goods are all ſold, and then the balance of the money-column ſhows the gain or loſs. If the Cr. ſide be greater, it is gain: if the Dr. ſide be greater, it is loſs. If the ſum of the inner column be greater on the Dr. ſide, it ſhows that part of the goods are on hand; and their value muſt be added to the ſum of the Cr. ſide, in order to determine the gain or loſs.

9. If there be two or more kinds of the ſame ſort of goods, they may be entered in the ſame account, allowing as many inner columns as there are kinds, and entering the quantities of each kind in the inner column reſerved for it. This method exhibits the gain or loſs on the whole goods; but does not ſhow how much of it ariſes from each kind.

Or,

Leger. Or, a ſeparate account may be opened for each kind, diſtinguiſhing the titles by the qualities, or by ſome other mark. Thus, one account may be kept for fine linen, another for coarſe linen; one for port-wine crop 1787, another for port-wine crop 1788; one for rum from Jamaica, another for rum from Barbadoes. This method ſhows the gain or loſs on each kind.

When there are more kinds than can be conveniently introduced in the ſame account, they may be divided into ſeveral claſſes, each claſs being placed in a ſeparate account; and the particular kinds diſtinguiſhed in inner columns. Thus the account of fine linen may be divided into ſeveral columns, for different kinds, diſtinguiſhed by the number of threads in the breadth, or by any other convenient character.

10. Accounts of ſhips contain on the Dr. the value of the ſhip when the books are opened, and all expences laid out thereon; on the Cr. all freights received. In like manner, accounts of houſes or lands have the value of the ſubject, and all repairs, or other charges, entered on the Dr. and all rents or other profits received on the Cr. If the ſubject be ſold in whole or in part, the ſale is entered on the Cr. And the balance after valuing the ſubject (if any) on hand, ſhows the gain or loſs.

Accounts of property in the public funds, or ſhares in companies, public or private, contain the value, or money paid in, on the Dr. and the dividends received on the Cr. and are balanced as other real accounts.

Some perſons open accounts for houſehold furniture, plate, jewels, books, or the like. The entries on theſe accounts are made in the ſame manner.

In general, real accounts contain the value of the property, and all charges, on the Dr. and the ſales and other returns on the Cr. When the account is to be balanced, if any property remains, the value thereof is placed on the Cr.; and then the balance ſhows the loſs or gain, according as the Dr. or Cr. ſide is greateſt.

11. Thirdly, Accounts of STOCK, PROFIT and LOSS, and its ſubſidiary accounts, which are ſometimes called *fictitious accounts*.

The *ſtock* account contains on the Dr. the amount of the debts which the owner owes when the books are opened; and on the Cr. the amount of ready money, goods, debts, and property of every kind belonging to him: therefore the balance ſhows what his nett ſtock is; or, in caſe of bankruptcy, how much his debts exceed his effects. There is nothing further entered on this account till the books are balanced: and then, if the buſineſs has yielded profit, the nett gain is entered on the Cr.; if it has been unſucceſsful, the nett loſs is entered on the Dr: after which, the balance ſhows the nett ſtock at the time the books are cloſed.

12. The *Profit and Loſs* account contains every article of gain on the Cr. and every article of loſs on the Dr. The balance ſhows the nett gain or loſs, and is transferred to the proper ſide of the ſtock-account, as mentioned above. This account is partly compoſed of articles that occur while the books are running. For example, legacies received are entered on the Cr. goods deſtroyed on the Dr. The reſt of the articles are thoſe of gain and loſs, ariſing from the real accounts, which are collected when the books are balanced. Leger.

13. It has been found convenient to open ſeveral ſubſidiary accounts, in order to ſhorten and methodize that of profit and loſs. Theſe contain certain articles of gain or loſs, which may be reduced under diſtinct heads. They are in effect ſo many parts of the profit and loſs account, and their balances are entered on the proper ſide of that account when the books are cloſed. The chief of theſe accounts are the following.

Intereſt account, Which contains on the Dr. ſums paid or incurred for intereſt; and on the Cr. ſums received, or become due for the ſame.

Commiſſion account, Which contains on the Cr. articles of gain received or owing us for our trouble in tranſacting buſineſs for others. There are ſeldom any entries on the Dr.

Charges merchandiſe, Which contains on the Dr. all charges paid or incurred on the buſineſs, which do not belong to any particular account, as ſhop-rent, public burdens for trade, clerks wages, poſtages, and the like. If any of theſe ſhould afterwards be charged to ſome other account, the ſum ſo charged is entered on the Cr.

Proper expences, Which contains on the Dr. money or any thing elſe, withdrawn from the trade for our private uſe. There are ſeldom any entries on the Cr. The amount of this account, as well as the former, is not properly loſs; but as it has the ſame effect in diminiſhing the ſtock, it is placed in the ſame effect in diminiſhing the ſtock, it is placed in the ſame manner to the Dr. of profit and loſs.

Loſs by bad debts, Which contains on the Dr. ſuch debts as we reckon deſperate; and on the Cr. any of theſe which may happen to be unexpectedly recovered.

Account of abatements, Which contains on the Dr. diſcounts allowed by us on payments received; on the Cr. diſcounts (if any) allowed to us on payments made. It is particularly uſeful in retail buſineſs, where diſcounts are often given, to ſhow how much they amount to.

Inſurance account, Which contains on the Cr. premiums received for making inſurances; and, on the Dr. loſſes ſuſtained on the ſame. There may be ſeveral accounts of this kind, ſuch as inſurance againſt ſea-hazard, which is the moſt common; inſurance againſt fire; inſurance of lives; and inſurance of debts. The balance ſhows the gain or loſs which ariſes from being concerned in inſurance.

More or fewer of theſe accounts may be uſed, according as the articles are frequent; and others may be invented to ſuit the purpoſes of the buſineſs which the books are kept for.

14. Every ſimple tranſaction in buſineſs belongs to two accounts, and muſt be entered on the Dr. of the on and on the Cr. of the other. Thus, when a perſon becomes indebted to us, the article he owes muſt be entered on the Dr. of his account; and, if it be for money paid him, it is alſo entered on the Cr. of caſh; if for goods ſold, it is entered on the Cr. of the account of goods; if for any thing delivered him by another perſon at our deſire, it is entered on the Cr. of the deliverer's account; if for any wager or bargain, by which we are gainers, it is entered on the Cr. of profit and

Leger. loſs. Thus, in whatever way the debt ariſes, it is entered on the Cr. of ſome other account, as well as on the Dr. of the perſon's account who owes it.

In like manner, when we become indebted to any perſon, the article we owe muſt be entered on the Cr. of his account. If it be for money received, it is alſo entered on the Dr. of caſh; if for goods bought, it is entered on the Dr. of the account of goods; if for any thing delivered to another perſon at our deſire, it is entered on the Dr. of the receiver's account; and if it be in conſequence of a loſing bargain, it is entered on the Dr. of profit and loſs.

Again, when goods are received, the tranſaction is entered on the Dr. of the account of goods. If they be bought for ready money, it is alſo entered on the Cr. of caſh; if on truſt, it is entered on the Cr. of the ſeller; if they be exchanged for other goods, it is entered on the Cr. of the goods delivered; if they be obtained by ſome profitable buſineſs, without any return, it is entered on the Cr. of profit and loſs.

When goods are delivered, the tranſaction is entered on the Cr. of the account of goods; and, if they be ſold for ready money, it is alſo entered on the Dr. of caſh; if on credit, it is entered on the Dr. of the purchaſer; if exchanged for other goods, it is entered on the Dr. of the goods received; and, if they be given gratis, or deſtroyed, it is entered on the Dr. of profit and loſs.

Laſtly, When any article of loſs occurs, the tranſaction is entered on the Dr. of profit and loſs; and as we muſt either pay it in money or goods, or remain indebted to ſome perſon for it, it muſt be entered on the Cr. of caſh, or of goods delivered, or of the perſon entitled to receive it. And, when an article of gain occurs, it is entered on the Cr. of profit and loſs, and alſo on the Dr. of caſh or goods, if money or goods be received; and on the Dr. of the perſon accountable for it, if not immediately paid.

Thus, every article in any account, whether perſonal or real, or belonging to profit and loſs, correſponds to ſome other article on the oppoſite of a different account. The ſame ſum is entered on the Dr. of one account and on the Cr. of the other; and it follows from this, that, *If all the accounts in the leger be added, the amount of the ſums of the Dr. will be equal to thoſe of the Cr.*

Sect. III. *Of the* Journal.

15. The journal is a fair record of all the tranſactions compiled from the waſte-book, in the ſame order as they ſtand there; but expreſſed in a technical ſtyle, that it may be transferred to the leger with more eaſe.

When we are to enter any article in the journal, we muſt conſider which accounts in the leger it will require to be placed to, both on the Dr. and Cr. and write [*the former account*] *Dr. to* [*the latter account*]; then we annex an explanation of the article, and place the ſum in the money-column.

Example.

Waſte-book) Sold for ready money, 30 yards linen, at 3s. L. 4 10 —

Journal.) *Caſh Dr. to Linen.* Sold 30 yards, at 3s. L. 4 10 — Journal.

Here we conſider, that the article muſt be entered on the Dr. of caſh, becauſe money is received; and on the Cr. of linen, becauſe linen is delivered: Therefore we write *Caſh Dr. to Linen*, to which we annex the nature of the tranſaction. The article thus entered is called a *journal-poſt*; *Caſh* is called the *Dr.*; *Linen* the *Cr.*; the words "Caſh Dr. to Linen," the *Entry*, and the following words the *Narration*.

The purpoſe of expreſſing the article in this form, is to point out the accounts in the leger, to which it will require to be poſted, and thereby enable the accountant to write the leger with more eaſe than he could do if it were filled up immediately from the waſte-book.

The learner will be able, from this example, to enter any ſimple article in the journal, providing he knows the accounts to which it ſhould be poſted on the Dr. and Cr. of the leger. This muſt be collected from the deſcription of the leger accounts already given §6—13. and the nature and tendency of the article.

16. General Rules *for the* Journal-entries.

I. *Every thing received, or perſon accountable to us, is* Dr.

II. *Every thing delivered, or perſon to whom we are accountable, is* Cr.

17. As the whole art of writing the journal depends on a proper choice of the Drs. and Crs. we ſhall give ſome particular rules for the moſt common caſes, and a few examples for the illuſtration and practice of each.

Rule I. *The perſon to whom any thing is delivered is* Dr. *to the thing delivered, when nothing is received in return.*

Therefore when money is paid, the receiver is Dr. to caſh.

When goods or other property is ſold on credit, the purchaſer is Dr. to the thing ſold. Thus,

Waſte-book.) Paid John Bell in full	L. 52 — —
Journal.) *John Bell Dr. to Caſh*, paid him in full	52 — —
Waſte-book.) Sold 50 yards cloth to J. Hill, at 12s.	30 — —
Journal.) *J. Hill Dr. to Cloth*, ſold him 50 yards, at 12s.	30 — —

18. Rule II. *A thing received is* Dr. *to the perſon from whom it is received, when nothing is delivered in return.*

Therefore, when money is received, Caſh is Dr. to the payer: when goods are bought, the goods are Dr. to the ſeller. Thus,

Waſte-book.) Received from Thomas Gay in full	L. 72 — —
Journal.) *Caſh Dr. to Thomas Gay*, received in full	72 — —

Waſte-book)

Journal. Waſte-book.) Bought from J. Hawley 60lb. wool, at 9d. 2 5 —
Journal.) *Wool Dr. to J. Hawley*, bought 60lb. at 9d. 2 5 —

19. Rule III. *A thing received is* Dr. *to the thing given for it.*

Therefore goods bought for ready money are Dr. to caſh.

When goods are ſold for ready money, Caſh is Dr. to the goods.

When goods are bartered, the goods received are Dr. to the goods delivered. Thus,

Waſte-book.) Bought for ready money 10hds. wine, at 15l. L. 150 — —
Journal.) *Wine Dr. to Caſh*, bought 10hds. at 15l. 150 — —
Waſte-book.) Sold for ready money 100 gallons rum, at 9s. 45 — —
Journal.) *Caſh Dr. to Rum*, ſold 100 gallons, at 9s. 45 — —
Waſte-book.) Bartered 3hds. wine, at 15l. for 100 gallons rum, at 9s. 45 — —
Journal.) *Rum Dr. to Wine*, received 100 gallons at 9s. in barter for 3hds. at 15l. 45 — —

20. Rule IV. *Goods and other real accounts are* Dr. *for all charges laid out on them. If money be laid out, they are* Dr. *to Caſh; if any thing elſe be delivered, they are* Dr. *to the thing delivered: if the charge be taken in truſt, they are* Dr. *to the perſon to whom it is due.* Thus,

Waſte-book.) Paid for repairs to ſhip Traffick L18 — —
Journal.) *Ship Traffick Dr. to Caſh*, paid for repairs. 18 — —
Waſte-book.) Delivered wood from my timber-yard for repairing the Angel-tavern. 15 — —
Journal.) *Angel Tavern Dr. to Wood*, delivered for repairing the ſame 15 — —
Waſte-Book.) Due to William Carpenter for repairs to the Angel-tavern 12 — —
Journal.) *Angel-tavern Dr. to William Carpenter*, due him for repairs 12 — —

21. Rule V. *When rents of houſes or lands, freights of ſhips, bounties on goods, or any other profits from real accounts, are received, Caſh is* Dr. *to the account from which the profit ariſes: if any thing beſides money be received, the article received is* Dr.: *if they remain unpaid, the perſon who owes them is* Dr. Thus,

Waſte-book.) Received freight of the ſhip Traffick for a voyage to London L.35 — —
Journal.) *Ship Traffick Dr. to Caſh*, received freight to London 35 — —
Waſte-book.) Received 100 barrels ſalmon, being the rent of Inver fiſhery, at 52s. 260 — —
Journal.) *Salmon Dr. to Inver fiſhery*, received the rent, being 100 barrels, at 52s. 260 — —

Waſte-book.) John Public owes me a year's rent of the Angel-tavern L.52 — — Journal.
Journal.) *John Public Dr. to Angel-tavern*, for a year's rent due by him 52 — —

22. Rule VI. *When an article of loſs occurs, Profit and Loſs, or ſome ſubſidiary account, is* Dr. *If the loſs be paid in ready money, it is* Dr. *to Caſh; if it be paid in any thing elſe, it is* Dr. *to the thing delivered. If it remain unpaid, it is* Dr. *to the perſon to whom it is owing.* Thus,

Waſte-book.) Given my daughter at her marriage. L. 500 — —
Journal.) *Profit and Loſs Dr. to Caſh*, given my daughter at her marriage 500 — —
Waſte-book.) Taken for family uſe from my granary 3 bolls meal, at 13s 4d. 2 — —
Journal.) *Profit and Loſs* [or *Proper expences*] *Dr. to Meal*, taken for family uſe, 3 bolls, at 13s. 4d. 2 — —
Waſte-book.) Due James Rich for a year's intereſt on 1000l. at 4 per. cent. 40 — —
Journal.) *Profit and Loſs* [or *Intereſt account*] *Dr. to James Rich*, due him a year's intereſt on 1000l. at 4 per cent. 40 — —

23. Rule VII. *When an article of gain occurs, that is not immediately connected with any real account, Caſh, the article received, or the perſon accountable for it, is* Dr. *to Profit and Loſs, or to ſome ſubſidiary account.* Thus,

Waſte-book.) Received in a gift from my father L. 100 — —
Journal.) *Caſh Dr. to Profit and Loſs*, received from my father 100 — —
Waſte-book.) Received in like manner at opening ſhop, 100 yards cloth at 12s 60 — —
Journal.) *Cloth Dr. to Profit and Loſs*, received from my father at opening ſhop 100 yards, at 12s 60 — —
Waſte-book.) James Barbour owes me a year's intereſt of L.1000 50 — —
Journal.) *James Barbour Dr. to Profit and Loſs* [or *Intereſt account*] due by him for a year's intereſt of 1000l. 50 — —

24. Rule VIII. *When one perſon pays money, or delivers any thing elſe to another on our account, the perſon who receives it is* Dr. *to the perſon who pays it.* Thus,

Waſte-book.) James Goldſmith has paid the bank of Scotland on my account, L. 100 — —
Journal.) *Bank of Scotland Dr. to James Goldſmith*, paid them by him 100 — —
Waſte-book.) Arthur Young has delivered James Baker 100 quarters wheat, for which I am to account to him, at 30s 150 — —
Journal.) *James Baker Dr. to Arthur Young*, for 100 quarters of wheat delivered him on my account, at 30s 150 — —

Payments of this kind are often tranſacted by bills of exchange.

25. Theſe

Journal.

25. These examples will make the learner acquainted with the form of the journal, and the rules extend to the greatest part of the simple transactions that occur in domestic trade. We may observe, that the technical sense of the words *Dr.* and *Cr.* has an analogy to their meaning in common language, but is not precisely the same. Thus, in *Ex.* 1. Rule VIII. the journal entry is, *Bank of Scotland Dr. to James Goldsmith;* by which we are not to understand that the bank is indebted to James Goldsmith; for a debt between them has no connection with our business; and therefore ought not to be entered in our books: the meaning of the entry is, that the bank becomes indebted to us by the transactions narrated; and that we become indebted to James Goldsmith by the same.

26. An article which contains more Drs. or more Crs. than one, is called a *complex post*. The form of these will appear from the following examples.

Ex. 1.] Sold William Drapier,
25 pieces cloth, at 15l.
per piece L. 375 — —
130 stones wool, at 5s 6d
per stone 35 15 —
L. 410 15 —

If the two articles sold to William Drapier were entered separately in the Waste-book, and transferred to the Journal by Rule I. they would stand thus:

William Draper Dr. to Cloth, sold him
25 pieces, at 15l. L. 375 — —
William Drapier Dr. to Wool, sold him
150 stones, at 5s 6d 35 15 —

And if these were posted to the leger, there would be two articles placed to the Dr. of William Drapier, one to the Cr. of Cloth, and one to the Cr. of Wool.

But the sales may be entered in the form of one complex journal post, as follows:

William Drapier Dr. to Sundries,
To Cloth, for 25 pieces,
at 15l. - L. 375 — —
To Wool, for 130 stones,
at 5s 6d - 35 15 —
L410 15 —

And then there is only one article on the Dr. of William Drapier in the leger.

Ex. 2.] Sold 10 pieces cloth to W. Drapier,
at 15l. L. 150 — —
12 ditto to J.
Mercer, at do. 180 — —
— L. 330 — —
22

This example also falls under Rule I. But whereas there was one Dr. and two Crs. in the former example, there are two Drs. and one Cr. in this: William Drapier and John Mercer, the purchasers, are Drs. for their respective quantities; and cloth, which is the only thing delivered, is Cr. for the whole quantity. The journal post is,

Journal.

Sundries Drs. to Cloth,
W. Drapier, for 10 pieces, at 15l.
L. 150 — —
J. Mercer, for 12 ditto at 15l. 180 — —
— L. 330 — —
22

Ex. 3.] Bought from H. Hood,
5 puncheons rum, at 42l. L. 210 — —
3 hds. claret, at 33, 99 — —
2 pipes madeira, at 56, 112 — —
L. 421 — —

This example falls under Rule II. The articles received, rum, claret, and madeira, are Drs.; and the person from whom they are received is the only Cr.

Sundries Dr. to Henry Hood,
Rum, for 5 puncheons, at 42l. L. 210 — —
Claret, for 3 hds, at 33, 99 — —
Madeira, for 2 pipes, at 56, 112 — —
L. 421 — —

Ex. 4.] Bt. 50 qrs. wheat from J.
Tull, at 35s. L. 87 10 —
12 from S. Ellis, 36s. 21 12 —
— L. 109 2 —

This example also falls under Rule II. There is only one Dr. wheat being the only thing received; and two Crs. because it is received from different persons.

Wheat Dr. to Sundries.
To *J. Tull*, for 50 qrs. at 35s. L. 87 10 —
To *E. Ellis*, for 12 qrs. at 36s. 21 12 —
— L. 109 2 —
62

In like manner, examples might be given of complex posts under every rule, which contained either several Drs. or several Crs.; but as it is unnecessary to enlarge so far, we shall only add a few examples of cases, in which the different parts of the complex article fall under different rules.

Ex. 5.] Sold 150 qrs. beans to A. Arnot,
at 13s. 4d. L. 100 — —
75 ditto to S. Berry,
at 13s. 4d. 50 — —
18 ditto for ready
money, 13s. 2d. 11 17 —
243 L. 161 17 —

Here beans are delivered, some to different purchasers on trust, and some for ready money. The purchasers are Drs. for the quantity sold to each, by Rule I.; Cash is Cr. for the quantity sold for ready money, by Rule III.; and beans are Cr. for the whole.

Sundries Dr. to Beans.
A. Arnot for 150 qrs. at 13s. 4d. L. 100 — —
S. Berry, for 75 13s. 4d. 50 — —
Cash, for 18 13s. 2d. 11 17 —
L. 161 17 —

Ex.

Journal.

Ex. 6.] Bought from David Young 8 cwt. 3 qrs. copper, at 12l. per cwt. L. 105 —

Paid in part,	L. 50 — —	
Balance,	55 — —	
		L. 105 — —

Here the article received, copper, is the only Dr.; but as it is bought partly for ready money, and partly on credit, it is Dr. to Caſh for the value of the former, by Rule III. and to the ſeller for the value of the latter, by Rule II.

Copper Dr. to Sundries.

For 8 cwt. 3 qrs. at 12l. per cwt. -	L. 105 — —	
To Caſh in part,	L. 50 — —	
To D. Young, for balance due him,	55 — —	
		L. 105 — —

Ex. 7.] James Wilſon being bankrupt, I have accepted a compoſition on the debt due by him to me of 150l. and diſcharged the ſame.

The compoſition received, at 15s. per L. is,	L. 112 10 —	
And the balance loſt	37 10 —	
		L. 150 — —

Here the whole debt of 150l. due by James Wilſon, is cancelled; and he muſt therefore be ſtated as Cr. for that ſum. Caſh is Dr. for the ſum received, by Rule II.; and Profit and Loſs, or Loſs by bad debts, for the reſt, by Rule VI.

Sundries Dr. to James Wilſon,

Caſh, for compt, on 150l. at 15s. per L.	L. 112 10 —	
Profit and Loſs, for balance loſt	37 10 —	
		L. 150 — —

Ex. 8.] Shipped for William Smith, per the Bonadventure, Forbes, from Leith to London.

1000 yds linen, at 1s 2d	L. 58 6 8	
600lb. leather, bought from J. Currier, at 1s.	30 — —	
Paid charges at ſhipping	— 13 4	
		L. 89 — —

Here William Smith is Dr. for the amount of the cargo; he is debtor to linen for the quantity delivered, as by Rule I. and to J. Currier for the leather delivered by him, by Rule VIII. and to caſh for the charges paid by us, by Rule I.

William Smith Dr. to Sundries,

To Linen, for 1000 yards, at 1s. 2d.	L. 58 6 8	
To J. Currier, for 600lb. leather at 1s.	30 — —	
To Caſh, for charges at ſhipping	— 13 4	
Shipped per the Bonadventure, Forbes, from Leith to London.		L. 89 — —

27. The learner may be aſſiſted in underſtanding theſe and other complex poſts, by reſolving them into ſimple ones. Moſt of them might have been ſtated in that manner; and the complex form is only preferred for abridging the leger. In ſome articles the different claſſes are ſo connected, that they cannot be ſeparated with propriety. Journal.

The narration is ſometimes equally diffuſed through the poſt, after the Dr. and Cr. as in the five firſt examples. Sometimes the chief circumſtances are narrated before the Drs. or Crs. be ſpecified, as in Ex. 6.; ſometimes after the firſt, as in Ex. 7.; and ſometimes at the end, as in Ex. 8.

28. In ſome articles, there are both more Drs. and more Crs. than one. Theſe may be entered in one journal-poſt, *Sundries Dr. to Sundries*, ſpecifying firſt the Drs. and then the Crs. But, as this method is ſomewhat confuſed, we would recommend it as a better way to divide the tranſaction into two journal-poſts; ſo that the firſt may contain only one Dr. and the ſecond only one Cr.

Ex. Bartered with James Fotheringal 100 pieces oſnaburghs, at 12s. L. 60 — —
100lb. thread, at 3s. 6d. 17 10 —
L. 77 10 —

For 10 hds. linſeed, at 50s. L. 25 — —
500 yds. linen, at 1s. 6d. 37 10 —
And received the balance in money 15 — —
L. 77 10 —

JOURNAL. *Sundries Dr. to Sundries.*

Lintſeed, for 10 hds. at 50s	L 25 — —	
Linen, for 500 yds, at 1s 6d	37 10 —	
Received in barter from J. Fotheringal		
Caſh, for balance	15 — —	
	L. 77 10 —	
To Oſnaburgs, for 100 pieces, at 12s	L. 60 — —	
To Thread, for 100 lb at 3s 6d	17 10 —	
Delivered him in barter		L. 77 10 —

Or rather,

Sundries Dr. to James Fotheringal.

Lintſeed, for 10 hds at 5s	L. 25 — —	
Linen, for 500 yds, at 1s 6d	37 10 —	
Received in barter		
Caſh, received balance	15 — —	
		L. 77 10 —

James Fotheringal Dr. to Sundries.

To Oſnaburgs, for 100 pieces, at 12s	L. 60 — —	
To Thread, for 100 lb. at 3s 6d	17 10 —	
Delivered in barter		L. 77 10 —

29. It is neither practicable nor neceſſary to enumerate all kinds of complex poſts that may occur in buſineſs. We ſhall here only mention the entries which occur at opening the books.

The firſt journal poſt contains the ſubſtance of the inventory. The entry is *Sundries Drs. to Stock*; the particular Drs. are Caſh, the different kinds of goods and other property belonging to us, and the perſons indebted to us.

The

Posting and Balancing the Leger.

The second journal-poſt contains the debts due by us. The entry is, *Stock Dr. to Sundries;* the particular Crs. are the perſons to whom we are indebted.

The form of theſe entries is more fully exhibited at the beginning of the following ſets.

30. The journal ſhould be written by one perſon, in a fair hand and at leiſure hours. The articles are ſeparated, and the titles and dates marked in the ſame manner as in the waſte-book, § 3. The entries are written in half text, for ornament and diſtinction. In the inventory, the deſignation (or the buſineſs, ſtation, and the place of reſidence) of every perſon is mentioned; and the ſame is done the firſt time that any name occurs in journal-entry. At other times it is ſufficient to enter the name without the deſignation, unleſs we have dealings with two perſons of the ſame name; in which caſe, it is always neceſſary to annex the deſignation, in order to diſtinguiſh them. The narration ſhould be complete, without referring to the waſte-book; and ſo clear, that every perſon, acquainted with the ſtyle of the journal, may underſtand it with eaſe. When the poſt is written, we mark a daſh / againſt the article, on the margin of the waſte-book, to ſhow how far the writing of the journal is advanced.

Sect. IV. *Of* Posting *and* Balancing *the* Leger.

31. The firſt thing to be done in the leger, is to allot a proper ſpace for each account. The accounts may be either opened in the ſame order that they occur in the journal; or accounts of the ſame kind may be placed together, the perſonal accounts in one part of the leger, and the real accounts in another. The accounts of Stock and Profit and Loſs are generally placed at the beginning. The room which each will require cannot be exactly known, but muſt be conjectured from the number of tranſactions that are likely to follow.

The number of the folio is marked in ſtrong text at each corner of the top-line; and the titles of the accounts are written in fair text through both folios, if neceſſary. The deſignations of the perſonal accounts may be written in half text, or Italian hand: and ſome write the titles in Saxon hand for ornament. The word *Dr.* is prefixed to the title on the left-hand page; and *Contra Cr.* annexed to it on the right-hand page.

32. Next, An Index muſt be provided, for pointing out the folios where the accounts are opened. The titles of the accounts are entered alphabetically in the index, and the number of the folio annexed. Perſonal accounts are entered by the firſt letter of the ſurname; companies, by the firſt letter of the ſurname of the firſt partner; and all other accounts by the firſt letter of the firſt word. The moſt convenient kind of index is a long narrow book, of 24 leaves, one for each letter of the alphabet. A is marked on the top of the firſt leaf, and the paper pared away below it; B is marked on the ſecond leaf, under A; and the other letters on the following leaves, in the ſame manner; by means of which we can turn at once to any letter required.

33. In poſting the leger, proceed by the following directions. Firſt, look for the Dr. of the journal-poſt in the index, under the proper letter, and this directs you to the folio of the leger where the account is, if it be already opened: if not, you muſt allot a ſpace for it, write the title, and enter it in the index. Then enter the article on the left-hand page of the account under the title of the former article, by writing the date on the margin, and the name of the creditor on the line, with the word *To* prefixed, and a ſhort narration of the tranſaction annexed, and inſerting the ſum in the money column, and the quantity, if it be an account of goods, in the inner column. Then turn to the account of the Cr. of the journal-poſt, and enter the article in the right-hand page, prefixing the word *By* to the name of the Dr.

Posting and Balancing the Leger.

34. This being done, turn to the journal, and mark on the margin the number of the folios to which the article is poſted. The figures which point out the reference to the Dr. and Cr. folios ſhould be ſeparated by a line: for example, If the Dr. entry be on the third folio, and the Cr. entry on the fifth, the reference is marked $\frac{3}{5}$. Theſe figures ſhow how far the poſting is advanced, and are uſeful in comparing the books.

The figures for dates or references ſhould be written in a lighter hand than the figures in the columns for money or quantity.

35. There is often a reference-column ruled in the leger, for pointing out the other entry, correſponding to any article. In this column, the folio of the Cr. entry is marked againſt the Dr. article, and the folio of the Dr. entry againſt the Cr. article.

Sometimes the accounts are numbered according to their order in the leger; and the references, both in the journal and leger, point out the number of the account inſtead of the folio.

36. In complex poſts turn to the ſeveral Drs. or Crs. in their order, and enter the articles according to the foregoing directions; placing the ſums belonging to each in the money-column againſt their reſpective entries.

37. An article in the leger is generally comprehended in one line. The narration ſhould be as full as can be contained in that bounds. If it cannot be narrated completely, the journal is referred to for further particulars, by writing *per Journal*, (or *p. J.*), either after an incomplete narration, or immediately after the Dr. or Cr. when there is no room for a proper narration. In complex poſts there can ſeldom be any narration annexed to the ſingle Dr. or the ſingle Cr. The entry is generally *To Sundries per J.* or, *By Sundries per J.* If the ſenſe of the whole article can be narrated, it ſhould be done; but it is improper to narrate the firſt or any other part of the article, and omit the others.

38. When the ſpace allotted for an account in the leger is filled up, the account muſt be tranſported to another folio. For this purpoſe add the columns on both ſides, and write againſt the ſum, *Tranſported to folio* , inſerting the number of the folio where the new account is opened, in the reference column, or on the line, if no reference-column be uſed. Then, after titling the new account, and entering the number of the folio in the index, write on the Dr. *To amount, brought from folio* , inſerting the number of the folio

Posting and Balancing the Leger.

lio where the old account was; and on the Cr. *By amount, brought from folio ;* and place the ſums and quantities, if any, in the proper columns.

When either ſide of an account is full, both ſides ſhould be tranſported, and diagonal lines drawn, to fill up the vacant ſpace of the ſide which requires it.

39. The books ſhould be written up as frequently as can be done conveniently; ſo that the journal may keep pace nearly with the waſte-book, and the leger with the journal. Each book ſhould be carefully reviſed, and compared with the book from which it is poſted. In comparing the leger, obſerve the following directions:

Begin with the firſt journal poſt, and turn to the folio of the leger where the Dr. is entered, which you are directed to by the marginal reference, and compare the date, entry, and ſum. If you find them to correſpond, it is well; if not, the leger muſt be altered till it correſpond with the journal. Then place a dot before the reference-figure in the journal, and a mark Λ before the ſum in the leger.

Proceed in the ſame manner to compare the Cr. of the journal-poſt, and all the following poſts in their order. The dots in the journal ſhow how far the compariſon is advanced, and the marks in the leger ſhow what articles are compared.

The ſums of accounts tranſported ſhould be left blank till the books be compared; as an error in any article will occaſion an alteration in the ſum.

40. Some accountants correct all errors in the leger, without erazing any thing, by the following methods: 1ſt, If the ſum be entered too ſmall, they make a ſecond entry for the deficiency. 2d, If it be entered too large, they make an entry on the oppoſite ſide for the exceſs. 3d, If it be entered on the wrong ſide of the account, they enter it twice on the other; once, to counterbalance the error, and a ſecond time for the true entry. 4th, If it be entered on a wrong account, they charge the wrong account Dr. to, or Cr. by, the right one.

41. We do not much approve of theſe methods, as they give the books a confuſed appearance; and would rather recommend the following rules: 1ſt, If an article be omitted, do not attempt to interline at the place where it ſhould have been; but inſert it under the laſt article when you diſcover the omiſſion, and mark a croſs × againſt it on the margin, and another at the place where it ſhould have been. 2d, If you diſcover a miſtake immediately when committed, correct it without cancelling any thing, as in this example. *To Caſh, ſay, To James Speirs received to account.* 3d, If you have written a line entirely wrong, or in a wrong place, write the word *Error* at the end, prefix a croſs, and omit or cancel the ſum. 4th, Cancel errors, by drawing a line lightly through them, ſo that the old writing may ſtill be legible; by which it will be evident, that the book has not been vitiated for a fraudulent purpoſe. The ſame method ſhould be followed in correcting errors in the journal.

42. When the compariſon of the books is finiſhed, glance over the leger, to obſerve if the mark of compariſon be affixed to every article. If not, you muſt turn to the journal, and obſerve if the articles be right which had been marked.

43. Becauſe the whole ſum of the Dr. ſide of the leger ſhould be equal to the whole ſum of the Cr. it is proper to try if they correſpond. For this purpoſe, you may add the Dr. of every account, except ſuch as are already balanced, placing the ſums in an inner column, and extending them at the end of one or more folios, as you find moſt convenient, to the outer column; and as you go along, add the Cr. in the ſame manner. If the ſum total of both ſides be equal, it gives a preſumption that the books are right; if they differ, there is certainly ſome miſtake. This is called the *Trial-balance*. The labour beſtowed upon it is not loſt, as the ſums may be reſerved for aſſiſting us to collect the balances; the method of which will be explained afterwards. § 14.

Posting and Balancing the Leger.

44. If the ſums of the trial-balance do not correſpond, the books muſt be examined again. For this purpoſe, begin with the firſt article on the Dr. ſide of the firſt account, and turn to the account where the correſponding entry is, which you will find by the figure in the reference-column. If the articles agree, mark them with a dot. Proceed in like manner with the other articles on the Dr. of the firſt account; then with the articles on the Cr. of the ſame; and then with the following accounts in their order, till the error or errors be diſcovered. In complex entries, obſerve if the amount of the ſums on one ſide be equal to the ſum on the other. When you come to a dotted article, you may paſs it by, becauſe it has been examined already.

If the errors be not diſcovered at the firſt reviſal, you muſt repeat the ſame operation again, till you bring the books to balance. Marks different from the former ones, or differently placed, may be uſed, to ſignify that an article has been examined a ſecond or third time. As the detection of errors is the moſt tedious and diſagreeable part of book-keeping, the accountant will be induced to guard againſt them with all poſſible care, when he has once experienced the trouble which they occaſion.

45. Before we explain the method of balancing the books, it will be proper to direct the learner how to balance particular accounts. When we ſettle accounts with any perſon, and aſcertain how much is owing at either hand, it is neceſſary to balance his account in the leger, and open a new one, beginning with the ſum that was due according to the ſettlement; and when we clear accounts again, we muſt go back to that article, and no farther.

If any articles be charged on either ſide, at the time of ſettling, they muſt be immediately entered on the waſte-book; from which they will paſs in courſe to the journal and leger; and a remark muſt be entered in the waſte-book, that the account was ſettled, and the balance transferred to the proper ſide of the new account. This remark is tranſcribed in the journal; and the leger account is balanced, when it occurs, in the courſe of poſting.

If the balance be due to you, write on the Cr. *By balance due to him to Dr. new account*, and inſert the ſum due you; after which, the amount of both ſides will be equal. Add the account, placing the ſums oppoſite to each other; and, if the ſides be unequal, draw a diagonal line through the vacant ſpace of the ſhorter ſide, and cloſe the old account by drawing lines under the ſums. Then open the new account immediately

Posting and Balancing the Leger.

diately under the old one, or in a new folio, if the old one be full, by writing on the Dr. *To balance of former account due by him.* If the balance be due by you to him, the entries are made on the oppoſite ſides, with the neceſſary alterations. When the new account is opened in the ſame folio, it is unneceſſary to repeat the title; but the year and month, as well as the day, are repeated at the date of the firſt article.

46. Sometimes when an account is balanced, one or more articles are left out on purpoſe: For example, goods lately bought on credit may be left out, and the ſettlement may only relate to articles of longer ſtanding. When this is the caſe, if the articles omitted be on the Dr. of the leger, we write on the Cr. thus, *By articles ſold him ſince 1ſt January replaced:* and when we have balanced the account, and opened a new one, we write on the Dr. *To articles replaced at ſettling, furniſhed ſince 1ſt January:* or, if the articles were left out for any other reaſon, we explain the ſame in the narration. If the omitted articles be on the Cr. the like entries are made on the oppoſite ſides. It ſhould be noticed in the waſte-book and journal when this operation is neceſſary.

47. When we poſt any common article from the journal, we enter the ſum on the Dr. of one account, and on the Cr. of another: when we balance an account, we place the balance ſum on the Dr. of the old account, and on the Cr. of the new one, or contrarywiſe: and when we replace an article, as above directed, to the Dr. or Cr. of the old account, we place it after balancing to the Cr. or Dr. of the new one. Thus, in theſe entries, as well as in common poſts, there are like ſums entered on the Dr. and Cr. of the leger, and the general equality of the ſides is ſtill preſerved.

48. Merchants generally balance their books once a-year. The deſign of this operation is, to collect the various branches of their buſineſs, diffuſed through the books, into a conciſe abſtract; to aſcertain their gain or loſs ſince the laſt balance; and exhibit the preſent ſtate of their funds. If the buſineſs be of ſuch a kind, that moſt of the branches naturally come to an iſſue at a certain time of year, that time is the proper one for making the balance. Otherwiſe the end of the year, or the leaſt buſy time, may be choſen.

49. It is proper, before balancing, to ſettle as many perſonal accounts as poſſible; to clear all arrears and ſmall charges; to take an exact inventory of the goods on hand, as far as can be done; and affix a moderate value to each article, according to the current prices at the time; ſuch a value as you would be willing at preſent to buy for. It is more proper to value the goods on hand in conformity to the current prices, than at prime coſt; for the deſign of affixing any value is to point out the gain or loſs, and the gain is in reality obtained ſo ſoon as the prices riſe, or the loſs ſuffered ſo ſoon as they fall; therefore it is impoſſible to make up a juſt ſtate of the affairs, unleſs the preſent prices be attended to.

50. Theſe things being done, proceed to make the balance as follows: Prepare two ſheets of paper, ruled with money-columns, in the form of Dr. and Cr.; write *Profit and Loſs* as the title of the firſt, and *Balance* as the title of the ſecond.

Prepare alſo ſome paper for computing the balances, and mark down the folios, titles, and ſums of each account in the leger, in a regular order. If a trial-balance was made, the ſums may be tranſcribed from it. Paſs by ſuch accounts as are already cloſed; alſo the accounts of Stock and Profit and Loſs, which are always the laſt of being balanced. Then ſubtract the leſſer ſum from the greater, and enter the difference on either of the ſheets that the nature of the article points out, and on the ſide of that ſheet which correſponds to the greater ſum of the account. More particularly,

Posting and Balancing the Leger.

In perſonal accounts, enter the difference, which is the debt owing to you, or by you, on the proper ſide of the balance-ſheet.

In the caſh-account, enter the difference, which is the money in hand, on the Dr. ſide of the balance-ſheet.

In accounts of goods or other property, if there be nothing remaining on hand, enter the difference, which is the gain or loſs, on the proper ſide of the profit and loſs ſheet.

If the whole be ſtill on hand, enter the preſent value on the Dr. of the balance-ſheet; and, if this be different from the prime coſt, charges included, enter the difference in the proper ſide of the profit and loſs ſheet.

If part be ſold, and part on hand, place the value of the quantity on hand under the ſum of the Cr. and add them. The ſum is the whole return that will be obtained, if the reſt of the goods be ſold at the eſtimated value; and this, being compared with the ſum of the Dr. which is the whole expence, ſhows the gain or loſs. Enter the ſame in the proper ſide of the profit and loſs ſheet, and enter the quantity and value on hand on the Dr. of the balance-ſheet.

Obſerve if the quantities in the inner columns be equal on both ſides, when the goods are all ſold; or, if the difference, when only part is ſold, be equal to the quantity on hand. If they correſpond, you have a juſt account of the goods. If the Dr. be greater, there is ſomething amiſſing, which you muſt enter on the Dr. of the balance-ſheet, and mark the cauſe of the deficiency, as inlake, waſte, or the like. If the Cr. be greater, there is an exceſs, which you muſt enter on the Cr. of the balance-ſheet, together with the occaſion of it, as difference of meaſure, or the like.

In accounts ſubſidiary to profit and loſs, enter the difference on the proper ſide of the profit and loſs ſheet.

When there is nothing written on one ſide of an account, enter the ſum of the article or articles on that ſheet which the kind of the account points out.

51. When you have collected all the balances, ſum up both ſheets, and add to the profit and loſs ſheet the ſums of the profit and loſs account in the leger: then ſubtract the leſſer ſum of each ſheet from the greater.

This being done, mark the ſums of the ſtock-account on your computation paper, and add thereto the balance of the profit and loſs ſheet on the ſide which correſponds with the greater ſum of that account: then ſubtract the leſſer ſum from the greater. The remainder will be equal to the difference of the ſides of the balance-ſheet, if the books be right, and the balances exactly collected.

52. We ſhall prove that this equality muſt always hold,

Posting and Balancing the Leger.

hold, from the nature of the articles collected. The Dr. of the balance-sheet contains every kind of property belonging to you, and every debt owing to you; and the Cr. contains every debt owing by you: therefore the difference of the sides shows what your nett estate amounts to. The profit and loss sheets, when the articles from the leger are included, contain every thing you have gained on the Cr. and every thing you have lost on the Dr.; and the difference of the sides is your nett gain or loss. The stock-account contained your effects and debts at the time the books were opened; and therefore, when the gain or loss is added to the proper side, it must show the extent of your nett estate at present. Thus the stock-account and the balance-sheet both point out how much you are worth at present; the one from your former stock, allowance being made for your gains or losses; the other from a view of your present effects and debts; and they will correspond, because both must be agreeable to the truth, if the books be correct.

53. Though the books must balance, if free from error, yet it is sometimes difficult to adjust them exactly, especially when the business is extensive, and the errors trifling. If there be still a difference, which we do not think it worth while to make further search for, we may close the books, by making Profit and Loss Dr. or Cr. for the same. This introduces an article on one side of the leger, which has none corresponding to it on the other, but is balanced by some undiscovered error.

54. The balance being struck, your next work is to close the books. Every article in the leger should be posted from the journal; therefore, the most regular way of finishing both is by inserting the following articles in the journal, and posting them in the common manner to the leger.

1st, *Profit and Loss Dr. to Sundries, for loss, on the following accounts.* The particulars are taken from the Dr. of the Profit and Loss sheet.

2d, *Sundries Dr. to Profit and Loss, for gain, on the following accounts.* The particulars are taken from the Cr. of the Profit and Loss sheet.

3d, *Balance-account Dr. to Sundries, for debts and property belonging to me.*

4th, *Sundries Dr. to balance-accounnt, for debts due by me.* The particulars of this and the former are taken from the respective sides of the balance-sheet.

5th, *Profit and Loss Dr. to Stock for nett gain;* or *Stock Dr. to Profit and Loss, for nett loss.*

6th, *Balance-account Dr. to Stock for nett stock.*

55. When the four first of these articles are posted in the leger, all the personal, real, and subsidiary accounts will balance, and you may add them as you go along. In accounts of goods, if there be any deficiency, you must enter it on the Cr. in the inner column; and, if there be any outcome, you must enter it on the Dr. before you add the account. Then the sums of every account and every column on the opposite sides will be equal.

Posting and Balancing the Leger.

The only accounts that remain open are, *Profit and Loss, Stock, and Balance.* The fifth post balances the profit and loss account, and the sixth balances the stock-account. It was noticed, § 14. that the whole sums of Dr. and Cr. of the leger are equal; and therefore, if the sides of every account, except one, be balanced, that one will balance of its own accord. The balance-account alone remains open, and, upon trial, you will find that the sides are equal. This affords an additional proof, or, at least, a different view, of what was demonstrated, with respect to the balance of the books, in § 52.

The lines above and under the sums, at a general balance, may be drawn with red ink; and, at the balancing of particular accounts, with black ink, for distinction.

56. Some choose to insert the particulars of the profit and loss and balance sheets in the respective accounts of the leger. If this be done, it is unnecessary to enumerate them also in the journal.—Some choose to balance the accounts of goods, whenever the quantity is sold off; and we approve of this method, as it lessens the work at the general balance, which is always sufficiently laborious.

57. Thus is the state of a person's affairs brought together, in a short compass, under his view; and the articles of the balance-sheet supply materials for a new inventory. It is convenient, however, to alter the order, and arrange the real accounts together, and the personal ones together.

58. It is not necessary to begin new books, nor open the accounts anew, unless the old folios be full. The accounts may be continued in the former folios; but it is best to begin a new leger, if the old one be not likely to hold all the business of the next year. When one comes to have several sets of books, it is common to distinguish them by the letters of the alphabet. The first waste-book, journal, and leger, are marked A, the second, B; and so on.

In the following specimen, the waste-book and journal are placed on opposite pages, that the learner may easily compare them; and the rules are referred to by their numbers.

(1) WASTE-BOOK.

Edinburgh, JANUARY 1. 1789.

INVENTORY of ready money, goods, and debts, belonging to James Oſwald merchant in Edinburgh.

Ready money - -			L. 75	10	—
200 bolls meal, at 13s.	L. 130	—	—		
6 hds Port wine, at 15l.	90	—	—		
70 reams paper, at 10s. 6d.	36	15	—		
120 ſp. five hank yarn, at 2s. 3d. -	13	10	—		
			270	5	—
A houſe in Lawn-market Edin. value			300	—	—
James Boſwell merch. Edin. owes per account	L. 73	4	—		
Thomas Pirie writer Edin. owes per do.	12	3	8		
Henry Hardy merch. Glaſgow per bill	75	—	—		
David Miller manufacturer Haddington, per receipt	18	—	—		
			178	7	8
				824	2 8

§ 29

LIST of debts by the ſaid James Oſwald.

To the Royal bank per account	L. 230	—	—		
To Tho. Smith merchant London per do.	54	—	—		
To Will. Niſbet carpenter Leith per do.	28	7	3		
				312	7 3

§ 29

3.

Bought for ready money 105 yards calicoe, at 3s. 2d. — 16 12 6

Rule III.

Sold James Cuthbert merchant Leith 50 bolls meal, at 13s. 3d. - - - — 33 2 6

Rule I.

5.

Bartered 60 ſpindles five hank yarn, at 2s. 4d. for 80 yards diaper, at 1s. 9d. - — 7 — —

Rule III.

10.

Paid William Niſbet in full - - — 28 7 3

Rule I.

13.

Bought from Will. Bruce merchant Leith, 200 buſhels ſalt, at 1s. 8d. L. 16 13 4

320 ſtone iron, at 3s. 4d. 53 6 8

— 70 — —

Rule II.

15.

Sold 30 rms paper to Ja. Boſwell, at 12s L. 18 — —

12 to John Henderſon ſtationer Edinburgh, at 12s. 7 4 —

5 for ready money, at 11s. 2 15 —

47 — 27 19 —

Rules I. III.

19.

Sold Will. Hunter merchant Dunbar 150 buſh. ſalt, at 1s 9d L. 13 2 6

Received in part - L. 10 — —

And he owes the balance - 3 2 6

— 13 2 6

Rules I. III.

(1) JOURNAL.

Edinburgh, JANUARY 1. 1789.

Sundries Dr. to Stock for articles belonging to James Oſwald merchant Edinburgh.

.1	*Caſh* on hand - -			L. 75	10	—
.1	*Meal.* For 200 bolls at 13s	L. 130	—	—		
.1	*Port-wine.* For 6 hds at 15l.	90	—	—		
.2	*Paper.* For 70 rms, at 10s 6d	36	15	—		
.2	*Yarn.* For 120 ſp. five hank, at 2s 3d	13	10	—		
				270	5	—
.2	*Houſe in Lawn-market Edin.* value			300	—	—
.2	*Ja. Boſwell* mer. Ed. per ac.	L. 73	4	—		
.2	*Tho. Pirie* writer Ed. per do.	12	3	8		
.2	*Henry Hardie* merchant Glaſgow per bill -	75	—	—		
.2	*David Miller* manufacturer Haddington, per receipt	18	—	—		
.1				178	7	8
					824	2 8

.1 *Stock Dr. to Sundries.*

.2	*To Royal Bank* per account	L. 230	—	—	
.3	*To Tho. Smith* merch. London per acc.	54	—	—	
.3	*To Will. Niſbet* carpenter Leith per do.	28	7	3	
				312	7 3

3.

.3 *Calicoe Dr. to Caſh.* Bought 100 yards at 3s 2d — 16 12 6

.1

.3 *James Cuthbert* merchant Leith, *Dr. to Meal*, ſold

.1 50 bolls, at 13s 3d - - — 33 2 6

5.

.3 *Diaper Dr. to Yarn.* Delivered 60 ſp. five hank, in

.2 barter for 80 yards, at 1s 9d — 7 — —

10.

.3 *William Niſbet Dr. to Caſh.* Paid him in full — 28 7 3

.1

13.

Sundries Drs. to William Bruce merchant Leith.

.3	*Salt.* For 200 buſhels, at 1s 8d			L. 16	13	4
.3	*Iron.* For 320 ſtones, at 3s 4d			53	6	8
.3					70	— —

15.

Sundries Drs. to Paper.

.2	*James Boſwell. for*	30 rms, at 12s		L. 18	—	—
.4	*John Henderſon* ſtationer Edinburgh, for	12	12s	7	4	—
.1	*Caſh.* For	5	11s	2	15	—
.2		47			27	19 —

19.

Sundries Drs. to Salt, for 152 bſh. at 1s 9d L. 13 2 6

.1	*Caſh.* Received in part -		L. 10	—	—
.4	*William Hunter* merchant Dunbar, for balance due by him -		3	2	6
.3				12	2 6

Edinburgh,

(2) WASTE-BOOK.

Edinburgh, JANUARY 22. 1789.

Received from Henry Hardy in payment of his bill L.75 — —
And for intereſt on do 2 10 — 77 10 —

Rules II. VII.

Paid the Royal Bank - - 100 — —

Rule I.

26.

Bought from Alex. Sharp merch. Dundee 500 ſp. four hank yarn, at 1s 11d L.47 18 4
Paid him in part L.15 — —
And the balance due him is 32 18 4 47 18 4

Rules II. III.

30.

Received 150 bolls meal, at 13s 2d L.98:15s, in barter for 6 hds. Port wine, at L.16 L.96 — —
Paid the balance 2 15 — 98 15 —

Rule III.

Edinburgh, 2d FEBRUARY 1789.

Sold James Boſwell
48 buſh. ſalt, being the rem. at 1s 8½d L.4 2 —
60 ſp. five hank yarn, at 2s 3½d 6 17 6
100 ſtone iron, at 3s 4½d 16 17 6 27 17 —

Rule I.

3.

Received from James Cuthbert in part 30 — —

Rule II.

10.

Bartered 22 reams paper, at 12s L.13 4 —
30 bolls meal, at 13s 6d 20 5 —
L.33 9 —
For 334½ ſp. four hank yarn, at 2s 33 9 —

Rule III.

Taken for the uſe of my ſhop the remaining ream paper, value — 10 6

Rule VI.

16.

Received from William Hunter in full L.3 2 6
from James Boſwell in part 70 — — 73 2 6

Rule II.

Paid the Royal Bank 100 — —

Rule I.

19.

Bartered 100 yards calicoes, at 3s 6d L.17:10

For one hd. Port-wine L.14 10 —
Received the balance 3 — — 17 10 —

Rule III.

JOURNAL.

Edinburgh, JANUARY 22. 1789.

(2)

.1 *Caſh Dr. to Sundries.*
.2 *To Henry Hardy.* Rec. paym. of his bill L.75 — —
.1 *To Profit and Loſs.* Rec. intereſt on do. 2 10 — 77 10 —

.2 *Royal Bank Dr. to Caſh.* Paid them 100 — —
.2

26.

.2 *Yarn Dr. to Sundries*, for 500 ſpindles four hank, at 1s 11d L.47 18 4
.1 *To Caſh.* Paid in part L.15 — —
.4 *To Alex. Sharp* merch. Dundee for bal. 32 18 4 47 18 4

30.

.1 *Meal Dr. to Sund.* for 150 bolls, at 13s 2d L.98:15s
.1 *To Port-Wine.* For 6 hds. delivered in barter, L.16 L.96 — —
.1 *To Caſh.* Paid balance 2 15 — 98 15 —

Edinburgh, 2d FEBRUARY 1789.

.2 *James Boſwell Dr. to Sundries.*
.3 *To Salt*, for 48 buſh. being the rem. at 1s 8½d L.4 2 —
.2 *To Yarn*, for 60 ſp. five hank, at 2s 3½d 6 17 6
.3 *To Iron*, for 100 ſtones, at 3s 4½d 16 17 6 27 17 —

3.

.1 *Caſh Dr. to James Cuthbert.* Received in part 30 — —
.3

10.

.2 *Yarn Dr. to Sundries.* For 334½ ſp. four hank yarn, at 2s L.33:9s
.2 *To Paper.* For 22 reams delivered in barter, at 12s L.13 4 —
.1 *To Meal.* For 30 bolls, at 13s 6d 20 5 — 33 9 —

.4 *Charges Merchandiſe Dr. to Paper*, taken for the
.2 uſe of ſhop, 1 ream, value — 10 6

16.

.1 *Caſh Dr. to Sundries.*
.4 *To William Hunter.* Received in full L.3 2 6
.2 *To James Boſwell.* ——— in part 70 — — 73 2 6

.2 *Royal Bank Dr. to Caſh.* Paid them 100 — —
.1

19.

Sundries Drs. to Calicoes. For 100 yards delivered in barter, at 3s 6d L.17:10s
.1 *Port Wine.* For 1 hd. L.14 10 —
.1 *Caſh.* Received balance 3 — — 17 10 —
.3

Edinburgh,

(3) WASTE-BOOK.

Edinburgh, 19th FEBRUARY, 1789.

Sold 30 bolls meal for ready money, at 13s 8d L. 20 10 —
45 to Henry Hardy, 13s 10d 31 2 6
27 to William Hunter, at 13s 10d 18 13 6
52 to Baillie and Bell, Borrowſtownneſs, at 13s 10d 35 19 4
154 Rules I. III. 106 5 4

23.

Drawn on the Royal Bank Rule II. 120 — —

Paid William Bruce in part L. 50 — —
Alexander Sharp in full 32 18 4
And Tho. Smith's bill on me at ſight 35 — —
Rule I. 117 18 4

Edinburgh, 2d MARCH, 1789.

Paid charges and cellar-rent of ſalt L. 1 2 6
Charges and loft rent of meal 3 3 —
Rule IV. 4 5 6

4.

Received from Thomas Pirie in full L. 12 — —
Diſcounted him — 3 8
Rule II. VI. 12 3 8

5.

Sold James Dalton, Mancheſter
60 ſpindles four hank yarn, at 2s ¼d L. 6 1 3
300 do do at 1s 11¾d 29 13 9
360 Rule I. 35 15 —

12.

Received from Jan Jonkheer Rotterdam, 6 bags clover ſeed, qt. 200 lb. each, amount per invoice *f.* 312, at 22d per *f.* L. 28 12 —
Paid freight and charges 1 5 —
Rules II. IV. 29 17 —

17.

Bartered with James Boſwell 2 bags clover ſeed, at L.6, L.12 for 2 hds. lintſ. at 55s L. 5 10 —
Received in money 5 — —
And he owes the balance 1 10 —
Rules III. I. 12 — —

Paid Tho. Smith in full L 19 — —
And for intereſt 1 10 —
Rules I. IV. 20 10 —

21.

Sold 140 lb. clover-ſeed to John Scott farmer at Haugh-head, at 7½d L. 4 7 6
70 to James Cuthbert, at 7½d 2 3 9
120 for ready money, at 7¼d 3 12 6
330 Rules I. II. 10 3 9

JOURNAL.

Edinburgh, 19th FEBRUARY, 1789.

Sundries Drs. to Meal.
.1 *Caſh.* For 30 bolls, at 3s 8d L20 10 —
.2 *Henry Hardy.* For 45 13s 10d 31 2 6
.4 *William Hunter.* For 27 13s 10d 18 13 6
.4 *Baillie and Bell*, Borrowſtownneſs. For 52 13s 10d 35 19 4
.1 154 106 5 4

23.

.1 *Caſh Dr. to Royal Bank.* Drawn on them 120 — —
.2

Sundries Drs. to Caſh.
.3 *William Bruce.* Paid him in part L. 50 — —
.4 *Alex. Sharp.* Paid him in full 32 18 4
.1 *Tho. Smith.* Paid his bill on me at ſight 35 — —
117 18 4

Edinburgh, 2d MARCH, 1789.

Sundries Drs. to Caſh.
.3 *Salt.* Paid Charges and cellar-rent L. 1 2 6
.1 *Meal.* Paid charges and loft-rent 3 3 —
.1 4 5 6

4.

Sundries Drs. to Thomas Pirie.
.1 *Caſh.* Received in full L. 12 — —
.1 *Profit and Loſs.* Diſcounted him — 3 8
.2 12 3 8

4.

James Dalton, Mancheſter, *Dr. to Yarn.*
.4 For 60 ſp. four hank, at 2s ¼d L. 6 1 3
.2 And 300 do. at 1s 11¾d 29 13 9
360 35 15 —

12.

Clover-ſeed Dr. to Sundries.
.4 *To Jan Jonkheer*, for 6 bags, qt. 200 lb. each,
.4 is 1200 lb. amount per invoice, *f.* 312, at 22d L. 28 12 —
.1 *To Caſh.* Paid freight and charges 1 5 —
29 17 —

17.

Sundries Drs. to Clover-ſeed. For 2 bags, at 6l. L. 12 — —
.4 *Lint-ſeed*, for hds. recd. in bart. 55s 5 10 —
.1 *Caſh.* In part 5 — —
.4 *James Boſwell*, for balance 1 10 —
12 — —

Sundries Drs. to Caſh.
.3 *Thomas Smith.* Paid him in full L. 19 — —
.1 *Profit and Loſs.* Paid him intereſt 1 10 —
.1 20 10 —

21.

Sundries Drs. to Clover-ſeed.
.5 *John Scott*, farmer at Haugh-head, for 140 lb. at 7½d L. 4 7 6
.3 *James Cuthbert*, for 70 7½d 2 3 9
.1 *Caſh* for 120 7¼d 3 12 6
.4 330 10 3 9

(3)

Edinburgh,

(4) WASTE-BOOK.

Edinburgh, 24*th* MARCH, 1789.

James Boſwell has paid the Royal Bank on my acct 40 — —
Rule VIII.

25.

Bought from William Ainſlie merchant Alloa ⅓ ſhare of the ſhip Hazard, for 150 — —
Rule II.

28.

Sold Baillie and Bell,
150 ſtone Iron, at 3s 7d L. 26 17 6
1hd. Port-wine 15 5 —
42 2 6
Rule I.

Edinburgh, 2*d* APRIL, 1789.

Sold for ready money
50 yards diaper, at 1s 11d L. 4 15 10
30 bolls meal, at 13s 7d 20 7 6
1 hd. lint-ſeed 3 3 0
160 lb. clover-ſeed, at 7¼d 5 3 4
30 ſtone iron, at 3s 6½d 5 6 3
38 15 11
Rule III.

6.

Drawn on the Royal Bank for 60 — —
Rule II.

Bought for ready money
30 caſks train oil, at 22s L. 33 — —
30 bolls meal, at 13s L. 19 10 —
40 do. at 13s 2d 26 6 8
70 45 16 8
78 16 8
Rule III.

Sold Will. Ainſlie 30 yds. diaper, at 2s L. 3 — —
And paid him 30 — —
33 — —
Rule I.

8.

Baillie and Bell have paid Will. Ainſlie, at my deſire, balance of my ſhare of the ſhip Hazard 117 — —
Rule VIII.

11.

Sold James Boſwell 20 caſks train-oil, at 27s 27 — —
Rule I.

14.

Sold George Gordon merch. Stirling
10 caſks train oil, at 28s L. 14 — —
1 hd. lint-ſeed 3 5 —
35 bolls meal, at 13s 8d 23 18 4
L. 41 3 4
Received in part L. 35 — —
And he owes the balance 6 3 4
41 3 4
Rule I. II.

16.

Paid Baillie & Bell's bill on me to C. Cowan, at ſight 38 18 2
Rule I.

JOURNAL.

Edinburgh, 24*th* MARCH, 1789.

Royal Bank Dr. to James Boſwell. Paid them by him 40 — —

25.

Share of ſhip Hazard Dr. to William Ainſlie merchant Alloa, bought ⅓ ſhare for 150 — —

28.

Baillie and Bell Drs. to Sundries.
To Iron. For 150 ſtone, at 3s 7d L. 26 17 6
To Port-wine. For 1hd. 15 5 —
42 2 6

Edinburgh, 2*d* APRIL, 1789.

Caſh Dr. to Sundries.
To Diaper. For 50 yards, at 1s 11d L. 4 15 10
To Meal. For 30 bolls, at 13s 7d 20 7 6
To Lint-ſeed. For 1hd. 3 3 —
To Clover ſeed. For 160lb. at 7¼d 5 3 4
To Iron. For 30 ſtone, at 3s 6½d 5 6 3
38 15 11

6.

Caſh Dr. to Royal Bank. Drawn on them for 60 — —

Sundries Drs. to Caſh.
Train oil. For 30 caſks, at 22s L. 33 — —
Meal. For 30 bolls, at 13s L. 19 10 —
And 40 at 13s 2d 26 6 8
70 45 16 8
78 16 8

William Ainſlie Dr. to Sundries.
To Diaper. For 30 yards, at 2s L. 3 — —
To Caſh. Paid him 30 — —
33 — —

8.

William Ainſlie Dr. to Baillie and Bell. Paid him by them on my account, being balance of ſhare of ſhip Hazard 117 — —

11.

James Boſwell Dr. to Train oil. Sold him 20 Caſks at 27s 27 — —

14.

George Gordon Dr. to Sundries.
To Train-oil. For 10 caſks, at 28s L. 14 — —
To Lint-ſeed. For 1 hd. 3 5 —
To Meal. For 35 bolls, at 13s 8d. 23 18 4
41 3 4

Caſh Dr. to George Gordon. Received in part 35 — —

16.

Baillie and Bell Dr. to Caſh. Paid their bill on me to C. Cowan, at ſight 38 18 —

Edinburg

(5) WASTE-BOOK.
Edinburgh, 18th APRIL, 1789.

Taken for the use of my family, the remaining five yards calicoe, at 3s 2d — 15 10
Rule VI.

—22.—

The Royal Bank have paid Jan Jonkheer's bill on me, 1 mdt. at my desire — 28 12 —
Rule VIII.

—25.—

Received my proportion of profits on a voyage to Rotterdam by the Hazard — 33 — —
Rule V.

—30.—

Paid for small charges on my business
since first January L. 5 3 8
Personal and family expences 32 — —
37 3 8
Rule VI.

Due Thomas Sharp, my clerk, for wages — 8 — —
Rule VI.

Due to the Royal Bank for interest — 2 11 2
Rule VI.

Previous to the balancing of my books, I have taken an inventory of the goods in my shop and warehouse,

124 bolls meal, at 13s 6d	L. 83	14 —
474 sp. four hank yarn, at 2s	47	8 —
40 stone iron, at 3s 4d	6	13 4
300 lb. clover-seed, at 6d	7	10 —
	L. 145	5 4
I value my house at	300	— —
And my share of ship Hazard	140	— —
	L. 585	5 4

JOURNAL. (5)
Edinburgh, 18th APRIL, 1789.

f.5 .3 *Proper expences Dr. to Calicoes.* For 5 yards taken for family use, at 3s 2d — — 15 10

—22.—

.4 .2 *Jan Jonkheer Dr. to Royal Bank.* For his bill on me 1 mdt. paid by them — 28 12 —

—25.—

.1 .5 *Cash Dr. to Share of Ship Hazard.* Received my proportion of profits on a voyage to Rotterdam — 33 — —

—30.—

Sundries Drs. to Cash.
.4 .5 .1 *Charges Merchandise.* Paid small charges since Jan. 1. L5 3 8
.2 *Proper Exp.* Paid pers. and family charges 32 — —
37 3 8

.4 .5 .1 *Charges of Merchandise Dr. to Thomas Sharp*, my clerk. Due him for wages — 8 — —

.2 *Profit and Loss Dr. to Royal Bank.* Due them for int. — 2 11 2

.1 *Profit and Loss Dr. to Sundries*, for articles of loss.
.3 *To Salt* L — 11 4
.4 *To Charges Merchandise* 13 14 2
.5 *To Proper Expences* 32 15 10
See § 54. 47 1 4

Sundries Drs. to Profit and Loss, for articles of gain.
.1 *Meal* L. 9 18 —
.1 *Port-wine* 6 15 —
.2 *Paper* 4 18 6
.2 *Yarn* 2 3 2
.3 *Calicoes* 1 13 4
.3 *Diaper* — 15 10
.3 *Iron* 2 7 11
.4 *Clover seed* 5 — 1
.4 *Lint-seed* — 18 —
.5 *Share of ship Hazard* 23 — —
.5 *Train oil* 8 — —
.1 65 9 10

.5 *Bal. Account Dr. to Sun.* for articles belonging to me.
.5 *To cash* L 8 3 10
.1 *To Meal.* For 124 bolls, at 13s 6d 83 14 —
.1 *To Yarn.* For 474 sp. at 2s 47 0 —
.2 Amissing $\frac{1}{8}$ spindle.
.2 *To House in Lawn-market* 300 — —
.2 *To James Boswell* 37 11 —
.2 *To Henry Hardy* 31 2 6
.2 *To David Miller* 18 — —
.3 *To James Cuthbert* 5 6 3
.3 *To Iron.* For 40 stone, at 3s 4d 6 13 4
.4 *To John Henderson* 7 4 —
.4 *To William Hunter* 18 13 6
.4 *To James Dalton* 35 15 —
.4 *To Clover-seed.* For 300 lb. at 6d 7 10 —
Inlake 10 lb.
.5 *To John Scott* 4 7 6
.5 *To Share of ship Hazard* 140 — —
.5 *To George Gordon* 6 3 4
757 12 3

(6) JOURNAL.

Edinburgh, 30th APRIL 1789.

Sundries Drs. to Balance-account.

.1	*Meal.* Outcome 3 bolls							
.2	*Royal Bank* - -			L	201	3	2	
.3	*William Bruce* - -				20	—	—	
.4	*Thomas Sharp* - -				8	—	—	
.5								229 3 2
.1	*Profit and Loss Dr. to Stock*, for nett gain							16 13 8
.1	*Stock Dr. to Balance-Account*, for nett ſtock							528 9 1
.5								

The next JOURNAL would begin thus:

Sundries Drs. to Stock.

Caſh on hand		L.	8	3	10	
Meal. For 124 bolls, at 13s	L.	83	14	—		
Yarn. For 474 ſp. 4 hank, at 2s		47	8	—		
Iron. For 40 ſtone, at 3s 4d		6	13	4		
Clover-ſeed. For 300lb. at 6d		7	10	—		
					145 5 4	
Houſe in Lawn-market Edinburgh, value	L.	300	—	—		
Share in ſhip Hazard. For one third		140	—	—		
					440 — —	
James Boſwell Edinburgh. Due by him	L.	37	11	—		
Henry Hardy Glaſgow.	Do.	31	2	6		
David Miller Haddington.	Do.	18	—	—		
James Cuthbert Leith.	Do.	5	6	3		
John Henderſon Edinburgh.	Do.	7	4	—		
William Hunter Dunbar.	Do.	18	13	6		
James Dalton Mancheſter.	Do.	35	15	—		
John Scott Haughhead.	Do.	4	7	6		
George Gordon Stirling.	Do.	6	3	4		
					164 3 1	
						757 12 3

Stock Dr. to Sundries.

To Royal Bank. Due them		L	201	3	2	
To William Bruce, Leith.	Due him		20	—	—	
Thomas Sharp, my clerk.	Do.		8	—	—	
						229 3 2

(1) LEGER. FO.

Dr. *Stock,*

1789						
Jan.	1	To Sundries per J.		311	7	3
Apr.	30	To Balance-account, for nett ſtock	5	528	9	1
				840	16	4

Dr. *Profit and Loſs,*

1789						
Mar.	4	To Thomas Pirie, diſcounted him	2	—	3	8
Apr.	17	To Caſh, paid Tho. Smith intereſt	1	1	10	—
	30	To Royal Bank, for intereſt due them	2	2	11	2
	—	To Sundries, per J.		47	1	4
	—	To Stock, for nett gain	1	16	13	8
				67	19	10

Dr. *Caſh,*

1789						
Jan.	1	To Stock on hand	1	75	10	—
	15	To Paper, for 5 reams, at 11s.	2	2	15	—
	19	To Salt, in part, per J.	3	10	—	—
	22	To Sundries for Hen. Hardy's bill, with int.		77	10	—
Feb.	3	To James Cuthbert, in part	3	30	—	—
	16	To Sundries, per J.		73	2	6
	19	To Calicoes, for bal. of 100 yards, per J.	3	3	—	—
	—	To Meal, for 30 bolls, at 13s 8d	1	20	10	—
	20	To Royal Bank, drawn on them	2	120	—	—
Mar.	4	To Thomas Pirie, in full	2	12	—	—
	17	To Clover-ſeed, in part, for 2 bags	4	5	—	—
	21	To Clover-ſeed, 120lb. at 7¼d	4	3	12	6
Apr.	2	To Sundries, per J.		38	15	11
	6	To Royal Bank, drawn on them	2	60	—	—
	14	To George Gordon, in part	5	35	—	—
	25	To Share of ſhip Hazard for ſhare profits p. J.	5	33	—	—
				599	15	11

Dr. *Meal,*

			Bolls				
1789							
Jan.	1	To Stock on hand, at 13s	200	1	130	—	—
	30	To Sundries, per J. at 13s 2d	150		98	15	—
Mar.	2	To Caſh, paid charges and loft-rent	—	1	3	3	—
Apr.	6	To Caſh, per J.	70	1	45	16	8
	30	To Profit and loſs, for gain	—	1	9	18	—
		Outcome	3				
			423		287	12	8

Dr. *Port-wine,*

			Hds			
1789						
Jan.	2	To Stock on hand, at L. 15	6	1	90	— —
Feb.	19	To Calicoes, in barter	1	3	14	10 —
Apr.	30	To Profit and Loſs, for gain		1	6	15 —
			7		111	5 —

(1) LEGER. FO.

Contra *Cr.*

1787						
Jan.	1	By Sundries, per J.	1	824	2	8
Apr.	30	By Profit and Loſs, for nett gain	1	16	13	8
				840	16	4

Contra *Cr.*

1789						
Jan.	22	By Caſh, received int. on Hen. Hardy's bill	1	2	10	—
Apr.	30	By Sundries, per J.		65	9	10
				67	19	10

Contra *Cr.*

1789						
Jan.	3	By Calicoes, for 105 yards, at 3s 2d	3	16	12	6
	10	By William Niſbet, in full	3	28	7	3
	22	By Royal Bank, paid them	2	100	—	—
	26	By Yarn, in part. for 500 ſp. four hank	2	15	—	—
	30	By Meal, paid balance of 150 bolls	1	2	15	—
Feb.	16	By Royal Bank, paid them	2	100	—	—
	21	By Sundries, per J.		117	18	4
Mar.	2	By Sundries, per J.		4	5	6
	12	By Clover-ſeed, paid freight and charges	4	1	5	—
	17	By Sundries, paid Tho. Smith, with int. per J.		20	10	—
Apr.	6	By Sundries, per J.		78	16	8
	—	By William Ainſlie, paid him	5	30	—	—
	16	By Baillie and Bell, paid their bill on me ſt.	4	38	8	2
	30	By Sundries, for charges and expences per J.		37	3	8
	—	By Balance account	5	8	3	10
				599	15	11

Contra *Cr.*

			Bolls				
1789							
Jan.	3	By James Cuthbert, at 13s 3d	50	3	33	2	6
Feb.	10	By Yarn in barter, at 13s 6d	30	2	20	5	—
	19	By Sundries, per J.	154		106	5	4
Apr.	2	By Caſh, at 13s 7d	30	1	20	7	6
	14	By George Gordon, at 13s 8d	35	5	23	18	4
	30	By Balance account at 13s 4d	124	5	83	14	—
			423		287	12	8

Contra *Cr.*

			Hds			
1789						
Jan.	10	By Meal, in barter, at L. 16	6	1	96	— —
Mar.	28	By Baillie and Bell	1	4	15	5 —
			7		111	5 —

Dr.

(2) LEGER. FO.

Dr. *Paper,*

1789			R.				
Jan.	1	To Stock on hand, at 10s 6d	70	1	36	15	—
Apr.	30	To Profit and Loſs, for gain		1	4	18	6
			70		41	13	6

Dr. *Yarn,*

1789			Spindles 4 H	Spindles 5 H				
Jan.	1	To Stock on hand, at 2s 3d	—	120	1	13	10	—
	26	To Sundries, per J. at 1s 11d	500	—		47	18	4
Feb.	10	To Sundries, per J. at 2s	334½	—		33	9	—
Apr.	30	To Profit and Loſs, for gain	—	—	1	2	3	2
			834½	120		97	—	6

Dr. *Houſe in Lawn-market,*

1789							
Jan.	1	To Stock, for value	1	300	—	—	

Dr. *James Boſwell merchant Edinburgh,*

1789							
Jan.	1	To Stock due by him, per account	1	73	4	—	
	15	To Paper, for 30 reams, at 12s	2	18	—	—	
Feb.	2	To Sundries, per J.		27	17	—	
Mar.	17	To Clover-ſeed, for bal. of 2 bags, per J.	4	1	10	—	
Apr.	11	To Train-oil, for 20 caſks, at 27s	5	27	—	—	
				147	11	—	

Dr. *Thomas Pirie writer Edinburgh,*

1789							
Jan.	1	To Stock due by him per account	1	12	3	8	

Dr. *Henry Hardy merchant Glaſgow,*

1789							
Jan.	1	To Stock due by him per bill	1	75	—	—	
Feb.	19	To Meal, for 45 bolls, at 13s 10d	1	31	2	6	

Dr. *David Miller manufacturer Haddington,*

1789							
Jan.	1	To Stock due by him per receipt	1	18	—	—	

Dr. *Royal Bank of Scotland,*

1789							
Jan.	22	To Caſh, paid them	1	100	—	—	
Feb.	16	To Caſh, paid them	1	100	—	—	
Mar.	24	To Ja. Boſwell, paid them by him	2	40	—	—	
Apr.	30	To Balance-account	5	201	3	2	
				441	3	2	

LEGER. FO. (2)

Contra *Cr.*

1789			R.				
Jan.	15	By Sundries, per J.	47		27	19	—
Feb.	10	By Yarn in barter, at 12s	22	2	13	4	—
		By Charges Merchandiſe, for ſhop-uſe	1	4	—	10	6
			70		41	13	6

Contra *Cr.*

1789			Spindles 4 H	Spindles 5 H				
Jan.	5	By Diaper, at 2s 4d	—	60	3	7	—	—
Feb.	2	By James Boſwell, at 2s 3½	—	60	2	6	17	6
Mar.	5	By James Dalton, per J.	360	—	4	35	15	—
Apr.	30	By Balance-account, at 2s	474	—	5	47	8	—
		Amiſſing	½					
			834½	120		97	—	6

Contra *Cr.*

1789							
Apr.	30	By Balance-account	5	300	—	—	

Contra *Cr.*

1789							
Feb.	16	By Caſh in part	1	70	—	—	
Mar.	24	By Royal Bank, paid in by him	2	40	—	—	
Apr.	30	By Balance-account	5	37	11	—	
				147	11	—	

Contra *Cr.*

1789							
Mar.	4	By Sundries in full, with diſcount, per. J.		12	3	8	

Contra *Cr.*

1789							
Jan.	22	By Caſh in full	1	75	—	—	
Apr.	30	By Balance-account	5	31	2	6	

Contra *Cr.*

1789							
Apr.	30	By Balance-account	5	18	—	—	

Contra *Cr.*

1789							
Jan.	1	By Stock, due them per account	1	230	—	—	
Feb.	23	By Caſh, drawn on them	1	120	—	—	
Apr.	6	By Caſh, drawn on them	1	60	—	—	
	22	By J. Jonkheer, for his bill paid them, p. J.	4	28	12	—	
	30	By Profit and Loſs, for intereſt due them	1	2	11	2	
				441	3	2	

(3) LEGER. Fo.

Dr. *Tho. Smith merchant London,*

1789			Fo.	£	s	d
Feb.	23	To Cash, paid his bill on me at sight	1	35	—	—
Mar.	17	To Cash, in full	1	19	—	—
				54	—	—

Dr. *William Nisbet carpenter Leith,*

1789			Fo.	£	s	d
Jan.	10	To Cash, paid him in full	1	28	7	3

Dr. *Calicoes,*

1789			Fo.	Yds.	£	s	d
Jan.	3	To Cash, at 3s 2d	1	105	16	12	6
Apr.	30	To Profit and Loss, for gain	1		1	13	4
				105	18	5	10

Dr. *Ja. Cuthbert merchant Leith,*

1789			Fo.	£	s	d
Jan.	3	To Meal, for 50 bolls, at 13s 3d	1	3	2	6
Mar.	21	To Clover-seed, for 70lb. at 7½d	4	2	3	9
				35	6	3

Dr. *Diaper,*

1789			Fo.	Yds.	£	s	d
Jan.	5	To Yarn in barter, at 1s 9d	2	80	7	15	10
Apr.	30	To Profit and Loss, for gain	1				
				80	7	15	10

Dr. *Salt,*

1789			Fo.	Bush.	£	s	d
Jan.	13	To William Bruce, at 1s 8d	3	200	16	13	4
Mar.	2	To Cash, paid charges and cellar-rent	1		1	2	6
				200	17	15	10

Dr. *William Bruce merchant Leith,*

1789			Fo.	£	s	d
Feb.	23	To cash in part	1	50	—	—
Apr.	30	To Balance-account	5	20	—	—
				70	—	—

Dr. *Iron,*

1789			Fo.	Stones.	£	s	d
Jan.	13	To William Bruce, at 3s 4d	3	320	53	6	8
Apr.	30	To Profit and Loss, for gain	1		2	7	11
				320	55	14	7

LEGER. Fo. (3)

Contra *Cr.*

1789			Fo.	£	s	d
Jan.	1	By Stock, due him per account	1	54	—	—
				54	—	—

Contra *Cr.*

1789			Fo.	£	s	d
Jan.	1	By Stock, due him per account	1	28	7	3

Contra *Cr.*

1789			Fo.	Yds.	£	s	d
Feb.	19	By Sundries, per J. at 3s 6d		100	17	10	—
Apr.	19	By proper Expences taken at 3s 2d		5	—	15	10
				105	18	5	10

Contra *Cr.*

1789			Fo.	£	s	d
Feb.	3	By Cash in part	1	30	—	—
Apr.	30	By balance account	5	5	6	3
				35	6	3

Contra *Cr.*

1789			Fo.	Yds.	£	s	d
Apr.	2	By Cash at 1s 11d	1	50	4	15	10
	3	By William Ainslie, at 2s	5	30	3	—	—
				80	7	15	10

Contra *Cr.*

1789			Fo.	Bush.	£	s	d
Jan.	19	By Sundries, per J. at 1s 9d		150	13	2	6
Feb.	2	By J. Boswell, for the rem. at 1s 8½d	2	48	4	2	—
Apr.	30	By Profit and Loss, Inlake	1	2	—	11	4
				200	17	15	10

Contra *Cr.*

1789			Fo.	£	s	d
Jan.	17	By Sundries, per J.		70	—	—
				70	—	—

Contra *Cr.*

1789			Fo.	Stones.	£	s	d
Feb.	2	By James Boswell, at 3s 4½d	2	100	16	17	6
Mar.	28	By Baillie and Bell, at 3s 7d	4	150	26	17	6
Apr.	2	By Cash, at 3s 6½d	1	30	5	6	3
	30	By Balance-account, at 3s 4d	5	40	6	13	4
				320	55	14	7

Dr.

(4) LEGER. FO.

Dr. *Jo. Henderſon ſtationer Edinburgh,*

1789 Jan.	14	To Paper, for 12 reams, at 12s	2	7	4	—

Dr. *William Hunter merchant Dunbar,*

1789 Jan.	19	To Salt, for balance of 150 buſhels, per J.	3	3	2	6
Feb.	19	To Meal, for 27 bolls, at 13s 10d		18	13	6

Dr. *Alex. Sharp merchant Dundee.*

1789 Feb.	23	To Caſh, in full	1	32	18	4

Dr. *Charges Merchandiſe,*

1789 Feb.	10	To Paper, taken for ſhop-uſe, 1 ream	2	—	10	6
Apr.	30	To Caſh, for ſmall charges ſince 1ſt Jan.	1	5	3	8
		To Tho. Sharp, for wages	5	8	—	—
				13	14	2

Dr. *Baillie and Bell Borrowſtownneſs,*

1789 Feb.	19	To Meal, for 52 bolls, at 3s 10d	1	35	19	4
Mar.	28	To Sundries, per J.		42	2	6
Apr.	16	To Caſh, pd. their bill on me to C. Cowan, ſt.	1	38	18	2
				117	—	—

Dr. *James Dalton Mancheſter,*

1789 Mar.	5	To Yarn, for 360 ſpindles four hank, per J.	2	35	15	—

Dr. *Clover-ſeed,*

			lb.				
1789 Mar.	12	To Sundries per J. for pr. coſt and char.	1200		29	17	—
Apr.	30	To Profit and Loſs for gain		1	5	—	1
			1200		34	17	1

Dr. *J. Jonkheer merchant Rotterdam,*

1789 Apr.	22	To Ro. Bank, for his bill on me paid by them	2	28	12	—

Dr. *Lint-ſeed,*

			Hds.				
1789 Mar.	17	To Clover-ſeed, in barter, at 55s	2	4	5	10	—
Apr.	30	To Profit and Loſs, for gain		1	—	18	—
			2		6	8	—

LEGER. FO. (4)

Contra, *Cr.*

1789 Apr.	30	By Balance-account	5	7	4	—

Contra, *Cr.*

1789 Feb.	16	By Caſh in full	1	3	2	6
Apr.	30	By Balance-account	5	18	13	6

Contra, *Cr.*

1789 Jan.	20	By Yarn, for balance of 300 ſpindles, per J.	2	32	18	4

Contra, *Cr.*

1789 Apr.	30	By Profit and Loſs	1	13	14	2
				13	14	2

Contra, *Cr.*

1789 Apr.	8	By William Ainſlie, paid him by them	5	117	—	—
				117	—	—

Contra, *Cr.*

1789 Apr.	7	By Balance-account	5	35	15	—

Contra, *Cr.*

			lb.				
1789 Mar.	7	By Sundries, per J.	400		12	—	—
	17	By Sundries, per J.	330		10	3	9
Apr.	2	By Caſh, at 7¼d	160	1	5	3	4
	30	By Balance-account, at 6d	300	5	7	10	—
		Inlake	10				
			1200		34	17	1

Contra, *Cr.*

1789 Mar.	12	By Clover-ſeed, for 6 bags, per J.	6	28	12	—

Contra, *Cr.*

			Hds.				
1789 Apr.	2	By Caſh	1	1	3	3	—
	14	By George Gordon	1	5	3	5	—
			2		6	8	—

Dr.

(5) LEGER. Fo.

Dr. *John Scott farmer at Haughhead,*

1789
Mar. 21 To Clover-seed, for 140lb. at 7½d — 4 — 4 7 6

Dr. *Share of ship Hazard,*

1789
Mar. 25 To William Ainslie, bought ½ share for — 5 — 150 — —
Apr. 30 To Profit and Loss, — 1 — 23 — —
— 173 — —

Dr. *William Ainslie merchant Alloa,*

1789
Apr. 6 To Sundries, per J. — — 33 — —
10 To Baillie and Bell, for bal. paid him by them — 4 — 117 — —
— 150 — —

Dr. *Train-oil,*

1789 Casks
Apr. 6 To Cash, at 22s — 30 — 1 33 — —
30 To Profit and Loss, for gain — — 1 8 — —
30 — 41 — —

Dr. *George Gordon merchant Stirling,*

1789
Apr. 14 To Sundries, per J. — — 41 3 4
— 41 3 4

Dr. *Proper Expences.*

1789
Apr. 18 To calicoes, for 5 yards, at 3s 2d — 3 — — 15 10
30 To Cash, for charges since 1st January — 1 — 32 — —
— 32 15 10

Dr. *Thomas Sharp, my clerk,*

1789
Apr. 30 To balance-account — 5 — 8 — —

Dr. *Balance-account,*

1789
Apr. 30 To Sundries, per J. — — 757 12 3
— 757 12 3

LEGER. Fo. (5)

Contra *Cr.*

1789
Apr. 30 By Balance-account — 5 — 4 7 6

Contra *Cr.*

1789
Apr. 25 By Cash, for share profit of a voyage to Rot. — 1 — 33 — —
30 By Balance-account — 5 — 140 — —
— 173 — —

Contra *Cr.*

1789
Mar. 25 By Share of Ship Hazard, for ½ bt. from him — 5 — 150 — —
— 150 — —

Contra *Cr.*

1789 Casks
Apr. 11 By James Boswell, at 27s — 20 — 2 27 — —
14 By George Gordon, at 28s — 10 — 5 14 — —
— 30 — 41 — —

Contra *Cr.*

1789
Apr. 14 By Cash in part — 1 — 35 — —
30 By Balance-account — 5 — 6 3 4
— 41 3 4

Contra *Cr.*

1789
Apr. 30 By Profit and Loss — 1 — 32 15 10
— 32 15 10

Contra *Cr.*

1789
Apr. 30 By Charges Merchandise, due him for wages — 4 — 8 — —

Contra *Cr.*

1789
Apr. 30 By Sundries, per J. — — 229 3 2
By Stock — — 528 9 1
— 1 — 757 12 3

TRIAL

TRIAL-BALANCE.

	Dr.						Cr.					
1 Stock	L. 312	7	3				L. 824	2	8			
Profit and Loſs	4	4	10				2	10	—			
Caſh	599	15	11				591	12	1			
				L. 916	8	—				L. 1418	4	9
2 Meal	L. 277	14	8				L. 203	18	8			
Port-wine	104	10	—				111	5	—			
Paper	36	15	—				41	13	6			
Yarn	94	17	4				49	12	6			
1 Houſe in Edinburgh	300	—	—				—	—	—			
				813	17	—				406	9	8
3 James Boſwell	L. 247	11	—				L. 110	—	—			
Henry Hardie	31	2	6				—	—	—			
David Miller	18	—	—				—	—	—			
Royal Bank	140	—	—				441	3	2			
				436	13	6				551	3	2
4 Calicoes	L. 16	12	6				L. 18	5	10			
James Cuthbert	35	6	3				30	—	—			
Diaper	7	—	—				7	15	10			
Salt	17	15	10				17	4	6			
				76	14	7				73	6	2
5 Iron	L. 53	6	8				L. 49	1	3			
William Bruce	50	—	—				70	—	—			
John Henderſon	7	4	—				—	—	—			
William Hunter	18	13	6				—	—	—			
Charges Merchandiſe	13	14	2				—	—	—			
				142	18	4				119	1	3
6 James Dalton	L. 35	15	—				L. —	—	—			
Clover-ſeed	29	17	—				27	7	1			
Flax-ſeed	5	10	—				6	8	—			
John Scott	4	7	6				—	—	—			
Share of Ship Hazard	150	—	—				33	—	—			
				225	9	6				66	15	1
7 Train oil	L. 33	—	—				L. 41	—	—			
George Gordon	41	3	4				35	—	—			
Proper Expences	32	15	10				—	—	—			
Thomas Sharp	—	—	—				8	—	—			
				106	19	2				84	—	—
				L. 2719	—	1				L. 2719	—	1

COMPU-

COMPUTATIONS.

	Dr.	Cr.
Cash	L. 599 15 11	L. 591 12 1
	591 12 1	
	L. 8 3 10	
2 Meal	L. 277 14 8	L. 203 18 8
Dr. 420 bolls		83 14 —
Cr. 299	L. 83 14 —	
		L. 287 12 8
121		277 14 8
124		
	Profit	L. 9 18 —
3 outcome		
Port wine	L. 104 10 —	L. 111 5 —
		104 10 —
	Profit	L. 6 15 —
Paper	L. 36 15 —	L. 41 13 6
		36 15 —
	Profit	L. 4 18 6
Yarn	L. 94 17 4	L. 49 12 6
Spindles		47 8 —
834½ 120	L. 47 8 —	
360 120		L. 91 — 6
		94 17 4
474½		
Amiſſing ½	Profit	L. 2 3 2
Houſe in Edinburgh	L. 300 — —	
3 Ja. Boſwell	L. 147 11 —	L. 110 — —
	110 — —	
	L. 27 11 —	
Henry Hardy	L. 31 2 6	
David Miller	L. 18 — —	
Royal Bank	L. 240 — —	L. 441 3 2
		240 — —
		L. 201 3 2
4 Calicoes	L. 16 12 6	L. 18 5 10
		16 12 6
	Profit	L. 1 13 4
J. Cuthbert	L. 35 6 3	
	30 — —	
	L. 5 6 3	
Diaper	L. 7 — —	L. 7 15 10
		7 — —
	Profit	L. — 15 10

	Dr.	Cr.
4 Salt	L. 17 15 10	L. 17 4 6
	17 4 6	
	Loſs — 11 4	
5 William Bruce	L. 50 — —	L. 70 — —
		50 — —
		L. 20 — —
Iron	L. 53 6 8	L. 49 1 3
320 ſtone		6 13 4
280	L. 6 13 4	
		L. 55 14 7
40		53 6 8
	Profit	L. 2 7 11
J. Henderſon	L. 7 4 —	
W. Hunter	L. 18 13 6	
Char. Merchan.	L. 13 14 2 loſs	
6 Ja. Dalton	L. 35 15 —	
Clover-ſeed	L. 29 17 —	L. 27 7 1
1200 lb.		7 10 —
890	L. 7 10 —	
		L. 34 17 —
310		29 17 —
300		
	Profit	L. 5 — 1
10 inlake		
Lint-ſeed	L. 5 10 —	L. 6 8 —
		5 10 —
	Profit	L. — 18 —
J. Scott	L. 4 7 6	
Share Hazard	L. 150 — —	33 — —
		140 — —
	L. 140 — —	
		L. 173 — —
		150 — —
	Profit	L. 23 — —
7 Train-oil	L. 33 — —	L. 41 — —
		33 — —
	Profit	L. 8 — —
George Gordon	L. 41 3 4	L. 35 — —
	35 — —	
	L. 6 3 4	
Proper Ex.	L. 32 15 10 loſs	
Thomas Sharp		L. 8 — —
STOCK	L. 312 7 3	L. 824 2 8
Balance	528 9 1 prof.	16 13 8
	L. 840 16 4	L. 840 16 4

PROFIT

PROFIT AND LOSS SHEET.

Salt			L.—	11	4	Meal	L.9	18	—
Charges Merchandiſe			13	14	2	Port-wine	6	15	—
Proper Expences			32	15	10	Paper	4	18	6
		L.47	1	4		Yarn	2	3	2
In Leger		4	4	10		Calicoes	1	13	4
		L.51	6	2		Diaper	—	15	10
						Iron	2	7	11
						Clover-ſeed	5	—	1
						Lint-ſeed	—	18	—
						Share of ſhip Hazard	23	—	—
						Train oil	8	—	—
							L.65	9	10
Nett gain		16	13	8		In Leger	2	10	—
		L.67	19	10			L.67	19	10

BALANCE-SHEET.

Caſh		L.8	3	10		Meal, outcome 3 b.			
Meal, 124 b. at 13s 4d		83	14	—		Royal Bank	L.201	3	2
Yarn, 474 ſp. at 2s		47	8	—		William Bruce	20	—	—
Amiſſing ½						Thomas Sharp	8	—	—
Houſe in Edinburgh		300	—	—					
James Boſwell		37	11	—			L.229	3	2
Henry Hardie		31	2	6					
David Miller		18	—	—					
J. Cuthbert		5	6	3					
Iron, 40 ſtone, at 3s 4d		6	13	4					
J. Henderſon		7	4	—					
W. Hunter		18	13	6					
James Dalton		35	15	—					
Clover-ſeed, 300 lb. at 6d		7	10	—					
Inlake 10 lb.									
J. Scott		4	7	6					
Share of ſhip Hazard		140	—	—					
George Gordon		6	3	4		STOCK	528	9	1
	L.757	12	3				L.757	12	3

Subſidiary Books.

The preſent article, it is hoped, will appear ſufficiently extended for a work of this nature. It contains the general principles of Italian book-keeping; and is ſufficient to unfold the nature and deſign of that art to the ſpeculative inquirer, to direct the accountant in common and eaſy caſes, and prepare him for underſtanding thoſe that are more complicated. In fact if he has a clear apprehenſion of the ſenſe of the tranſactions, the tendency of the journal entries, and the import of the balances in the leger, he will ſeldom be at a loſs how to proceed.

Subſidiary Books uſed by Merchants.

Though all merchants accounts may be kept by the *Waſte-book*, *Journal*, and *Leger*, alone; yet men of great buſineſs find it convenient, either for abridging theſe, or for other ends, to uſe ſome others, generally called *Subſidiary* or *Subſervient Books;* the moſt common of which are theſe nine following, *viz.*

1. *Caſh-Book.* This book is kept in a folio form, like the leger, and ſerves to abridge the caſh-account there. On the left-hand page, or Dr. ſide, *Caſh* is charged Dr. for all the ſums received; and on the right-hand page *Caſh* is made creditor for all the ſums paid. Once a week, or, which is more ordinary, once a month, this book is poſted to the leger; or, if you pleaſe, firſt to the journal, by two entries, *viz. Caſh* Dr. to *Sundries*, for all the receipts, and *Sundries* Drs. to *Caſh*, for all the payments. By this means the caſh account in the leger will be ſo far contracted as to conſiſt of 12 lines, *viz.* one for each month in the year.

2. *Book of Charges of Merchandiſe.* This book is only paged, and deſigned to abbreviate the caſh-book. It contains particular charges on goods and voyages; ſuch as carriage, cuſtom, freight, cranage, wharfage, &c: as alſo other expences that affect trade in general; ſuch as, warehouſe-rent, ſhop-rent, accountant's wages, poſtage of letters, and the like. At the end of each month the money-columns of this book are added up, and the ſum carried to the credit-ſide of the caſh-book.

3. *Book of Houſe-expence.* This book is alſo paged, and deſigned likewiſe to eaſe the caſh-book. It contains all diſburſements for family proviſions, ſervants wages, houſe-rent, apparel, utenſils &c. The money-columns of this book are alſo added up at the end of each month, and the ſum transferred to the credit ſide of the caſh-book.

4. *Invoice-book.* This book, which is uſed chiefly by factors, is paged, and contains doubles or copies of the invoices of goods ſent to ſea, or of goods received from abroad.

5. *Sales-book.* This book too is chiefly uſed by factors; and into it are poſted, from the waſte-book, the particular ſales of every conſigned cargo; by which means the ſeveral articles of a ſale, that lie ſcattered in the waſte-book, are brought together, and repreſented under one view, and that in a manner more full and minute than they are collected in the leger account. This book exhibits the ſales of every conſignment ſeparately and by themſelves: to which are ſubjoined the reſpective charges, ſuch as freight, cuſtom, the factor's commiſſion, as alſo abatements allowed to buyers, &c. whoſe ſum ſubtracted from the groſs amount of ſales gives the neat proceeds. From this book, when a cargo is ſold off, an account of ſales is drawn out, in order to be tranſmitted to the employer. Subſidiary Books.

6. *Bill-book.* The deſign of this *Bill-book*, or *Month-book*, is to furniſh a merchant with a ready way of knowing the time when bills or other debts become payable to or by him. It conſiſts of 12 folios, one for each month in the year. The left-hand page contains the debts that fall due to the merchant in the month on the top, and the right-hand page contains the debts payable by him to others in the ſame month.

7. *Receipt-book.* In this book a merchant takes receipts of the payments he makes. The receipt ſhould contain the date; the ſum received, expreſſed in words at large, and alſo in figures in the money-columns; the reaſon why; and whether in full or in part; and muſt be ſigned by the perſon receiving. But there is no occaſion to mention the merchant's name; for the book being his own, ſufficiently implies that.

Letter-book. It is very imprudent in any perſon to ſend away a letter of buſineſs, without keeping a double of it to himſelf; and therefore to prevent the bad conſequences of ſuch a careleſs practice, merchants are provided with a large book in folio, into which is copied *verbatim* every letter of buſineſs before it be ſent off. So that this book, together with the letters received (which muſt alſo be carefully kept in files or boxes), makes a complete hiſtory of all the dealings that paſs betwixt a merchant and his correſpondents; which may be very uſeful and neceſſary on many occaſions.

Pocket-book. This is a ſmall book, of a portable ſize, which a merchant carries in his pocket when buſineſs calls him abroad to a tavern, a fair, the country, or other places. In this he ſets down the bargains he makes, the expences he is at, the debts he pays, or ſums he receives, with every other part of buſineſs he tranſacts while abroad; as alſo any occurrence or piece of news he thinks worth while to record. And when he comes home to his counting-houſe or ſhop, he transfers the things contained in this book, each to their proper places in the waſte-book, or books ſubſidiary.

Factors of great buſineſs ſometimes keep another ſmall book, called the *Memorandum-book*. Into this book is copied, from letters as they come to hand, ſhort notes of the ſeveral commiſſions for buying goods contained in them; and as the commiſſions are effected, the notes are croſſed, or have ſome mark affixed to them. This is more convenient in doing buſineſs, than to be continually running to the letters themſelves.

The above are the ſubſidiary books moſt in uſe: but a merchant is not tied down or reſtricted to them; he may keep ſome, and neglect others, or invent more as the nature of his buſineſs requires, and he finds convenient.

New Method of BOOK-KEEPING *by Mr Jones.*

A new method of keeping books, entitled the *Engliſh Syſtem of Book-keeping*, has been propoſed by Mr Edward Thomas Jones of Briſtol, for which a patent was granted in January 1796.

Three books are required in the *Engliſh ſyſtem of book-keeping*, viz. a *Day-book* or *Journal*, an *Alphabet*, and a leger. The day-book muſt have three columns on each page; one of which to receive the amount of debits

A new Method.

debits and credits; one column to receive the debits only; and one column to receive the credits only: or it may be ruled with only two columns on each page, one of which to receive the amount of the debts, and the other to receive the amount of the credits. On each page of the day-book, there muſt alſo be four other columns ruled, two on the left ſide next the amount of the debits, and two on the right ſide next the amount of the credits. Theſe columns are intended for receiving the letter or mark of poſting, and the page of the ledger to which each amount is to be poſted. It is not neceſſary that the alphabet be ruled, but it muſt contain the name of every account in the leger, the letter annexed to it as a mark of poſting, and the page of the leger. The leger is to be ruled with three, four, five, or ſeven columns on each page, as may be moſt agreeable, for receiving the amounts of the tranſactions which are entered in the day-book. The plan of making up books of accounts, according to this ſyſtem is the following:

When a perſon begins trade, either as an individual or in company, he muſt open an account with himſelf in the leger. He muſt firſt enter in the day-book, and then to the credit of his account in the leger, the amount of the property which he has advanced into the trade. His name only may be placed at the head of the account, or it may be called *ſtock-account*.

When goods are purchaſed, give the perſon credit of whom they are bought; when goods are ſold, debit the perſon to whom they are ſold. When you pay money, debit the perſon to whom it is paid, not only for the amount you pay, but alſo for any diſcount or abatement that may be allowed, and give the caſhier credit for the neat amount paid. When money is received, credit the perſon of whom it is received, not only for what he pays, but alſo for any diſcount you have allowed, and debit the caſhier for the neat ſum received. In theſe entries a plain narrative of the fact ſhould only be introduced. Technical phraſes, excepting the terms debit and credit ſhould be avoided. Theſe are the only terms applicable to every tranſaction, and may be affixed to every entry.

In the hurry of buſineſs, entries may be made to the debit inſtead of the credit of an account in the day-book, and *vice verſa*. To obviate this evil, Mr Jones propoſes to have only one column for receiving the amount of every tranſaction, whether debit or credit, at the time of making the entry; and that the debits may be conveniently ſeparated from the credits, previous to poſting, which is neceſſary to prevent confuſion, he has two other columns in the ſame page; the column on the left ſide receives the amount of every debit, and the column on the right ſide receives the amount of every credit. Theſe columns muſt be caſt up once a-month. The column of debits and credits of itſelf forms one amount; the column of debits forms a ſecond amount; and the column of credits a third amount. The ſecond and third amounts, when added together, it is plain, muſt agree with the firſt amount which includes both the debits and credits, otherwiſe there muſt be ſome error, either in making the entry or in the addition.

In this manner the accountant may obtain an accurate ſtatement of the tranſactions recorded in his books for every month, which will ſhow how much he owes for that month, and how much is owing to him; and by ſubtracting the amount of the credit from the whole amount of the debits for any given time, with the value of the ſtock of goods on hand, the profits of the trade for that period will at once appear.

A new Method.

The next part of the operation in this ſyſtem is that of poſting. An account is opened in the leger with every perſon to whoſe debit or credit an entry has been made in the day-book; and to each account a letter is affixed, which is to be uſed as a mark of poſting. The name of the perſon, his place of abode, and the folio of the leger, muſt then be entered in the alphabet, with the ſame letter prefixed to each name, as is affixed to the account in the leger. The next ſtep of the proceſs is to affix to each amount in the day-book in the column for that purpoſe, the page of the leger on which each account is opened. This will be ſeen in the alphabet. The date and amount of each debit are then to be poſted in the proper columns in the leger, on the left or debit ſide of that account to which it relates; taking care to enter as a mark of poſting in the day-book, againſt each amount, the ſame letter that is affixed to the account in the leger to which ſaid amount may be poſted. The debits of January, February, March, &c. it is to be obſerved, muſt be poſted into the column for thoſe months in the leger, and the credits muſt alſo be poſted in like manner, each account being filled up in the centre, at the expiration of every month, with the whole amount of the month's tranſactions. Thus may the whole ſtatement of each perſon's account for the year be included in a ſmall ſpace. The columns to the right and left contain the ſeparate amount of each tranſaction. The column in the centre exhibits a monthly ſtatement.

Having ſhewn in what manner the entries are to be made and carried through the different books, according to this ſyſtem; the next thing is to deſcribe the method of examining them, ſo as to aſcertain with certainty their accuracy; and not only to diſcover if each tranſaction has been correctly poſted, with regard to its amount, but alſo that it has been rightly entered to the debit or credit of its proper account. The mode of examination propoſed by this ſyſtem is different from thoſe which have been hitherto practiſed, both in expedition and accuracy. All that is neceſſary is to add together the different ſums in the debit and credit columns through the leger: and the amount of thoſe columns, if right, muſt agree with the columns in the day-book for the ſame period. This examination ſhould take place once every month; and if the amounts do not agree, the poſting muſt be called over, and when the time allotted to each column of the leger, whether it be for one or more months, has expired, the amount of each column ſhould be put at the bottom of the firſt page, and carried forward to the bottom of the next, and ſo on to the end of the accounts. The amount in the day-book for each month's tranſactions, muſt be brought into one groſs amount for the ſame time.

But this proceſs, although it proves that the leger contains the whole contents of the day-book, is not to be conſidered as complete without ſome mode of aſcertaining if each entry be poſted to the right account. To diſcover this the following method is adopted. It is to be admitted as a rule, that a letter, which may be

A new Method.

uſed alphabetically in any form or ſhape, is to be affixed to each account in the leger, and the ſame letter prefixed to the names in the alphabet. Theſe letters are to be uſed as marks in poſting, and affixed to each account in the day-book as it is poſted. It is therefore only neceſſary to compare and ſee that the letter affixed to each entry in the day-book is the ſame as that which is prefixed to the ſame name in the alphabet. If there be no difference, it muſt be right, otherwiſe there muſt be ſome error.

When the accounts are to be balanced at the end of the year, or at any other time, if the profits of the trade are to be ſtated in the books, the value of the ſtock of goods on hand at prime coſt, either in one ſum, or by ſpecifying the amount of every article, may be entered in the day-book, and an account opened for it in the leger, to the debit of which it is to be poſted. The caſting up of the leger is then to be completed; and when it is found to agree with the day-book, and the amount placed at the bottom of each column, ſubtract the credits from the debits, and the difference will ſhew the profit of the trade; but if the credits be the greater amount, then a loſs has followed. To avoid error in taking off the balances of the leger, one rule muſt be obſerved. Firſt, find out the difference between the whole amounts of the credits and debits on each page for the year, with which the differences of the outſtanding balances of the ſeveral accounts on each page muſt exactly agree, otherwiſe the balances have not been taken right. Proceeding in this way every page will be proved, and the balances of any number of legers, according to this plan, cannot be taken off wrong without being obſerved.

A new Method.

BOO

BOO

Bookſeller.

BOOKSELLER, one who trades in books, whether he prints them himſelf, or gives them to be printed by others.

Bookſellers, among us, are the ſame with the *bibliopolæ* of the ancients, whoſe office was diſtinct from that of *librarii*. Petty dealers, or venders of ſmall ware, were diſtinguiſhed by the diminutive appellation *libelliones*. At Rome, the Argiletum was the mart of books, as Paul's Church-yard, or Fleet-ſtreet, and Paternoſter-row, have been in Loudon: whence that of Martial.

Argiletanas mavis habitare tabernas,
Cum tibi, parve liber, ſcrinia noſtra vacent.

Bookſellers in many places are ranked among the members of univerſities, and entitled to the privileges of ſtudents: as at Tubingen, Saltſburg, and Paris, where they have always been diſtinguiſhed from the vulgar and mechanical traders, and exempted from divers taxes and impoſitions laid on other companies.

Formerly, the offices of bookſellers and printers were united in the ſame perſons. Labbe gives a liſt of learned bookſellers; moſt of whom were alſo authors. Of late, bookſellers have drawn their buſineſs into leſs compaſs, and leaving the labour of compoſing books to one ſet of perſons, and that of printing them to another, content themſelves with the gainful part; thus miniſtering to the republic of letters not with the head or the hand, but the purſe only. In this view, they have been very important and uſeful agents between authors and the public; and have contributed, in no ſmall degree, to the encouragement of genius and literary induſtry, and the ſpread of ſcience. There are few authors, who have undertaken the printing and publiſhing of any work likely to be tranſmitted to poſterity, without being connected with ſome bookſeller, or bookſellers, eminent in their profeſſion.

The fairs of Francfort and Leipſic are famous for the reſort of bookſellers, not only from all parts of the empire, but Holland, Flanders, &c. They have each their ſhop or warehouſe, over which is inſcribed the name of ſome celebrated bookſeller of former times; *Officina Elzeviriana*, *Frobeniana*, *Morelliana*, *Janſoniana*, &c. Bookſeller.

An acquaintance with the bookſellers marks or ſigns, frequently expreſſed on the title-pages of their books, is of ſome uſe; becauſe many books, eſpecially in the laſt century, have no other deſignation either of printer, bookſeller, or even city. The anchor is the mark of Raphelengius at Leyden; and the ſame with a dolphin twiſted round it, of the Manutii at Venice and Rome; the Arion denotes a book printed by Oporinus at Baſil; the caduceus, or Pegaſus, by the Wecheliuſes at Paris and Francfort; the cranes, by Cramoiſy; the compaſs, by Plantin at Antwerp; the fountain, by Vaſcoſan at Paris; the ſphere in a balance, by Janſon or Blaew, at Amſterdam; the lily, by the Juntas at Venice, Florence, Lyons, and Rome; the mulberry-tree, by Morel at Paris; the olive-tree, by the Stephenſes at Paris and Geneva, and the Elzeviers at Amſterdam and Leyden; the bird between two ſerpents, by the Frobeniuſes at Baſil; the truth, by the Commelins at Heidelberg and Paris; the Saturn, by Colinæus; the printing-preſs, by Badius Aſcencius, &c.

The traffic of books was anciently very inconſiderable, inſomuch that the book-merchants of England, France, Spain, and other countries, were diſtinguiſhed by the appellation of *ſtationers*, as having no ſhops, but only ſtalls and ſtands in the ſtreets. During this ſtate, the civil magiſtrates took little notice of the bookſellers, leaving the government of them to the univerſities, to whom they were ſuppoſed more immediate retainers; who accordingly gave them laws and regulations, fixed prices on their books, examined their correctneſs, and puniſhed them at diſcretion. But when, by the invention of printing, books and bookſellers began to multiply, it became a matter of more conſequence; and the ſovereigns took the direction of them into their own hands, giving them new ſtatutes, appointing officers to fix prices, and granting licenſes, privileges, &c.

BOOM, in the ſea-language, a long piece of timber with

Boom || Boot.

with which the clew of the ſtudding-ſail is ſpread out; and ſometimes the boom is uſed to ſpread or boom out the clew of the main-maſt.

BOOM, denotes alſo a cable ſtretched athwart the mouth of a river or harbour; with yards, top-maſts, battling or ſpars of wood laſhed to it, to prevent an enemy's coming in.

BOOMING, among ſailors, denotes the application of a boom to the ſails. A ſhip is ſaid to come booming forwards, when ſhe comes with all the ſail ſhe can make.

BOONEN, ARNOLD, portrait painter, was born at Dort in 1669, and at firſt was a diſciple of Arnold Verbuis, a painter of hiſtory and portrait. Afterwards he placed himſelf with Godfrey Schalcken, and continued with that artiſt for ſix years. The ſweetneſs of his colouring, and the neatneſs of his touch, with a ſtriking likeneſs in his portraits, procured him a number of admirers. He painted in the manner of his maſter, particularly ſubjects by candle-light, which were very delicate, and very natural; and much more of his work was requeſted by the lovers of the art than it was poſſible for him to undertake. He had the honour to paint the portraits of the czar of Muſcovy; of Frederick I. king of Pruſſia; of the victorious duke of Marlborough, as well as many of the princes of Germany; and moſt of the noblemen who attended the czar. His ſtyle of colouring was extremely good, and he had an elegant manner of diſpoſing the attitudes of his figures; his handling was neat, and the whole had ſo much harmony that he was juſtly ranked among the ableſt artiſts of his time. The ſmall pictures of Boonen are in the taſte of his maſter Schalcken; but his exceſſive application, to anſwer the multitude of his engagements, impaired his health, and deſtroyed while it enriched him. He died in 1729.

BOOPTHALMUS, a kind of agate with large circles in it, bearing ſome reſemblance to an ox's eye, from whence it has got this name.

BOOPS, in *Zoology*, the trivial name of a ſpecies of balæna. See BALÆNA, CETOLOGY *Index*.

BOOSHATTER, formerly the city of Uttica, famous for the retreat and death of Cato, lies about ſeven miles inland from PORTO FARINA in the bay of TUNIS. Nothing remains of its ancient grandeur except part of a large aqueduct, ſome ciſterns, and other magnificent ruins, which cover a large extent of ground, and ſhow it to have been a very conſiderable place. The ſea, it is known, came up anciently to this city, though now ſeven miles diſtant.

BOOT, a leathern cover or defence for the leg, uſed on horſeback, both to keep the body more firm, and defend the part from the injuries of the weather. Boots ſeem to have taken their name from the reſemblance they bear to a ſort of jacks or leathern bottles formerly in uſe, and called *bottæ*, in the old French *bouts*. Borel derives the name from the old French word *bot*, a ſtump, by reaſon the boot gives the leg this appearance. The Chineſe have a kind of boots made of ſilk or fine ſtuff lined with cotton, a full inch thick, which they always wear at home. This people are always booted; and when a viſit is made them, if they happen to be without their boots, their gueſt muſt wait till they put them on. They never ſtir out of doors without their boots on; and their ſcrupulouſneſs in this reſpect is the more remarkable as they are always carried in their chairs.

Fiſhing-boots || Booth.

The boot was much uſed by the ancients, by the foot as well as by the horſemen. It was called by the ancient Romans *ocrea*; in middle-age writers, *greva*, *gamberia*, *bainberga*, *bembarga* or *benbarga*. The boot is ſaid to have been the invention of the Carians. It was at firſt made of leather, afterwards of braſs or iron, and was proof both againſt cuts and thruſts. It was from this that Homer calls the Greeks *brazen-booted*. The boot only covered half the leg; ſome ſay the right leg, which was more advanced than the left, it being advanced forwards in an attack with the ſword; but in reality it appears to have been uſed on either leg, and ſometimes on both. Thoſe who fought with darts or other miſſile weapons, advanced the left leg foremoſt, ſo that this only was booted.

Fiſhing-Boots, are a thick ſtrong ſort uſed in dragging ponds and the like. Hunting-boots, a thinner kind uſed by ſportſmen. Jack-boots, a kind of very ſtrong boots uſed by the troopers.

BOOT, is likewiſe a kind of torture for criminals; to extort a confeſſion, by means of a boot, ſtocking, or buſkin of parchment; which being put on the leg moiſt, and brought near the fire, in ſhrinking ſqueezes the leg violently, and occaſions intolerable pain.

There is alſo another kind of boot; conſiſting of four thick ſtrong boards bound round with cords: two of theſe are put between the criminal's legs, and the two others placed one on the outſide of one leg and the other on the other; then ſqueezing the legs againſt the boards by the cords, the criminal's bones are ſeverely pinched, or even broken, &c.

The boot is now diſuſed in England and Scotland; but it ſubſiſts ſtill in ſome other countries.

Boot-Tree, or *Boot-laſt*, an inſtrument uſed by ſhoemakers to widen the leg of a boot. It is a wooden cylinder ſlit into two parts, between which, when it is put into the boot, they drive by main force a wedge or quoin.

BOOTES, a conſtellation of the northern hemiſphere, conſiſting of 23 ſtars according to Ptolemy's catalogue, of 18 in Tycho's, of 34 in Bayer's, of 52 in Hevelius's, and of 54 in Mr Flamſtead's catalogue.

BOOTH, BARTON, a famous Engliſh actor, born in Lancaſhire in 1681, and educated in Weſtminſter ſchool under the celebrated Dr Buſhby, where his ſucceſs in the Latin plays cuſtomarily performed by the ſcholars gave him an inclination for the ſtage. He was intended for the church; but running away from ſchool to Dublin, he there commenced actor. His firſt appearance was in the part of Oroonoko, in which he came off with every teſtimonial of approbation from the audience. From this time he continued daily improving; and, after two ſucceſsful campaigns in that kingdom, conceived thoughts of returning to his native country, and making a trial of his abilities on the Engliſh ſtage. To this end, he firſt, by letter, reconciled himſelf to his friends; and then, as a farther ſtep towards inſuring his ſucceſs, obtained a recommendation from Lord Fitzharding (one of the lords of the bedchamber to Prince George of Denmark) to Mr Betterton, who with great candour and good nature took him under his care, and gave him all the aſſiſtance in his

Booth. his power. The firſt part Mr Booth appeared in at London was that of Maximus in Lord Rocheſter's Valentinian, his reception in which exceeded even his moſt ſanguine expectations; and very ſoon after his performance of Artaban, in Rowe's Ambitious Stepmother, which was a new tragedy, eſtabliſhed his reputation as ſecond at leaſt to his great inſtructor. Pyrrhus, in the Diſtreſſed Mother, was another part in which he ſhone without a rival. But he was indebted to a happy coincidence of merit and chance, for that height of fame which he at length attained in the character of Cato, as drawn by Mr Addiſon, in 1712. For this play being conſidered as a party one, the Whigs, in favour of whoſe principles is was apparently written, thought it their duty ſtrongly to ſupport it, while at the ſame time the Tories, who had too much ſenſe to appear to conſider it as a reflection on their adminiſtration, were ſtill more vehement in their approbation of it, which they carried to ſuch a height, as even to make a collection of 50 guineas in the boxes during the performance, and preſent them to Mr Booth, with this compliment, "That it was a ſlight acknowledgment for his honeſt oppoſition to a perpetual dictator, and his dying ſo bravely in the cauſe of liberty." Beſides this, he had a preſent of an equal ſum from the managers, in conſideration of the great ſucceſs of the play, which they attributed in a good meaſure to his extraordinary merit in the performance; and certain it is, that no one ſince that time has ever equalled, or even nearly approached, his excellence in that character.—But theſe were not the only advantages which were to accrue to Mr Booth from his ſucceſs in this part; for Lord Bolingbroke, then one of the principal ſecretaries of ſtate, in a little time after procured a ſpecial licenſe from Queen Anne, recalling all the former ones, and nominating Mr Booth as joint manager with Wilkes, Cibber, and Dogget; none of whom were pleaſed at it; but the laſt eſpecially took ſuch diſguſt as to withdraw himſelf from any further ſhare in the management. In 1704, Mr Booth had married a daughter of Sir William Barkham Bart. who died in 1710, without iſſue. Being now eſtabliſhed in the management, he once more turned his thoughts towards matrimony; and in the year 1719 united himſelf to the celebrated Miſs Heſter Santlow, a woman of a moſt amiable diſpoſition, whoſe great merit as an actreſs, added to the utmoſt diſcretion and prudential economy, had enabled her to ſave up a conſiderable fortune. During the 20 years in which Mr Booth continued a manager, the theatre was in the greateſt credit; and his illneſs and death, which happened on the 10th of May 1733, contributed not a little to its decline.

Mr Booth wrote a dramatic entertainment called *Dido and Æneas*; but his maſterpiece was a Latin inſcription to the memory of Mr William Smith, a celebrated actor, who died while he was young.—As an actor, his excellency lay wholly in tragedy, not being able to endure ſuch parts as had not ſtrong paſſion to inſpire him. And even in this walk, dignity rather than complacency, rage rather than tenderneſs, ſeemed to be his taſte. For a particular idea of his abilities, we muſt refer to the deſcription Mr Cibber has given of him in his Apology; and the admirable character drawn of him by that excellent judge of dramatic perfection, Aaron Hill, Eſq. in a political paper publiſhed by him called the *Prompter*, which may be ſeen at length in Theoph. Cibber's Lives of the Poets, and Chetwood's Hiſtory of the Stage.—His character as a man was adorned with many amiable qualities, among which, a goodneſs of heart, the baſis of every virtue, was remarkably conſpicuous; and ſo particularly was he diſtinguiſhed and careſſed, and his company ſought by the great, that, as Chetwood relates of him, not one nobleman in the kingdom had ſo many ſets of horſes at command as he had.

Booty || Borax.

BOOTY, whatever is taken from an enemy in time of war.—Among the Greeks, the booty was divided in common among the army, the general only claiming a larger ſhare. By the military diſcipline of the Romans, ſpoils taken from the enemy belonged to the republic, particular perſons having no right to them. The generals who piqued themſelves on their probity carried it wholly to the public treaſury. Sometimes indeed they divided it among the ſoldiery, to animate them, and ſerve in lieu of a reward. But this diſtribution depended on the generals, who were to conduct themſelves herein with great equity and moderation; otherwiſe it became a crime of peculate to lay hands on the pillage, as regularly belonging only to the ſtate. The conſuls Romulus and Vaturius were condemned for having ſold the booty taken from the Equi.—Among the Jews, the booty was divided equally between the army and the people, though under the kings a different kind of diſtribution obtained.—Among the Mahometans, two thirds of the ſpoils are allowed to the army: the other third to God, to Mahomet and his relations, and to the orphans, the poor, and the pilgrims.—Among us, formerly the booty was divided among the ſoldiery. If the general be in the field, every body takes what he can lay hold on: if the general be abſent, the booty is diſtributed among the ſoldiery, two parts being allowed to the cavalry, and one to the infantry. A captain is allowed ten ſhares, a lieutenant ſix, and a cornet four.

BOPPART, a town of Germany, in the circle of the Rhine, and electorate of Treves; it is ſeated at the foot of a mountain near the Rhine, in E. Long. 7. 35. N. Lat. 50. 19.

BOPSINGEN, a town of Suabia in Germany, ſeated on the river Egar, in E. Long. 9. 55. N. Lat. 48. 51.

BOQUINIANS, in church hiſtory, a ſect of heretics, ſo called from Boquinus their founder, who taught that Chriſt did not die for all mankind, but only for the faithful, and conſequently was only a particular Saviour.

BORAGO, Borage. See Botany *Index*.

BORAK, among Mahometans, a fabulous animal, ſuppoſed to be of the middle kind between an aſs and a mule, whereon their prophet was carried in his nocturnal flight from Jeruſalem into the heavens. This animal the Arabians call *Al-Borak*, q. d. *ſhining*. The night when the journey was performed is called *Lailat al Meeraga*, i. e. *the night of aſcenſion*; and the flight itſelf *Al Meſra*; concerning which there is a multitude of traditions.

BORAX, in *Chemiſtry*, a ſalt in appearance ſomewhat ſimilar to cryſtals of alum, brought originally from

Borbetomagus || Bord-lode.

from the East Indies in an impure state, and afterwards freed from its impurities by certain processes in the European countries. It was long a matter of uncertainty whether this salt be a natural or factitious substance in those countries from whence it is brought; but it is now beyond a doubt, that it is naturally produced in the mountains of Thibet, from whence other parts of the eastern continent are supplied.

According to an account in the Philosophical Transactions, vol. lxxvii. by Mr Blane, it is produced in the kingdom of Jumlate, about 30 days journey north from Betowle, a small principality about 200 miles north-east of Lucknow. The place where it is found is said to be a small valley surrounded with snowy mountains, in which is a lake about six miles in circumference; the water of which is constantly so hot that the hand cannot bear it for any time. Around this lake the ground is perfectly barren, not producing even a blade of grass; and the earth is so full of a saline matter, that after falls of rain or snow it concretes in white flakes on the surface like the natron of Hindostan. On the banks of this lake, in the winter season, when the falls of snow begin, the earth is formed into small reservoirs six inches high: when these are filled with snow, the hot water from the lake is thrown upon it; which, together with the water from the melted snow, remains in the reservoir, to be partly absorbed by the earth and partly evaporated by the sun; after which there remains at the bottom a cake of sometimes half an inch thick of crude borax, which is taken up and reserved for use. It can only be made in the winter season, because the falls of snow are indispensably requisite, and also because the saline appearances upon the earth are strongest at that time. When once it has been made on any spot, it cannot be made again on the same until the snow has fallen and dissolved three or four times, when the saline efflorescence appears as before. See CHEMISTRY and MINERALOGY *Index*.

BORBETOMAGUS, in *Ancient Geography*, a city of the Vangiones on the Rhine; now *Worms*, in Germany.

BORBONIA. See BOTANY *Index*.

BORBORITES, in church-history, a sect of Gnostics, in the second century, who, besides embracing the errors of these heretics, denied the last judgment. Their name comes from the Greek *Borbores*, "filth;" on account of a custom they had of daubing their faces and bodies with dirt and filth.

BORCH, a town of the duchy of Magdeburg in Lower Saxony, seated on the river Elbe, in E. Long. 12. 14. N. Lat. 52. 25.

BORCHLOEN, a town of the bishopric of Liege in Germany, situated in E. Long. 5. 28. N. Lat. 50. 50.

BORCOVIUM, in *Ancient Geography*, a town of the Ottadini in Britain, now *Berwick on Tweed*.

BORD-HALFPENNY, a small toll by custom paid to the lord of the town for setting up boards, tables, booths, &c. in fairs and markets.

Bord-Lands, the demesnes which lords keep in their hands for the maintenance of their board or table.

Bord-Lode, a service required of tenants to carry timber out of the woods of the lord to his house. It is also used to signify the quantity of provision which the bordarii or bordmen paid for their bord-lands.

Bord-service || Borde.

Bord-Service, the tenure of bord-lands, by which some lands in certain places are held of the bishop of London, and the tenants now pay sixpence per acre, in lieu of sending provision anciently for their lord's table.

BORDAT, in *Commerce*, a small narrow stuff, which is manufactured in some parts of Egypt, particularly at Cairo, at Alexandria, and Damietta.

BORDE, ANDREW, a physician, was born at Pevensey in Sussex, early in the 16th century, and supposed to have been educated at Westminster school. In his *Introduction to Knowledge*, he says, that he was a student of Oxford; but of what college he does not mention. He left the university without a degree, and entered himself a brother of a Carthusian convent in or near London; but not liking the severe discipline of that order, he returned to Oxford and applied himself to the study of physic. Some time after, he embarked for the continent; and, as he himself expresses it, "travelled through and round about Christendom, and out of Christendom into some parts of Africa." In the years 1541 and 1542, he resided at Montpelier in France, where he was made doctor of physic, and after his return to England was incorporated into the same degree at Oxford. From the preface to his *introduction* above mentioned, it appears that he had been in Scotland, which probably was soon after his return from France. Having now satisfied his inclination for travelling, he settled first at Pevensey where he was born, afterwards at Winchester, and finally in London, where he is said to have become a fellow of the college of physicians, and first physician to King Henry VIII. But notwithstanding his eminence in his profession, he had the misfortune to spend the latter end of his life in the Fleet prison, where he died in the year 1549. As to his character, Wood says, that "he was esteemed a noted poet, a witty and ingenious person, and an excellent physician." Pits call him a man of sufficient learning, but too volatile and inconstant. Bale and some others, on the contrary, abuse him grossly. His writings are, 1. A book of the introduction of knowledge, the whych doth teach man to speak part of all manner of languages, &c. Lond. 1542, 4to; dedicated, from Montpelier, to the lady Mary daughter to Henry VIII. It is written partly in verse, and partly in prose, containing 39 chapters, before each of which is a wooden print of a man. 2. The breviary of health, wherein are remedies for all manner of sicknesses and diseases, &c. Lond. 1547, &c. 4to. 3. Dietary of health, Lond. 1576, 8vo. 4. The merry tales of the madmen of Gotham. Printed, says Wood, in the time of Henry VIII. in whose reign, and after, it was accounted a book full of wit and mirth by scholars and gentlemen. Afterwards being often printed, it is now only sold on the stalls of ballad-singers. 5. A right pleasant and merry history of the mylner of Abington, with his wife and his fair daughter, and of two poor scholars of Cambridge. Lond. printed by Richard Jones, 4to. 6. A book of every region, country, and province; which shows the miles and leagues distance from city to city, and from town to town, with the noted things in the said cities and towns.

Wood

Border || Borel.

Wood ſays that the author lent the manuſcript of this book to his friend Thomas Cromwell, who loſt it, to the great grief of the author, who would otherwiſe have publiſhed it. In this inſtance, however, the antiquary was miſinformed; for it has ſince been publiſhed by Hearne at the end of *Benedictus abbas Peterb. de vita Henrici* II. Oxf. 1735, 8vo. 7. The principles of aſtronomy, the whych diligently perſecuted is in a manner a prognoſtication to the world. Lond. printed by Robert Copland, 12mo. The author ſays that he wrote this little book in four days, with one old pen without mending.

BORDER, in *Gardening*, is made to encloſe parterres, that they may not be injured by walking in them. Borders are made either circular, ſtraight, or in cants; and are turned into knots, ſcrolls, volutes, and other compartiments. They are rendered very ornamental by the flowers, ſhrubs, yews, &c. that are raiſed in them. They are always laid with a ſharp riſing in the middle; becauſe, if they are flat, they are noways agreeable to the eye: and as for their breadth, the largeſt are allowed five or ſix feet, and the ſmalleſt commonly four.

BORDUNI, or Bordone, *Paris*, an excellent Italian painter, was born at Venice about the year 1512; and, being of a noble family, had a polite education. He was the diſciple of Titian; but has been admired more for the delicacy of his pencil than for the truth of his outlines. He was at the court of France in the reign of Francis I. who had a great eſteem for him, and for whom he drew not only abundance of hiſtory-pieces, but the portraits of ſeveral court-ladies, in ſo fine a manner, that original nature was hardly more charming. He at length returned to Venice, laden with riches and honour; and having gained great reputation in all parts of Italy, died in 1587, aged 75.

BORDURE, in *Heraldry*. See there, N° 10.

BORE, among engineers, denotes the diameter of the barrel of a gun or cannon, or rather its whole cavity.

BOREAS, a Greek name, now in common uſe for the north wind. Pezron obſerves, that anciently Boreas ſignified the *north-eaſt wind* blowing at the time of the ſummer ſolſtice. The Greeks erected an altar to Boreas. He is repreſented on the temple at Athens with his robe before his mouth, as if he felt the cold of the climate over which he preſides, agreeably to the deſcription of Ovid, who calls him *gelidus tyrannus*, "the ſhivering tyrant," Met. vi. ver. 711. But he is uſually deſcribed by the Roman poets as violent and impetuous; ibid. ver. 686—ver. 707. In painting, he is generally repreſented like an old man with a horrible look, his hair and beard covered with ſnow or hoar froſt, with the feet and tail of a dragon. M. Spierlingius has a treatiſe in praiſe of Boreas, wherein he ſhows the honours paid to him by antiquity. Boreas, according to this author, puriſies the air, renders it calm and ſalubrious, preſerves buildings from decay, drives away the plague and other noxious diſeaſes, and expels locuſts and other vermine hurtful to the grounds.

BOREL, Peter, a learned phyſician, was the ſon of James Borel who publiſhed ſeveral poems, and was born at Caſtres in 1620. He applied himſelf to the ſtudy of phyſic, of which he was created doctor, and practiſed with great ſucceſs in the city of Caſtres. Towards the end of the year 1653, he went to Paris, and was ſoon after made phyſician in ordinary to the king. In 1674, he was received into the academy of ſciences, and diſtinguiſhed himſelf by writing a great number of works. The moſt eſteemed are, 1. *Hiſtoriarum et obſervationum medico-phyſicarum centuriæ quinque.* 2. *Bibliotheca chymica, duodecimo.* 3. *De vero teleſcopii inventore, cum brevi omnium conſpiſcillorum hiſtoria.* He died in 1678.

Borelli, Borgia.

BORELLI, John Alphonso, a famous philoſopher and mathematician, born at Naples the 28th of January 1608. He was profeſſor of philoſophy and mathematics in ſome of the moſt celebrated univerſities of Italy, particularly at Florence and Piſa, where he became highly in favour with the princes of the houſe of Medicis; but having been engaged in the revolt of Meſſina, he was obliged to retire to Rome, where he ſpent the remainder of his life under the protection of Chriſtina queen of Sweden, who honoured him with her friendſhip, and by her liberality towards him ſoftened the rigour of his hard fortune. He continued two years in the convent of the regular clergy of St Pantaleon, called the *pious ſchools*, where he inſtructed the youth in mathematical ſtudies. He died there of a pleuriſy, the 31ſt of December 1679, in the 72d year of his age. He wrote in Latin, 1. Euclid reſtored. 2. The theory of the influence of the planets in medicine, deduced from phyſical cauſes. 3. Of percuſſive force. 4. Of natural motions depending upon gravity. 5. An hiſtorical and meteorological account of the burning of Mount Ætna, in the year 1669. 6. Of the motion of animals; and ſeveral other works, ſome of which are in Italian.

BORGIA, Cæsar, natural ſon of Pope Alexander VI. was a brave general, but a moſt abandoned villain. See (*Hiſtory of*) Italy.—It is incredible what numbers he cauſed to be taken off by poiſon, or by the ſword; and it is notorious that ſwarms of aſſaſſins were conſtantly kept in pay by him at Rome, for the ſake of removing all who were either obnoxious or inconvenient to him. He experienced various turns of fortune; and was ſometimes very proſperous, ſometimes the reverſe. He very narrowly eſcaped dying by poiſon in 1503; for having concerted with the pope a deſign of poiſoning nine newly created cardinals at once, for the ſake of poſſeſſing their effects, the poiſoned wine, deſtined for the purpoſe, was by miſtake brought to and drank by themſelves. The pope died of it; but Cæſar, by the vigour of his youth, and the force of antidotes, after many ſtruggles, recovered. He only recovered to outlive his fortune and grandeur, to ſee himſelf depreſſed, and his enemies exalted; for he was ſoon after diveſted of all his acquiſitions, and ſent a priſoner to Spain, in order to free Italy from an incendiary, and the Italian princes from thoſe dangers which the turbulent and reſtleſs ſpirit of Cæſar made them fear, even though he was unarmed. He eſcaped from thence; and got ſafe to Navarre to King John his brother-in-law, who was then at war with his ſubjects. Cæſar ſerved as a volunteer in that war, and was killed in 1507.

BORGO,

Borgo || Boring.

BORGO, an ancient town of Sweden, ſeated on the gulf of Finland, in the province of Nyland. E. Long. 26. 25. N. Lat. 60. 34.

Borgo de St Sepulchro, a town of Tuſcany, in Italy, ſituated in E. Long, 13. 0. N. Lat. 43. 30.

Borgo de Val de Faro, a town of Italy, in the duchy of Parma, in E. Long. 10. 36. N. Lat. 44. 35.

Borgo Forte, a town of the Mantuan in Italy, ſituated at the confluence of the rivers Po and Menzo. E. Long. 11. 0. N. Lat. 44. 50.

Borgo San Domino, a town of Italy, in the duchy of Parma, with a biſhop's ſee. E. Long. 10. 31. N. Lat. 41. 53.

BORGOGNONE, a celebrated painter, whoſe true name was *Giacomo Corteſſi;* but he is commonly called *Borgognone*, from the country where he was born, about the year 1605. He was much admired and highly applauded for his admirable guſto and grand manner of painting battles. He had for ſeveral years been converſant in military affairs, was an officer of conſiderable rank in the army, made the camp his ſchool, and formed all his ideas from what he had ſeen performed in the field. His ſtyle is roughly noble, full of fire and ſpirit, and there are a few prints etched by his own hand. Towards the cloſe of his life he retired to the Jeſuits convent at Rome, where he is ſaid to have taken ſanctuary to rid his hands of an ill bargain he had got of a wife; but happily ſurviving her, he lived in great eſteem and honour till after the year 1675.

BORIA, a ſmall town of Spain, in the kingdom of Arragon. W. Long. 2. 2. N. Lat. 41. 50.

BORING, in a general ſenſe, the art of perforating, or making a hole through any ſolid body.

Boring of Water-pipes. The method of boring water-pipes is as follows. The poles of alder, which is a very uſeful wood in making pumps, water-pipes, &c. being laid on horſes or traſſels of a foot height, to reſt the augre upon while they are boring, they ſet up a lathe to turn the leaſt end of the poles, to fit them to the cavities of the great end of the others. They turn the ſmall ends of the poles about five or ſix inches in length, to the ſize they intend to bore the bigger ends about the ſame depth, viz. five or ſix inches. This is deſigned to make a joint to ſhut each pair of poles together, the concave part being the female part, and the other the male of the joint. In turning the male part, they turn the channel in it, or a ſmall groove at a certain diſtance from the end; and in the female part they bore a ſmall hole to fit over this channel. This being done, they bore the poles through; and to prevent them from boring out at the ſide, they ſtick great nails at each end to be a guide in boring. It is uſual, however to bore them at both ends; ſo that if a pole be crooked one way, they can bore it through and not ſpoil it.

Boring, in *Farriery*, a cruel and abſurd method of treating a wrenched ſhoulder. See Farriery *Index.*

Boring, in *Mineralogy*, a method of piercing the earth with ſcooping irons, which being drawn back at proper times, bring up with them ſamples of the different ſtrata through which they have paſſed; by the examination of which the ſkilful mineralogiſt will be able to gueſs whereabouts a vein of ore or a ſtratum of coal may lie, or whether it will be worth while to open a mine for the purpoſe of working it.

Boriquen || Borlaſe.

BORIQUEN, one of the Caribbee iſlands in North America, near that of Porto Rico. The Engliſh formerly had a ſettlement there, but were driven away by the Spaniards. It is at preſent without inhabitants, though agreeable and fertile; the air being wholeſome, and the water good. There are a great number of land-crabs, whence ſome have called it *Crab-iſland.* W. Long. 64. 35. N. Lat. 18. 0.

BORISTHENES, in *Ancient Geography*, the largeſt river of Sarmatia Europea, thus deſcribed by Mela, who copies *verbatim* from Herodotus: "It runs through a cognominal people, is the moſt pleaſant of all the rivers of Scythia, and calmer than all of them in its courſe, and very agreeable to drink: it feeds very rich paſtures, and produces large fiſh of the beſt flavour, and without bones; it comes a great way, riſing from ſprings unknown; its courſe is a diſtance of 40 days, and ſo far is it navigable." It is now called the *Dnieper* or *Nieper.*

BORKELO, a ſtrong town in the United Provinces, in the county of Zutphen, ſeated on the river Borkel, in E. Long. 6. 30. N. Lat. 52. 15.

BORLASE, Dr Edmund, an eminent phyſician and Engliſh writer in the 17th century, was the ſon of Sir John Borlaſe, maſter of the ordinance, and one of the lord juſtices of Ireland in 1643. He ſtudied in Dublin college, and afterwards at the univerſity of Leyden, at which laſt place he took the degree of doctor of phyſic. He afterwards practiſed phyſic with great ſucceſs in the city of Cheſter, and was incorporated doctor of the faculty in the univerſity at Oxford. Among the books which he wrote and publiſhed are the following. 1. Latham Spaw in Lancaſhire, with ſome remarkable caſes and cures performed by it. 2. The reduction of Ireland to the crown of England. 3. The Hiſtory of the Iriſh rebellion. 4. Brief reflections on the earl of Caſtlehaven's memoirs, &c. He died after the year 1682.

Borlase, *William*, a very ingenious and learned writer, was of an ancient family in Cornwall, and born at Pendeen, in the pariſh of St Juſt, Feb. 2. 1695-6. He was put early to ſchool at Penzance, and in 1709 removed to Plymouth. March 1712-13, he was entered of Exeter college, Oxford; and, June 1719, took a maſter of arts degree. In 1720, he was ordained a prieſt; and, in 1722, inſtituted to the rectory of Ludgvan in Cornwall. In 1732, lord chancellor King preſented him to the vicarage of St Juſt, his native pariſh; and this, with the rectory aforeſaid, were all the preferments he ever had. In the pariſh of Ludgvan were rich copper works, which abound with mineral and metallic foſſils; and theſe, being a man of an active and inquiſitive turn, he collected from time to time, and thence was led to ſtudy at large the natural hiſtory of his native county. He was ſtruck at the ſame time with the numerous monuments of remote antiquity that are to be met with in Cornwall; and, enlarging therefore his plan, he determined to gain as accurate an acquaintance as poſſible with the Druid learning, and with the religion and cuſtoms of the ancient Britons, before their converſion to Chriſtianity. In 1750 he was admitted a fellow of the Royal Society; and, in 1753, publiſhed

Borlaſe || Borneo.

in folio at Oxford his "Antiquities of Cornwall;" a ſecond edition of which was publiſhed, in the ſame form, at London, 1769, with this title, "Antiquities, hiſtorical and monumental, of the county of Cornwall; conſiſting of ſeveral eſſays on the ancient inhabitants, Druid ſuperſtition, cuſtoms and remains of the moſt remote antiquity in Britain and the Britiſh iſles, exemplified and proved by monuments now extant in Cornwall and the Scilly iſlands; with a vocabulary of the Cornu-Britiſh language. Reviſed, with ſeveral additions, by the author; to which is added a map of Cornwall, and two new plates." His next publication was, "Obſervations on the ancient and preſent ſtate of the iſlands of Scilly, and their importance to the trade of Great Britain; Oxf. 1756," 4to. This was the extenſion of a paper which had been read before the Royal Society in 1753. In 1758 came out his "Natural hiſtory of Cornwall; Oxf." fol. After theſe publications, he ſent a variety of foſſils and remains of antiquity which he had deſcribed in his works, to be repoſited in the Aſhmolean muſeum: for which, and other benefactions of the ſame kind, he received the thanks of the univerſity, in a letter from the vice-chancellor, Nov. 18. 1758; and, March 1766, the degree of doctor of laws. He died in 1772, aged 77 years, leaving two ſons out of ſix, whom he had by a lady he married in 1724. Beſides his literary connexions with many ingenious and learned men, he had a particular correſpondence with Mr Pope; and there is ſtill exiſting a large collection of letters written by that poet to Dr Borlaſe. He furniſhed Pope with many of the materials which formed his grotto at Twickenham, conſiſting of curious foſſils; and there may at preſent be ſeen Dr Borlaſe's name in capitals, compoſed of cryſtals, in the grotto. On which occaſion Pope ſays to Borlaſe in a letter, "I am much obliged to you for your valuable collection of Corniſh diamonds: I have placed them where they may beſt repreſent yourſelf, *in a ſhade, but ſhining*;" alluding to the obſcurity of the doctor's ſituation, and the brilliancy of his talents. Beſides the above works, he ſent many curious papers to the Philoſophical Tranſactions, and had in contemplation ſeveral other works.

BORMIO, a county depending on the republic of the Griſons in Switzerland. It is bounded on the ſouth by the ſtate of Venice, on the eaſt by the territory of the houſe of Auſtria, and on the ſouth and weſt by Caddea. It is 15 miles over both ways; and is divided into five communities, viz. the town of Bormio, the valley of Forbia, the Interior Valley, the Lower Valley, and the Valley of Luvino. Bormio is the only town in this diſtrict; and has a governor called called a *podeſta*, ſent by the Griſons to preſide in civil and criminal affairs. It is ſeated at the confluence of the rivers Addo and Iſalacua, in E. Long. 10. 10. N. Lat. 46. 45.

BORNE, a market town of Lincolnſhire in England. W. Long. 0. 20. N. Lat. 52. 40.

BORNEO, an iſland of Aſia, in the Eaſt Indies, and one of the three great Sunda iſlands. It is thought to be the largeſt iſland in the world, next to New Holland; being 1500 miles in circumference. It is ſeated under the equator, that line cutting it almoſt through the middle. It is almoſt of a circular figure; abounds with gold; and the fineſt diamonds in the Indies are found in its rivers, being probably waſhed down from the hills by torrents. Here are alſo mines of iron and tin, and loadſtones. Bird's neſts † are to be had in this iſland, which are eatable, and reckoned a great delicacy. The beaſts are, oxen, buffaloes, deer, goats, elephants, tigers, and monkeys. This iſland has fine rivers, eſpecially towards the weſt and ſouth. In their monſoon from April to September, the wind is weſterly; and they have continual heavy rains, attended with violent ſtorms of thunder and lightning. The rainy ſeaſon continues for eight months of the year; and as during that time all the flat country near the coaſt is overflowed, the air is rendered very unhealthful, and the inhabitants are forced to build their houſes on floats, which they make faſt to trees. The houſes have but one floor, with partitions made with cane; and the roofs are covered with palmetto leaves, the eaves of which reach within four or five feet of the bottom. The weſt and north eaſt ſides of the iſland are almoſt deſert, and the eaſt is but little known. The inland parts are very mountainous; and the ſouth-eaſt, for many leagues together, is a ſtinking moraſs, which, being overflowed in the wet ſeaſon, is very unhealthy.

Borneo.

† See *Bird's-Neſts*.

The Portugueſe, who firſt diſcovered Borneo, had arrived in the Indies above 30 years before they knew any thing of it more than the name, and its ſituation, by reaſon of their frequently paſſing by its coaſt. At laſt one Captain Edward Corril had orders to examine it more narrowly; and being once acquainted with the worth of the country, they made frequent voyages thither. They found the coaſts inhabited by Malayan Moors, who had certainly eſtabliſhed themſelves there by conqueſt; but the original inhabitants ſtill remain in the mountains, and are ſtyled *Beajus*, which in the Malayan language ſignifies a *wild man*. The moſt authentic account of theſe people is the following, which was extracted from the papers of Father Antonio Ventimiglia, an Italian miſſionary. He was ſent to Borneo from Macao, on board a Portugueſe ſhip, converted great numbers to Chriſtianity, and died on the iſland about the year 1691. The Beajus have no kings, but many little chiefs. Some are ſubject to the Mooriſh kings, and pay them tribute; but ſuch as live far up the country are altogether independent, and live according to their own cuſtoms. They are generally very ſuperſtitious, and much addicted to augury. They do not adore idols; but their ſacrifices of ſweet wood and perfumes are offered to one God, who, they believe, rewards the juſt in heaven, and puniſhes the wicked in hell. They marry but one wife; and look upon any breach of conjugal faith, either in the man or woman, as a capital offence. The Beajus are naturally honeſt and induſtrious, and have a brotherly affection for one another. They have a notion of property, which yet does not render them covetous. They ſow and cultivate their lands; but in the time of harveſt, each reaps as much as will ſerve his family, and the reſt belongs to the tribe in common; by which means they prevent neceſſity or diſputes. With the Moors on the coaſts the Portugueſe for ſome time carried on a conſiderable trade, and at their requeſt ſettled a factory there; which, however, was afterwards ſurpriſed and plundered by the Moors, who put moſt of the

Bornholm, Bornou.

the people to the ſword. The moſt conſiderable river in Borneo is called *Banjar*, at the mouth of which our Eaſt India Company have a factory.

BORNHOLM, an iſland in the Baltic ſea, to the ſouth-eaſt of the province of Schonen in Sweden. It is twenty-one miles in length, and above thirteen in breadth. It has three conſiderable towns, Rattum, Sandwick, and Nexia; with a great number of villages; and is fertile and populous. It was conquered by the Swedes in 1658; but the inhabitants, under the conduct of Jens Roefods, voluntarily ſurrendered it to the king of Denmark, on account of the bad uſage they received from the former. In 1678, a body of 5000 Swediſh troops, in their paſſage from Pomerania to Sweden, being ſhipwrecked on this iſland, ſuch of them as remained were made priſoners of war. The inhabitants defend the iſland by their own militia, without any expence to the crown. The commandant or governor reſides at Rattum. E. Long. 14. 56. N. Lat. 55. 15.

BORNOU, a kingdom or province of Zaara in Africa, extending from 12 to 22 degrees of eaſt longitude, and from 17 to 21 degrees of north latitude. The northern part is poor, and like the reſt of the provinces of Zaara: but all the reſt is well watered by ſprings and rivers that tumble down with a dreadful noiſe from the mountains; rendering the country prolific in corn, graſs, and fruits, and giving it a pleaſing aſpect. The eaſtern and weſtern frontiers are divided into mountains and valleys, the latter being all covered with flocks of cattle, fields of rice and millet, and many of the mountains with wood, fruit-trees, and cotton. On the north-weſt ſtands the mountain of Tarton, having plenty of good iron mines; and on the ſouth flows the river Niger, which, it is ſaid, after running a great many leagues under a long chain of mountains, rears up its head again, and mingles its ſtreams with the waters of the lake Bornou in its courſe, from whence it waſhes the walls of the capital of this kingdom. The compilers of the Univerſal Hiſtory, however, are of opinion, that in theſe mountains the river Niger hath its ſource, becauſe no river hath been traced to the eaſtward, except the Nile, which runs in a different courſe from north to ſouth, and the White river, on the weſtern frontiers of Abyſſinia, which is a branch of the Nile. The eaſtern and weſtern parts of Bornou are inhabited by a people of a roving diſpoſition, who live in tents, and have their women, children, and every thing elſe, in common; the word *property*, or any idea equivalent to it, being utterly unknown among them. They have neither religion, laws, government, nor any degree of ſubordination; and hence they have been ſuppoſed by Cluverius to be the lineal deſcendents of the ancient Garamantes, and this to have been the reſidence of that people. In theſe parts, the natives are almoſt to a man ſhepherds and huſbandmen. In ſummer they go naked, except a ſhort apron before; but in winter they are warmly clothed with the ſofteſt ſheep-ſkins, of which they alſo form their bedclothes; and indeed this is ſcarce a ſufficient defence againſt the inclemency of the weather at certain ſeaſons of the year, when a cold piercing wind blows from the northern mountains that chills the blood in proportion as the pores of the body have been opened by the ſcorching heats of ſummer. Baudrand and Draper affirm, that the natives are ſcarce ſuperior in their underſtanding to brutes; not even having any names whereby to diſtinguiſh each other, except what they take from ſome perſonal defect or ſingularity; ſuch as lean, fat, ſquinting, humpbacked, &c. In the towns, however, it is acknowledged that they are ſomething more civilized and polite, being many of them merchants; but of theſe towns, or indeed of the kingdom in general, very little is known.

Boromæus ‖ Borough.

BOROMÆUS. See Borromeus.

BORONDON, St, an iſland in the Atlantic ocean, mentioned by ſome writers, particularly Linſchotten, in their deſcription of the Canary iſlands, as ſomething ſupernatural. It is ſaid to be about 100 leagues diſtant from Ferro, probably weſt, though no writer has pretended to lay down its exact ſituation. Here it is affirmed ſeveral ſhips have touched by accident, and all agree in their relations of the ſtate of the inhabitants and iſland. They affirm, that it is perpetually clothed with a great variety of wood, chiefly fruit-trees: that the valleys are in a perpetual ſtate of verdure; and continually decked with flowers, graſs, and plants, the ſpontaneous productions of the earth; or with corn and pulſe, cultivated with great care by the inhabitants: that the ſoil is ſo prolific as to raiſe large quantities of corn for exportation; and that the ſhips that call here never fail of meeting with refreſhments of every kind. It is ſaid to be peopled by Chriſtians, who have a language of their own, apparently combined of a variety of modern languages; for, ſay they, whoever underſtands the European tongues may make ſhift to hold converſation with this people. It is remarkable, that no ſhips, expreſsly ſent upon this diſcovery, were ever fortunate enough to fall in with the iſland of St Borondon, though the Spaniards have ſeveral times attempted it from the Canaries. Hence it has been called the *marvellous iſland*; and hence indeed we may conclude, either that it exiſts wholly in imagination, or at leaſt that it is ſurrounded with ſuch currents as inſenſibly carry ſhips out of their courſe, and prevent their meeting with it. Some writers affirm that it actually diſappears upon certain occaſions, and ſhifts its poſition: while others, with more appearance of truth, allege, that it is frequently overcaſt with thick and impenetrable clouds, which occaſion the diſappointment of all the adventurers who have gone in ſearch of it.

BOROUGH, Burrough, *Borow*, or *Burgh*, is frequently uſed for a town or corporation which is not a city.

Borough, in its original Saxon *borge*, or *borgh*, is by ſome ſuppoſed to have been primarily meant of a tithing or company conſiſting of ten families, who were bound and combined together as each others pledge. Afterwards, as Verſtegan informs us, borough came to ſignify a town that had ſomething of a wall or encloſure about it: ſo that all places which among our anceſtors, had the denomination borough, were one way or other fenced or fortified. But, in later times, the ſame appellation was alſo beſtowed on ſeveral of the *villæ inſigniores*, or country towns of more than ordinary note, though not walled.

The ancient Saxons, according to Spelman, gave the name burgh to thoſe called, in other countries, cities. But divers canons being made for removing the

Borough || Borough-English.

epiſcopal ſees from villages and ſmall towns to the chief cities, the name *city* became attributed to epiſcopal towns, and that of borough retained to all the reſt; though theſe too had the appearance of cities, as being governed by their mayors, and having laws of their own making, and ſending repreſentatives to parliament, and being fortified with a wall and caſtle, and the like.

Borough, or *burgh*, is now particularly appropriated to ſuch towns and villages as ſend burgeſſes or repreſentatives to parliament. Boroughs are equally ſuch, whether they be incorporate or not; there being great numbers of our Engliſh boroughs not incorporated; and, on the contrary, ſeveral corporations that are not boroughs; *e. gr.* Kingſton, Deal, Kendal, &c.

Boroughs, in Scotland. See Law.

Royal Boroughs, in Scotland, are corporations made for the advantage of trade, by charters granted by ſeveral of their kings; having the privilege of ſending commiſſioners to repreſent them in parliament, beſides other peculiar privileges. The royal boroughs are not only ſo many diſtinct corporations, but do alſo conſtitute one entire body, governed by, and accountable to, one general court, anciently called *the court of four boroughs*, held yearly to treat and determine concerning matters relating to the common advantage of all boroughs. The four boroughs which compoſed this court were, Edinburgh, Stirling, Roxburgh, and Berwick; which two laſt falling into the hands of the Engliſh, Linlithgow and Lanark were put in their places; with a ſaving to the former whenever they ſhould return to their allegiance. But this court not being ſufficient to anſwer the neceſſities of the royal boroughs, they were all empowered under James III. in 1487, to ſend commiſſioners to a yearly convention of their own, which was then appointed to be held at Inverkeithing, but is now held at Edinburgh, under the denomination of the *convention of boroughs*, veſted with great power, and having for their object the benefit of trade, and the general intereſt of the boroughs.

Borough-Courts, are certain courts held in boroughs, by preſcription, charter, or act of parliament: ſuch are the ſheriff's court, and court of huſtings, in London.

Borough-Engliſh, a cuſtomary deſcent of lands or tenements, in ſome ancient boroughs and copyhold manors, by which the youngeſt ſon, and not the eldeſt, ſucceeds to the burgage tenement on the death of his father. For which Littleton gives this reaſon; becauſe the younger ſon, by reaſon of his tender age, is not ſo capable as the reſt of his brethren to help himſelf. Other authors have indeed given a much ſtranger reaſon for this cuſtom; as if the lord of the fee had anciently a right to break the ſeventh commandment with his tenant's wife on her wedding night; and that therefore the tenement deſcended, not to the eldeſt, but to the youngeſt ſon, who was more certainly the offſpring of the tenant. But it cannot be proved that this cuſtom ever prevailed in England, though it certainly did in Scotland, (under the name of *mercheta*, or *marcheta*), till aboliſhed by Malcolm III. But perhaps a more rational account than either may be brought from the practice of the Tartars; among whom, according to Father Duhalde, this cuſtom of deſcent to the youngeſt ſon alſo prevails. That nation is compoſed totally of ſhepherds and herdſmen; and the elder ſons, as ſoon as they are capable of leading a paſtoral life, migrate from their father with a certain allotment of cattle, and go to ſeek a new habitation. The youngeſt ſon, therefore, who continues lateſt with his father, is naturally the heir of his houſe, the reſt being already provided for. And thus we find, that among many other northern nations it was the cuſtom for all the ſons but one to migrate from the father, which one became his heir. So that poſſibly this cuſtom, wherever it prevails, may be the remnant of that paſtoral ſtate of the ancient Britons and Germans which Cæſar and Tacitus deſcribe.

Borough-head || Borromeus.

Borough-head, or *Head-borough*, called alſo *borough-holder*, or *burſholder*, the chief man of the decenna, or hundred, choſen to ſpeak and act in behalf of the reſt.

Head-borough alſo ſignifies a kind of head conſtable, where there are ſeveral choſen as his aſſiſtants, to ſerve warrants, &c. See Constable.

BOROUGHBRIDGE, a town in the north riding of Yorkſhire in England, ſeated on the river Your, over which there is a handſome ſtone bridge. The town is not large, but commodious, and ſends two members to parliament. W. Long. 1. 15. N. Lat. 54. 10.

BOROZAIL, or the zeal of the Ethiopians, a diſeaſe epidemic in the countries about the river Senegal. It principally affects the pudenda, but is different from the lues venerea. It owes its riſe to exceſſive venery; in the men this diſtemper is called *aſab*, and in women *aſſabatus*.

BORRACHIO. See Caoutchouk.

BORRAGE. See Borago, Botany *Index*.

BORRELLISTS, in church-hiſtory, a Chriſtian ſect in Holland, ſo denominated from their founder Borrel, a perſon of great learning in the Hebrew, Greek, and Latin tongues. They reject the uſe of the ſacraments, public prayer, and all other external acts of worſhip. They aſſert, that all the Chriſtian churches of the world have degenerated from the pure apoſtolical doctrines, becauſe they have ſuffered the word of God, which is infallible, to be expounded, or rather corrupted, by doctors who are not infallible. They lead a very auſtere life, and employ a great part of their goods in alms.

BORRICHIUS, one of the moſt learned men of his age, the ſon of a Lutheran miniſter in Denmark, was born in 1626. He applied himſelf to phyſic in the univerſity of Copenhagen, and began to practiſe during a moſt terrible plague that made great havoc in that city. He travelled: but before his departure, in 1660, he was appointed profeſſor in poetry, botany, and chemiſtry; and at his return diſcharged his duties with great aſſiduity, of which the works he publiſhed afford full proof. He was raiſed to the office of counſellor in the ſupreme council of juſtice, in 1686; to that of counſellor of the royal chancery, in 1689; and died of the operation for the ſtone, in 1690. He publiſhed, 1. *Lingua pharmacopœorum*. 2. *Diſſertationes de poeticis Græcis et Latinis*. 3. *De ortu et progreſſu chemiæ*; and ſeveral other works.

BORROMEUS, St Charles, cardinal, and archbiſhop

Borromeus. biſhop of Milan; a perſonage of great note in the Romiſh kalendar, and whoſe ſincere piety, ſimplicity of manners, and zeal for reformation, render him indeed a character equally intereſting and inſtructive to the members of any church. He was the ſon of Gilbert Borromeus count of Arona and of Mary of Medicis, and was born at the caſtle of Arona upon Lake Major in the Milaneſe, in October 1538. When he was about 12 years old, Julius Cæſar Borromeus reſigned an abbacy to him of a conſiderable revenue, which was conſidered as an hereditary inheritance of the family; which Charles accepted, but applied the revenue wholly in charity to the poor. Having acquired a ſufficient knowledge of the languages at Milan, he ſtudied the civil and canon law at Pavia, where he lived like another Lot in Sodom, preſerving his innocence among a thouſand ſnares by which it was endangered. He received great advantage from the company and converſation of Francis Alciat, one of the moſt learned men of the age, for whom he afterwards procured the purple. He would accept no new benefice but upon condition that he ſhould be at liberty to apply the revenue to public uſes. In the year 1554, Charles being then 16 years old, his father died, an event which brought him back to the caſtle of Arona; where, though he had an elder brother, Count Frederick, he was requeſted by the family to take upon him the management of the domeſtic affairs, to which at length he conſented.

After ſome time he returned again to his ſtudies, which, in the year, 1559, being then juſt 21, he finiſhed by a ſolemn act, and took his doctor's degree. The promotion of his uncle to the pontificate, by the name of *Pius IV.* which happened the year following, ſeemed to have very little effect upon him; but he was very ſoon made protonotary, and entruſted both with the public and privy ſeal of the eccleſiaſtical ſtate: he was alſo, at the ſame time, created cardinal deacon, and ſoon after archbiſhop of Milan. In obedience to the will of his uncle the pope, he lived in great ſplendour, having a brilliant retinue and a great number of domeſtics; yet his own temperance and humility were never brought into queſtion. In order to render even his amuſements uſeful, he eſtabliſhed an academy of ſelect and learned perſons, as well eccleſiaſtics as laics, from among his houſehold and dependants, who were employed in ſome exerciſe which tended to inſpire a love of virtue, and to form a juſt taſte. Each of them was to write upon ſome choſen ſubject, either in verſe or in proſe, and to communicate to each other in frequent conferences the fruits of their ſtudies. The works produced by this ſociety have been publiſhed in many volumes, under the title of *Noctes Vaticanæ*, becauſe theſe uſeful aſſemblies were held at the Vatican, and at night, after the buſineſs of the day was over. About this time Charles alſo formed a deſign of founding a college at Pavia, which ſhould at the ſame time be a ſchool of ſcience and an aſylum from the vices and vanities of the world. In proſecution of this deſign, he raiſed a large edifice upon the foundations of ſeveral houſes which belonged to the family of Borromeus in that city; he obtained from the pope ſeveral benefices, which he attached to his building; he provided it with all things neceſſary for the young ſcholars out of his own revenue; and he dedicated his Borromeus. college to St Juſtina virgin and martyr.

Upon the death of his only brother Frederick, his relations, his friends, and even the pope himſelf, adviſed him to change his ſtate, to quit the church, and marry, that his family might not become extinct. Charles, however, contrary to this advice and the expectations of the world, received the prieſthood, and addreſſed the pope in theſe terms; "Do not complain of me, Holy Father, for I have taken a ſpouſe whom I love and on whom my wiſhes have been long fixed." From this time he became more fervent in exerciſes of piety and eccleſiaſtical knowledge: He perceived that ſome literati who had departed from the faith had alſo corrupted the writings of ſome holy doctors of the church, and he thought he ſhould render religion good ſervice if he could reſtore the genuine reading: He therefore employed Achilles Statius, a Portugueſe of great learning, in this work, whom for that purpoſe he retained at Rome. To his zeal and attention alſo is owing the congregation of eight cardinals, ſtill ſubſiſting, to reſolve doubts and obviate difficulties which ſhould ariſe in explanations of the council of Trent.

There was a very intimate friendſhip between Borromeus and Don Barthelemy des Martyrs archbiſhop of Prague, and author of a work entitled *Stimulus Paſtorum*. This work falling into Borromeus's hands gave him an earneſt deſire to become a preacher, as he was now convinced that preaching was one of the principal duties of a prelate. An almoſt inconceivable multiplicity of buſineſs, ill health, a feeble voice, and a difficult pronunciation, were no inconſiderable obſtacles to his deſign, yet he ſurmounted them all; and though his beginnings were weak, yet perſeverance crowned them with ſucceſs.

Having obtained permiſſion to viſit his church, which the pope had hitherto refuſed as he found his preſence neceſſary at Rome, he prepared to ſet out for Milan. He had before ſent thither his grand vicar Ormanetus, whoſe labours at firſt had not been unſucceſsful, but who ſoon found oppoſitions ſo pertinacious and obſtinate as put an end to his hopes: Borromeus therefore ſaw the neceſſity of going in perſon, and he was received with the moſt diſtinguiſhed honours. He was, however, ſoon recalled to Rome, where many things made his preſence neceſſary: the pope was gradually dying; and Charles arrived juſt time enough to adminiſter to him the laſt ſacraments.

Pius IV. died on the 7th of January 1566, and 28 days afterwards Cardinal Alexandrine mounted the papal chair, and aſſumed the name of *Pius V.* the ſkill and diligence of Borromeus having contributed not a little to prevent the cabals of the conclave.

As ſoon as this event had taken place, and all was quiet at Rome, Borromeus gave himſelf wholly up to the reformation of his dioceſe, where the moſt flagitious irregularities were openly practiſed, having firſt made another reform in his own family. He began by making paſtoral viſits in his metropolis, where the canons were not diſtinguiſhed for the purity of their manners. He ſoon reſtored proper decency and dignity to divine ſervice, by a variety of wiſe and neceſſary regulations: In conformity to the decrees of the council of Trent, he cleared the cathedral of many

pompous

Borromeus. pompous tombs, rich ornaments, banners, arms, and in general of all the trophies with which the vanity of man had disfigured the houſe of God; and in order to give a ſanction to his zeal by his example, he ſpared not the monuments of his neareſt relations. Nor did his zeal ſtop here: he divided the nave of the church through its whole length into two parts, by ſtrong thick planks, that the two ſexes, being ſeparated, might perform their devotions without any attention to each other, and with a modeſty and recollection more ſuitable to the place.

This paſtoral care extended from the cathedral to the collegiate churches, and even to the fraternities or ſocieties of penitents, particularly that of St John the Baptiſt. The duty of this ſociety was to attend criminals to the place of puniſhment, to aſſiſt, comfort, and prepare them for death; but the ſpirit of the inſtitution was now forgotten, and the wretches who were condemned to death were commonly dragged to execution like beaſts, without any ſpiritual aſſiſtance or conſolation. But the archbiſhop revived the original fervour of this order, in the exerciſe of their peculiar duty, and perſuaded many of the nobility and principal perſons of the city to become members of a ſociety appropriated to ſo eminent a branch of Chriſtian charity. The reformation of the monaſteries followed that of the churches, and the vigilance of the paſtor ſoon extended itſelf from the city to the country round it, which abounded with irregularities that required his correction. The great abuſes and irregularities which had overrun the church at this time aroſe principally from the groſs ignorance of the clergy; in order therefore to attack theſe evils at their root, Charles eſtabliſhed ſeminaries, colleges, and communities, for the education of young perſons intended for holy orders. He met with many difficulties, and much oppoſition in his endeavours to bring about a reformation of manners; but he prevailed againſt every obſtacle by an inflexible conſtancy, tempered with great ſweetneſs of manners.

The governor of the province, and many of the ſenators, were apprehenſive that the cardinal's ordinances and proceedings would encroach upon the civil juriſdiction, and become inconſiſtent with the rights of his Catholic majeſty, to whom the duchy of Milan was then in ſubjection. And this was a fruitful ſource of remonſtrances, repreſentations, and complaints, which long troubled the courts of Rome and Madrid, and which the king of Spain, Philip II. referred entirely to the deciſion of the pope. But Borromeus had a more formidable oppoſition to ſtruggle with, that of ſeveral religious orders, particularly the Brothers of Humility. Three provoſts of the ſociety entered into a conſpiracy to cut him off; and one of their confederates, called *Jerom Donat*, whoſe ſurname was *Farina*, took upon him to carry the deſign into execution. For this purpoſe he mixed with the crowd that went into the archiepiſcopal chapel, where the cardinal ſpent an hour every evening in prayer with his domeſtics and other pious perſons; and having watched his opportunity, he fired a harquebuſs at him, which was loaded with a ball ſuited to the bore of the piece, and with a conſiderable charge of leaden ſhot. It is ſaid that the ball ſtruck him on the ſpinal bone, but fell down at his feet without doing any other damage than ſoiling his rochet, and that one of the ſhot penetrated his Borromeus. clothes to the ſkin, and there ſtopped, without imprinting any wound, which was conſidered as a miracle, eſpecially as the other ſhot tore away part of a wall, and went quite through a table.

In the year 1576, the city and dioceſe of Milan were viſited by the plague, which ſwept away incredible numbers; and the behaviour of Borromeus, on this occaſion, was truly Chriſtian and heroic: He not only continued on the ſpot, but he went about giving directions for accommodating the ſick, and burying the dead, with a zeal and attention that were at once ardent and deliberate, minute and comprehenſive; and his example ſtimulated others to join in the good work. He avoided no danger, and he ſpared no expence; nor did he content himſelf with eſtabliſhing proper regulations in the city, but went out into all the neighbouring pariſhes where the contagion raged, diſtributing money to the poor, ordering proper accommodations for the ſick, and puniſhing thoſe, eſpecially the clergy, who were remiſs in the duties of their calling. Charles, notwithſtanding the fatigue and perplexity which he ſuffered by thus executing his paſtoral charge, abated nothing of the uſual auſterity of his life, nor omitted any of his ſtated devotions; for, whatever approached to luxury or magnificence, he conſidered as incompatible with the propriety of his character. It happened, that being once on a viſit to the archbiſhop of Sienna at his palace, a very ſumptuous entertainment was provided for him. Borromeus, though he had been uſed to content himſelf with bread and water, yet ſat down at the table, where however he ate but little, and gave ſufficient intimation that he was much diſpleaſed with ſuch oſtentatious prodigality; but what was his ſurpriſe when he ſaw the table again covered with a deſſert, conſiſting of whatever was moſt rare, exquiſite, and coſtly! He immediately roſe haſtily from his ſeat, as if he had ſuddenly recollected ſome preſſing buſineſs, and gave orders for his departure, notwithſtanding the rain, and the moſt earneſt entreaties of the archbiſhop. "My Lord," ſaid the cardinal, "if I ſhould tarry here to-night, you would give me another ſuch treat as that I have juſt ſeen, and the poor will then ſuffer another loſs, great numbers of whom might have been fed with the ſuperfluities that have been now ſet before us."

The continual labours and auſterities of Borromeus naturally ſhortened his life; he went to Vercal to put an end, if poſſible, to the diviſions which threatened the moſt fatal conſequences; and, when he was there, he received a meſſage from the duke of Savoy, requeſting his preſence at Turin. From Turin he retired to a place called the *Sepulchre*, on the mountain Varais, where he was ſeized with an intermittent fever, which ſcarce permitted him to return alive to Milan, where he arrived on the 3d of November 1584, and died the next day. He was lamented by the city and the whole province with ſuch marks of ſincere ſorrow as are rarely ſeen; and he was immediately worſhipped as a ſaint without waiting for the pope's approbation. The pope, however, when he was told of it by Cardinal Baronius, gave directions that the devotion of the people ſhould not be reſtrained, though Borromeus was not canonized till the 1ſt of November 1610, in the pontificate of Leo XI. Since that time many churches

Borromeus, churches and chapels have been erected in honour of this ſaint, and many religious ſocieties inſtituted and put under his protection.

Borrowſtowneſs || Bos.

The foregoing particulars are extracted from an account of the life of Borromeus, written ſome years ago by Father Anthony Touron. Upon a compariſon of this life with that written by Ribadeneira a Spaniſh Jeſuit above a century ago, it appears that the improvement of knowledge has made a very ſtriking difference in this kind of biography. Ribadeneira, who lived in the midſt of ignorance and ſuperſtition, did not ſuſpect that the time was at hand when the incredible and ridiculous fables he recites could not be believed: his life of this ſaint therefore abounds with particulars which Touron has juſtly omitted. We are told that a miraculous light was ſeen over the chamber of Borromeus's mother when ſhe was in labour: That Borromeus, ſeeing two perſons carried violently down a rapid river on their horſes, and juſt ready to periſh, cauſed their horſes ſuddenly to leap with them out of the water, by giving them his benediction: That Octavian Vareſe, a gentleman of Milan, who was confined to his bed by ſickneſs, when Borromeus died became inſtantly well, by recommending himſelf to the ſaint's interceſſion. That a daughter of Julius Bonacina was inſtantly cured of a diſorder in her eye, which had taken away the ſight of it, by performing an act of devotion in honour of this ſaint: That a count of Ferrara was inſtantly ſeized with a violent diſeaſe upon ſpeaking irreverently of Borromeus's picture, but was cured upon confeſſing his fault. It would certainly be a work of infinite ſervice to the Romiſh church, to new-write the lives of her ſaints in ſuch a manner as can now be believed, ſince the lives already written might by that means be gradually ſuperſeded, which are a better antidote againſt Popery than the arguments of the beſt reaſoner in the world.

Borrowing.

BORROWING AND HIRING, in *Law*, are contracts by which a qualified property may be transferred to the hirer or borrower; in which there is only this difference, that hiring is always for a price or ſtipend, or additional recompenſe; borrowing is merely gratuitous. But the law in both caſes is the ſame. They are both contracts, whereby the poſſeſſion and tranſient property is transferred for a particular time or uſe, on condition and agreement to reſtore the goods ſo hired or borrowed, as ſoon as the time is expired, or the uſe performed, together with the price or ſtipend (in caſe of hiring) either expreſsly agreed upon by the parties, or left to be implied by law, according to the value of the ſervice. By this mutual contract, the hirer or borrower gains a temporary property in the thing hired, accompanied with an implied condition to uſe it with moderation, and not to abuſe it; and the owner or lender retains a reverſionary intereſt in the ſame, and acquires a new property in the price or reward. Thus, if a man hires or borrows a horſe for a month, he has the poſſeſſion and a qualified property therein during that period; on the expiration of which his qualified property determines, and the owner becomes (in caſe of hiring) entitled alſo to the premium or price for which the horſe was hired.

There is one ſpecies of this price or reward the moſt uſual of any, but concerning which many good and learned men have in former times very much perplexed themſelves and other people, by raiſing doubts about its legality *in foro conſcientiæ*. That is, when money is lent on a contract to receive not only the principal ſum again, but alſo an increaſe by way of compenſation for the uſe, which is generally called *intereſt* by thoſe who think it lawful, and *uſury* by thoſe who do not ſo. But as to this, ſee the article INTEREST.

BORROWSTOWNESS. See BURROWSTOWNESS.

BORSEHOLDER, among the Anglo-Saxons, one of the loweſt magiſtrates, whoſe authority extended only over one free burgh, tithing, or decennary, conſiſting of ten families. Every freeman who wiſhed to enjoy the protection of the laws, and not to be treated as a vagabond, was under the neceſſity of being admitted a member of the tithing where he and his family reſided; and in order to obtain this admiſſion, it was as neceſſary for him to maintain a good reputation; becauſe all the members of each tithing being mutual pledges and ſureties for each other, and the whole tithing ſureties to the king for the good behaviour of all its members, they were very cautious of admitting any into their ſociety who were of bad or doubtful characters. Each tithing formed a little ſtate or commonwealth within itſelf, and choſe one of its moſt reſpectable members for its head, who was ſometimes called the *alderman* of ſuch a tithing or freeburgh, on account of his age and experience, but moſt commonly *borſeholder*, from the Saxon words *borh*, "a ſurety," and *alder*, "a head or chief." This magiſtrate had authority to call together the members of his tithing, to preſide in their meetings, and to put their ſentences in execution. The members of each tithing, with their tithing-man or borſeholder at their head, conſtituted a court of juſtice, in which all the little controverſies ariſing within the tithing were determined. If any diſpute of great difficulty or importance happened, or if either of the parties was not willing to ſubmit to a ſentence given in the tithing-court, the cauſe was referred or appealed to the next ſuperior court, or court of the hundred.

BORSET, or BORSETT, celebrated for its baths, a place about half a league from Aix-la-Chapelle in Germany. The abbey here is a very magnificent pile of building. It was formerly a monaſtery; but ſerves for a nunnery, whoſe abbeſs is a princeſs of the empire, and lady of Borſet. The waters are warm, and of the nature of thoſe of Aix-la-Chapelle; but they are only uſed as baths for the diſeaſes in which the waters laſt mentioned are recommended, and alſo in dropſical and œdematous caſes. The waters are diſtinguiſhed into the upper and lower ſprings. The former were found by Dr Simmons to raiſe the thermometer to 158°, the latter to only 127°. All the baths are ſupplied by the firſt. Dr Simmons obſerved that theſe waters were much leſs ſulphureous than thoſe of Aix-la-Chapelle, probably on account of their greater heat. He likewiſe found that they abounded much with ſelenites, which incruſt the pipe through which the water paſſes, and likewiſe the ſides of the bath.

BORYSTHENES. See BORISTHENES.

BOS, JOHN BAPTIST DU, a celebrated author and member of the French academy, was born at Beauvais in 1670, and finiſhed his ſtudies at the Sorbonne. In 1695, he was made one of the committee for foreign affairs.

Bos || Boſcawen.

affairs under Mr Torez; and was afterwards charged with ſome important tranſactions in England, Germany, Holland, and Italy. At his return to Paris, he was handſomely preferred, made an abbé, and choſen perpetual ſecretary of the French academy. He was the author of ſeveral excellent works; the principal of which are, 1. Critical reflections upon poetry and painting, 3 vols 12mo. 2. The hiſtory of the four Gordians, confirmed and illuſtrated by medals. 3. A critical hiſtory of the eſtabliſhment of the French monarchy among the Gauls, 2 vols 4to, 4 vols 12mo. He died at Paris on the 23d of March 1742.

Bos, *Lewis Janſſen*, an eſteemed painter, was born at Bois-le-Duc. Having been carefully inſtructed in the art of painting by the artiſts of his native city, he applied himſelf entirely to ſtudy after nature, and rendered himſelf very eminent for the truth of his colouring and the neatneſs of his handling. His favourite ſubjects were flowers, and curious plants, which he uſually repreſented as grouped, in glaſſes, or vaſes of cryſtal, half filled with water; and gave them ſo lively a look of nature, that it ſeemed ſcarce poſſible to expreſs them with greater truth or delicacy. It was frequent with this maſter to repreſent the drops of dew on the leaves of his objects, which he executed with an uncommon tranſparence; and embelliſhed his ſubjects with butterflies, bees, waſps, and other inſects, which, Sandrart ſays, were ſuperior to any thing of that kind performed by his cotemporary artiſts. He likewiſe painted portraits with very great ſucceſs; and ſhowed as much merit in that ſtyle as he did in his compoſitions of ſtill life. He died in 1507.

Bos. See MAMMALIA *Index*.

Bos, in *Antiquity*, was peculiarly uſed for an ancient Greek ſilver coin, which was *didrachmus*, or equivalent to two drachms. It was ſo called as having on it the impreſſion of an ox, and chiefly obtained among the Athenians and Delians; being ſometimes alſo ſtruck of gold. From this aroſe the phraſe *Bos in lingua*, applied to thoſe who had taken bribes to hold their tongue.

BOSA, a maritime town in the weſtern part of the iſland of Sardinia, with a caſtle, a good port, and a biſhop's ſee. It is ſeated on the river Boſa, to the north-eaſt of an iſland of the ſame name; and has good ſalt pits. E. Long. 8. 30. N. Lat. 40. 19.

BOSCAGE, the ſame with a grove or thicket.

BOSCAGE, in a law ſenſe, is that food which trees yield to cattle; as maſt, &c. But Manhood ſays, to be quit of boſcage is to be diſcharged of paying any duty for windfall wood in the foreſt.

BOSCAGE, among painters, denotes a landſcape repreſenting much wood and trees.

BOSCAN, JOHN, a Spaniſh poet of the 16th century, born at Barcelona. He was the friend of Garcilaſſo de Viga, another Spaniſh poet. Theſe two were the firſt who made any great improvement in the poetry of their nation, and their pieces were printed together. Boſcan, who died about the year 1542, principally ſucceeded in ſonnets.

BOSCAWEN, EDWARD, a brave Britiſh admiral, was the ſecond ſon of Hugh late lord viſcount Falmouth. Having early entered into the navy, he was, in 1740, captain of the Shoreham; and behaved with great intrepidity as a volunteer under Admiral Vernon, at the taking of Porto Bello. At the ſiege of Carthagena, in March 1740-1, he had the command of a party of ſeamen who reſolutely attacked and took a battery of 15 twenty-four pounders, though expoſed to the fire of another fort of five guns. Lord Aubrey Beauclerk being killed at the attack of Boca-Chica, Captain Boſcawen ſucceeded him in the command of the Prince Frederic of 70 guns, In May 1742, he returned to England, and married Frances daughter of William Glanville, Eſq; and the ſame year was elected repreſentative for Truro in Cornwall. In 1744, he was made captain of the Dreadnought of 60 guns; and ſoon after he took the Medea, a French man of war commanded by M. Hoquart, the firſt king's ſhip taken in that war. May 3. 1747, he ſignalized himſelf under the admirals Anſon and Warren, in an engagement with the French fleet off Cape Finiſterre, and was wounded in the ſhoulder with a muſket ball. Here M. Hoquart, who then commanded the Diamond of 56 guns, again became his priſoner; and all the French ſhips of war, which were ten in number, were taken. On the 15th of July he was made rear-admiral of the blue, and commander in chief of the land and ſea forces employed on an expedition to the Eaſt Indies; and, on the 4th of November, ſailed from St Helen's, with ſix ſhips of the line, five frigates, and 2000 ſoldiers. On the 29th of July 1748, he arrived at St David's, and ſoon after laid ſiege to Pondicherry; but the men growing ſickly, and the monſoons being expected, the ſiege was raiſed, and Mr Boſcawen ſhowed himſelf as much the general as the admiral in his retreat. Soon after he had news of the peace, and Madraſs was delivered up to him by the French. In April 1750, he arrived at St Helen's in the Exeter, and found that in his abſence he had been appointed rear-admiral of the white. He was the next year made one of the lords commiſſioners of the admiralty, and choſen an elder brother of the Trinity-houſe. In February 1755, he was appointed vice-admiral of the blue. On the 19th of April, ſailing in order to intercept a French ſquadron bound to North America, he fell in with the Alcide and Leys of 64 guns each, which were both taken: on this occaſion M. Hoquart became his priſoner a third time, and he returned to Spithead with his prizes and 1500 priſoners. In 1756, he was appointed vice-admiral of the white; and in 1758, admiral of the blue, and commander in chief of the expedition to Cape Breton; when, in conjunction with General Amherſt, and a body of troops from New England, the important fortreſs of Louiſbourg and the whole iſland of Cape Breton was taken, for which he afterwards received the thanks of the houſe of commons. In 1759, being appointed to command in the Mediterranean, he arrived at Gibraltar, where hearing that the Toulon fleet, under M. de la Clue, had paſſed the Straits, in order to join that at Breſt, he got under ſail, and on the 18th of Auguſt ſaw, purſued, and engaged the enemy. His ſhip, the Namur of 90 guns, loſing her main-maſt, he ſhifted his flag to the Newark; and, after a ſharp engagement, took three large ſhips, and burnt two in Lagos bay, and the ſame year arrived at Spithead with his prizes and 2000 priſoners. On December 8. 1760, he was appointed general

Boſcawen.

Boſch || Boſcovich.

general of the marines with a ſalary of 3000l. per annum, and was alſo ſworn one of the privy-council. He died in 1761.

BOSCH, Jacob Vanden, a painter of ſtill life, was born at Amſterdam in 1636, and painted ſummer fruits of various kinds, peaches, pears, apples, plums, nectarines, and cherries, with extraordinary neatneſs of pencil. He painted all his objects after nature, and imitated every ſort of fruit with ſo great truth and delicacy, with ſuch natural and tranſparent colour, that they appeared delicious, and almoſt real. He died in 1676.

BOSCHAERTS, Thomas Willeborts, a celebrated painter, was born at Bergen-op-zoom; and, like the great painters who flouriſhed at that time, began to draw, when very young, in the books that were intended for other ſtudies. Preferring his pencil to every thing elſe, he drew his own picture, by his reſemblance in a looking-glaſs, ſo like, that thoſe who ſaw it were aſtoniſhed. This he did before he had the leaſt inſtruction from any one, and when he was only 12 years of age. Upon this his parents ſent him to a maſter, that he might follow the bent of his genius; but his firſt maſter being only an indifferent painter, and incapable of ſatisfying his earneſt deſire of learning, he left him, and engaged himſelf with Gerard Segers; under whom, after four years practice, he proved a moſt accompliſhed artiſt. Antwerp being at that time the ſeat of arts, where there was a conflux of the moſt eminent painters, he thought it the fitteſt place for his improvement; and there executed ſuch a number of noble pieces as added greatly to the ſplendour of that wealthy city. In 1642, Henry Frederic prince of Orange, and his ſon Prince William, employed him in their ſervice; in which he continued ſeveral years, and made thoſe excellent pieces that are to be ſeen in that prince's palace at the Hague and other parts of Holland, and painted portraits for moſt of the perſons of quality that were then living. He died in the flower of his age, in 1670.

BOSCO, or Boschi, a town of Italy, in the Milaneſe, ſeated on the river Orbe. E. Long. 9. 44. N. Lat. 44. 53.

BOSCOI, or Bosci, in eccleſiaſtical hiſtory, denotes a ſpecies or tribe of monks in Paleſtine, who fed on graſs like the beaſts of the fields. The word is Greek, βοσκοι, q. d. "grazers;" formed from βοσκω, *paſco*, "I feed." The Boſcoi are ranked among the number of Adamites, not ſo much on account of their habit, as food. They took no care about proviſion; but when eating-time came, or any of them was hungry, went into the fields, with each his knife in his hand, and gathered and eat what he could find.

BOSCOVICH, Roger Joseph, the founder of an original and ſublime theory of natural philoſophy, deſerves to be particularly noticed in a work of this nature; but we have to regret that the materials from which our biographical memoir muſt be compiled, are inſufficient to ſatisfy the curioſity concerning the literary habits, and the characteriſtic features of this very illuſtrious man.

His rank, indeed, as a philoſopher, we are enabled to appreciate by peruſing ſome of the immortal works which he has bequeathed us; but, for a knowledge of his moral character, diſpoſition, and temporal concerns, we can only have recourſe to the elogies of his friends. Theſe are certainly entitled to much of our confidence; and when the names of M. de la Lande, M. Fabroni, Stay, and Zamagna are mentioned, we may be thought faſtidious, in implying the leaſt diſtruſt of their teſtimony. It is our reſpect for the public and for truth, and it is our knowledge of the nature of elogies, which have made us ſo. Boſcovich.

We have, therefore, endeavoured, rather to relate the incidents in the life of Boſcovich, than to give a tranſcript of friendly effuſion; and yet perhaps it may be diſcovered, that our portrait is luminous with eulogium, whilſt its outlines are poorly defined.

Boſcovich was born on the 11th of May 1711, at Raguſa, a ſea port on the coaſt of the Adriatic, and capital of a ſmall republic of the ſame name, under the protection of the Turks and the Venetians. We know ſo little of his parents, that we can only conjecture at their circumſtances and capacity, from the education which they gave to their ſon being liberal and judicious.

It does not appear that our author gave any tokens of ſuperior genius, till he was ſent to learn grammar and philoſophy in the ſchools of the Jeſuits, who were at that time the principal teachers in Raguſa, and throughout Italy. Amongſt them, his docility and obedience could not paſs unnoticed, but were ſufficient to mark him as a likely ſubject for future eminence, and conſequently to procure to him particular attention. In his 15th year, after he had gone through the ordinary courſe of education, and when it was neceſſary to determine his further purſuits, application was made to admit him into the order; and for the reaſons we have mentioned, was readily complied with. This was agreeable to his own inclination, and proved the ſource of that diſtinction in learning to which he afterwards attained.

The Jeſuits, it is well known, had much intereſt and authority to promote in the city of Rome; whither it was cuſtomary in them to ſend thoſe members whom they knew to be qualified for that purpoſe, and thoſe youths of whom they had great expectations, for more inſtruction. As Boſcovich was ſent there in the year 1725, we may reaſonably imagine he had profited much by his teachers, and was ſignalized for his abilities. This zeal in the cultivation of youth, which the Jeſuits ever preſerved, and which perhaps tended more to the preſervation of their power than all their religious artifices, was attended with conſequences the moſt beneficial to humanity; and when we recollect how many and how great the geniuſes were which it diſcovered, and foſtered and brought to maturity, we are almoſt induced to believe that it counterbalanced all the ill effects of their order. Had this education been confined to ſome limited ſphere; had it embraced the prattling doctrines of caſuiſtry and the unwieldy maſs of cloiſtered theology alone; unfortunate and melancholy for the world would have been this zeal: no refuge for the venial penitent, no ſecurity againſt boiſterous ſectariſm would have remained; an unmanly lethargy would have debaſed the mind, and the moral and the intellectual world would have ſunk to a dread chaos of confuſion. But the Jeſuits knew well the benignant influence of literature, and the ſalutary elevation of ſcience; they ſaw that wealth, and power, and ho-

Boſcovich. nour, followed philoſophy; and that philoſophy had driven famine, wretchedneſs, and vice, from their habitations. We dare not ſay that the intereſt and aggrandizement of their order were ſecondary conſiderations, but we will avow it as our opinion, that the ſhort reign of the Jeſuits, and the objects at which they aimed, and above all the means which they employed, were more inſtructive, promiſed better, and effected more to humanity, than all the accumulated humility and ſanctity of all the religious ſocieties of the Romiſh church. We have been led into this digreſſion by the coincidence of certain conſiderations operating at the time on our minds. Boſcovich was of the order of Jeſuits; that order is no more; its deſtruction took place in his life-time; gratitude for the delight and the inſtruction we have received from him and many others of the order; the preſent diſpoſition among mankind to detract from its merits, to magnify its imperfections, and to confound it with the fanatical and enthuſiaſtic groups of every perſuaſion which have diſgraced the name and the dignity of religion. But to return; our author on his arrival in Rome, entered the noviceſhip of the order, where his ſtudies wore a new aſpect, but were ſtill purſued with diligence. Chriſtian morality, the rules and conſtitutions of the order, claimed his attention for two years; after which he was inſtructed in rhetoric, and became well verſed in general literature, in a particular manner in Latin poetry, which at that time was very much cultivated.

From the noviciate he was ſent to the Roman college to ſtudy mathematics and phyſics. It was in theſe ſciences that his elevated genius and uncommon abilities ſhone forth ſo conſpicuouſly, and procured to him the admiration of his ſuperiors. In three years time he was able to give private leſſons on mathematics; and was then exempted from a law, by which the noviciates were bound to teach Latin and the belles lettres for five years before they commenced the ſtudy of theology. This exemption was in conſequence of his great predilection to the mathematics, of which he was ſoon afterwards made public profeſſor. It would appear to us, that the ſcience of theology, as it was then inculcated, had little attraction for the mind of Boſcovich; for it is not likely that a mind intimately acquainted with truth, and accuſtomed to find her ever plain and undiſguiſed, could reliſh the retiring obſcurities of ſophiſtry, or the flimſy decorations of a myſtical religion; nor can we wonder, that during the four years in which he was conſtrained to the ſtudy, he ſhould become more familiar with Leibnitz, Maclaurin, and Newton, than with Loyola, and Laynez, and Aquaviva.

For the profeſſorſhip of mathematics he was eminently qualified, as, beſides a thorough knowledge of all the modern productions in the ſcience, he had acquired a priſtine ſeverity of demonſtration by ſtudying the works of the ancient geometricians; and he conjoined withal an obliging accommodation of his own powers to the deficiencies of his pupils. It was for their benefit he at this time compoſed elementary treatiſes on arithmetic, algebra, geometry, and trigonometry. But notwithſtanding the arduous duties of his ſituation which he invariably fulfilled, he found time to inſtruct and enlighten more than boys; for about this period, he entertained ſome of thoſe original notions which were deſtined to grow up into ſyſtem, and one day to aſtoniſh the whole world of ſcience. Theſe, as they grew, were ſtrengthened by ſolid arguments in the public diſputations, by anticipating obſtacles, overcoming and removing them, and by mighty efforts in extending and applying them to the moſt remote and diſcretive actions of the univerſe. The animating ſpirit of diſcovery and invention led him to conſider every portion of phyſical ſcience; and indeed ſo verſatile and ſo vigorous was his mind, we would be at a loſs to ſpecify one portion, which, within a few years, it did not comprehend, elucidate, and advance. In confirmation of this we beg to preſent our readers with an enumeration of the principal ſubjects to which he turned his attention, and concerning which he publiſhed diſſertations whilſt he continued in the profeſſorſhip. The tranſit of Mercury over the ſun; the ſpots in the ſun; the aurora borealis; the conſtruction of ſpheric trigonometry; the figure of the earth; a new teleſcope to determine celeſtial objects; the ancient arguments for the rotundity of the earth; oſcillating circles; on infinites and infinitely little quantities; the motion of bodies in unreſiſting ſpaces; the aberration of the fixed ſtars; the inequalities in terreſtrial gravity; on aſtronomy; on the limits of certainty in aſtronomical obſervations; on the ſolid of greateſt attraction; the cycloid; the logiſtic curve lines; the *vires vivæ;* the comets; light; tides; the rainbow; the calculation of fractions; the centre of gravity; the moon's atmoſphere; the law of continuity; lenſes and dioptrical teleſcopes; the objective micrometer; the diviſibility of matter. Some of theſe are ſhort, but all of them contain curious and valuable matter. It is only by peruſing them we are able to diſcover the gradual progreſs of his mind; and to underſtand the manner in which he arrived at the theory of natural philoſophy, which alone will render his name immortal. Boſcovich.

About this time a taſte for philoſophical poetry was much prevalent amongſt the learned, and ſome of our author's acquaintances had laboured in it with ſucceſs. Of theſe we may mention Father Noceti who wrote on the rainbow and the aurora borealis, and the juſtly celebrated Benedict Stay, whoſe poems on the philoſophy of Deſcartes, and on the more modern philoſophy, are excellent examples of fine Latin compoſition and ſcientific inveſtigation. Boſcovich publiſhed their works with annotations and ſupplements, in which a ſplendid fund of information and learning is diſplayed.

By ſuch undertakings, the fame of our author was widely diffuſed, and he became an object of general admiration. The learned ſocieties of many countries in Europe conferred on him unſolicited honours, and ſeveral foreign princes invited him to their courts. His opinions on various ſubjects of civil architecture, topography, and hydrodynamics, were aſked and entertained by Pope Benedict XIV. John V. of Portugal, and others. Theſe neceſſarily required his preſence in different ſtates, where he never failed to increaſe his reputation, and often terminated diſputes which might otherwiſe have gone on to open warfare.

He was employed to correct the maps of the papal dominions, and to meaſure a degree of the meridian paſſing

Boſcovich. paſſing through them. In this he was aſſiſted by an Engliſh Jeſuit, Chriſtopher Maire. An account of their expedition was printed at Rome and Paris, and is interſperſed with ſome curious anecdotes, concerning the opinions which the peaſants of the Apennines formed of them, and the operations which they had to perform; but it is valuable on account of the accurate detail which is given of their obſervations.

In the year 1757, he was ſent to Vienna by the republic of Lucca, to reconcile ſome differences concerning the draining of a lake, in which the grand duke of Tuſcany the emperor Francis I. and that republic, were concerned. It was after he had ſucceeded in the object of his viſit to that city, that he publiſhed there his *Theoria Philoſophiæ Naturalis* in 1758; and that he gained the eſteem of the empreſs queen.

Another occaſion for his mediating powers ſoon preſented itſelf, and which more nearly intereſted him, as his native city of Raguſa required them. It had been ſuſpected by the Britiſh government, that ſome ſhips of war were fitted out at that port for the ſervice of the French, thereby infringing the neutrality. Such a ſuſpicion having no juſt foundation, alarmed the ſenate of Raguſa, and required ſpeedy removal, as the conſequences of it might be extremely prejudicial to their commerce. Boſcovich, who had often been ſucceſsful in ſimilar circumſtances for other powers, appeared to them the moſt proper perſon for this purpoſe, and was accordingly intruſted with it. He repaired to London, and here alſo effected the object of his miſſion with honour to himſelf. He viſited the Royal Society, which received him with diſtinguiſhing marks of reſpect, and which he ſoon afterwards complimented with an excellent Latin poem on the ſolar and lunar eclipſes. This was in the year 1760, when Dr Johnſon was in London. Mr Murphy ſpeaks of an interview which took place between our author and Johnſon; but in order to magnify the unruly powers of the *tremendous companion*, he rather unhandſomely tells us of the *eaſy cant* with which a *prieſt* might travel through Italy and France. We are unwilling to mention what effects on ſome minds may have been produced by the formidable ſociety of a Johnſon; but if they are a contempt of elegant ſimplicity and ingenuous eaſe, and an affected devotion to repulſive pomp and authoritative oſtentation, be our lot far from his influence, amid the peace and liberty of ſocial life.

Boſcovich was invited by the Royal Society to be of the party of their members ſent to America, to obſerve the tranſit of Venus over the ſun's diſk, which happened in the year 1762. The nature of his embaſſy, and the neceſſity of returning home, however, prevented his acceptance of the invitation. Soon after his return, and when his embaſſy was fulfilled, he was appointed by the ſenate of Milan to the mathematical chair in the univerſity of Pavia, and to ſuperintend the obſervatory of the royal college of Brera. He continued in this ſituation for ſix years, when he was made profeſſor of aſtronomy and optics in the Palatine ſchools of Milan by the empreſs queen; who alſo requeſted him to continue his attention to the obſervatory. This he expected to be the moſt agreeable part of his life. Admired by the learned; beloved by his friends; having an adequate income, and a conſtitution ſound and vigorous; he promiſed to himſelf, happy, becauſe uſeful days, in the tranquil cultivation of the ſciences: but a cloud long impending now burſt over his head, and theſe bright days never came. Boſcovich.

The myſterious regulation in the political conſtitution of the Jeſuits, though it had attracted the keen curioſity of the world, had, for very ſubſtantial reaſons never been explored; nay, ſuch was the influence of the order over the minds of the moſt enlightened ſtateſmen, that this impenetrable myſtery was held ſacred by the civil power in many countries, as if no danger could exiſt in what was not underſtood. But the rapid progreſs of ſcience, and the gradual decay of ſuperſtition, required ſome evidence of ſecurity, and ſome proof that it was ever neceſſary to conceal good intentions, and to cover virtuous principles with any other garb than what truth could beſtow. Theſe it is well known, the Jeſuits either could not, or were unwilling to give; and they, therefore, juſtly incurred the ſuſpicion of men. The moſt trivial circumſtances would augment this ſuſpicion, and the leaſt deviation from rectitude in any of the order would ſerve to juſtify it: theſe were not wanting, and ſoon became invincible; the intereſt of the Jeſuits rapidly declined for many years, and at laſt, in 1773, their order was totally aboliſhed.

No exemption from the edict for its downfall could be procured: all who held offices were diſmiſſed; and Boſcovich ſought refuge in the city of Paris. Thither indeed he was invited by the miniſter, (we believe Turgot) by whoſe means he was made one of the directors of optics for the ſea ſervice, and received a penſion: but it does not ſeem that his ſituation was agreeable to him; for it is well known that the peculiar nature of his circumſtances was the ſole cauſe of his long reſidence in Paris.

Whether his diſlike aroſe from the envy of ſome of the French, his own irritability of temper, or the incongruity of the prevailing manners with his own, we cannot determine: but it is reaſonable to imagine, that the ruin of his order, and the ſubſidence of his own importance, would leave ſome indelible mark in his mind; and perhaps when he contemplated the apparent levity and the real ſcepticiſm of the age, he might be brought to fear that the degradation or the downfall of the world was concomitant. Sentiments very oppoſite to thoſe of the French, would thence naturally ariſe; moroſity and diſcontent would invade him, and he wiſhed to reviſit the ſcenes of his youth. Be all this, however, as it may, certain it is, he applied for leave of abſence for two years, after he had reſided in Paris for ten years: this he eaſily procured, and accordingly ſet out for Baſſano in the republic of Venice. At this place he publiſhed in five vols. quarto, a collection of the works which he had finiſhed in Paris. This forms a body of optical and aſtronomical knowledge, well worthy the attention of the philoſophical and mechanical cultivators of the ſciences. It may be worth mentioning, that by proceeding on the principles contained in one of the diſſertations in this collection, an amiable philoſopher of our own country (Dr. Robiſon) believed it poſſible to aſcertain the motions of the earth, though the obſerver ſhould be confined in a cellar; in proſecuting the ſubject, however, he

Boſcovich found that an error into which Boſcovich had fallen, concerning the aberration of light, undermined the principles on which he had erected ſuch a wonderful but legitimate problem. The candid and very intereſting acknowledgement of the error, and his extreme diſappointment in the diſcovery of it, which the doctor made in the 3d vol. of the Edinburgh Tranſactions, is at once an evidence of his own liberality, and an undefeaſible teſtimony to Boſcovich's genius.

We beg to recommend to our readers the peruſal of the works which we have now mentioned; they would tend to form the mind to the true mode of inveſtigating the phenomena of nature, and will ſatisfactorily ſhew that this mode is always rewarded by diſcovery. The following is a pretty juſt account of their contents: A new inſtrument for determining the refracting and diverging forces of diaphanous bodies; a demonſtration of the falſehood of the Newtonian analogy between light and ſound; the algebraic formulæ regarding the focuſes of lenſes, and their applications for calculating the ſphericity of thoſe which are to be uſed in achromatical teleſcopes; the corrections to be made in ocular lenſes, and the error of the ſphericity of certain glaſſes; the cauſes which hinder the exact union of the ſolar rays by means of the great burning glaſſes, and the determination of the loſs ariſing from it; the method of determining the different velocities of ligot paſſing through different mediums by means of two dioptrical teleſcopes, one common, the other of a new kind, containing water between the objective glaſs and the place of the image; a new kind of objective micrometers; the defects and inutility of a dioptrical teleſcope propoſed and made at Paris, which gives two images of the ſame object, the one direct, the other inverſe, with two contrary motions of moveable objects; maſſes floating in the atmoſphere, as hail of an extraordinary ſize, ſeen on the ſun with the teleſcope, and reſembling ſpots; the aſtronomical refractions, and various methods for determining them; various methods for determining the orbits of comets and of the new planet, with copious applications of theſe doctrines to other aſtronomical ſubjects, and ſtill more generally to geometry and to the ſcience of calculation; the errors, the rectifications, and the uſe of quadrants, of ſextants, of aſtronomical ſectors, of the meridian line, of teleſcopes called the inſtruments of tranſits, of the meridian, and of the parallactic machine; the trigonometrical differential formulæ, which are of ſo much uſe in aſtronomy; the uſe of the micrometical rhombus, extended to whatever oblique poſition; the error ariſing from refractions in uſing the aſtronomical ring for a ſundial, and the correction to be made; the appearing and the diſappearing of Saturn's ring; the methods of determining the rotation of the ſun by means of the ſpots, propoſed formerly by the author, and now perfected; the greateſt exactneſs poſſible in determining the length Boſcovich. of a pendulum oſcillating every ſecond of middle time by the compariſon of terreſtrial and celeſtial gravity; a compend of aſtronomy for the uſe of the marine, containing the elements of the heavenly motions, and of the aſtronomical inſtruments, to be explained to a prince in the courſe of one month; a method for determining the altitudes of the poles with the greateſt exactneſs, by means of a gnomon alone, where other inſtruments are not to be had; the determination of the illuminated edge of the moon to be obſerved on the meridian; a method of uſing the retrograde return of Venus to the ſame longitude, for determining the leſs certain elements of her orbit; a method for correcting the elements of a comet, of which the longitude of the node is given, and the inclination of the orbit has been found nearly; another method for the ſame purpoſe, and for finding the elliptical orbit, when the parabolic one does not agree with the obſervations; a method for correcting the elements of a planet by three obſervations; the projection of an orbit inclined in the plane of the ecliptic; the projection of an orbit inclined in any other plane; the calculation of the aberration of the ſtars, ariſing from the ſucceſſive propagation of light; ſome beautiful theorems belonging to triangles, which are of great uſe in aſtronomy, reduced to moſt ſimple demonſtrations.

After the publication of theſe works, our author left Baſſano, and went to Rome to viſit the companions of his youth. From Rome he proceeded to Milan, where he reviſed ſome of his own works, and prepared for publication the two laſt volumes of Stay's poems.

In ſuch occupations, and amidſt friends whom equal misfortune and temporary ſeparation had ſtill more endeared, he had remained happy, and might perhaps have been ſtill further uſeful to the world; but his leave of abſence was now nearly expired, and his diſlike to a reſidence in Paris was augmented by the contraſt which his preſent abode afforded. He was too delicate to apply for more leave of abſence; and though he was ſenſible of the gratitude which he owed to France, he could not reconcile it with the deſtruction of his own repoſe. About this time alſo he had ſeveral attacks of gout, but he would admit no medical aid. Under theſe diſtreſſes, and others which we have before mentioned, our illuſtrious author at laſt ſunk: a melancholy deſpondency ſeized on and ſubjugated his mind, ſo that for five months he remained perfectly fatuous; and an impoſthume having burſt in his breaſt, terminated his exiſtence on the 13th of February 1787, in the 76th year of his age.

The following inſcription was compoſed by Benedict Stay, and engraved on marble by order of the ſenate of Raguſa, in memory of their uſeful citizen the illuſtrious Boſcovich.

ROGERIO. NICOLAI. F. BOSCOVICHIO,
Summi. Ingenii. Viro. Philoſopho. Et. Mathematico. Præſtantiſſimo
Scriptori. Operum. Egregiorum
Res. Phyſicas. Geometricas. Aſtronomicas
Plurimis. Inventis. Suis. Auctas. Continentium
Celebriorum. Europæ. Academiarum, Socio
Qui. In. Soc. Jeſu. Cum. Effet. Ac. Romæ. Matheſim. Profiteretur
Benedicto. XIV. Mandante

Multo.

Boſcovich. Boſcovich.

Multo. Labore. Singulari. Induſtria
Dimenſus. Eſt. Gradum. Terreſtris. Circuli
Boream. Verſus. Per. Pontificiam. Ditionem. Tranſeuntis
Ejuſdemque. Ditionis. In. Nova. Tabula. Situs. Omnes. Deſcripſit.
Stabilitati. Vaticano. Tholo. Reddundæ
Portubus. Superi. Et. Inferi. Maris. Ad. Juſtam. Altitudinem. Redigendis
Reſtagnantibus. Per Campos. Aquis. Emittendis. Commonſtravit. Viam
Legatus. A. Lucenſibus. Ad. Franciſcum. I. Cæſarem. M. Etruriæ. Ducem
Ut. Amnes. Ab. Eorum. Agro. Averterentur. Obtinuit
Merito. Ab. Iis. Inter. Patricios. Cooptatus
Mediolanum. Ad. Docendum. Mathematicas. Diſciplinas. Evocatus
Braidenſem. Extruxit. Inſtruxitque. Servandis. Aſtris. Speculam
Deletæ. Tum. Societati. Suæ. Superſtes
Lutetiæ. Pariſiorum. Inter. Galliæ. Indigenas. Relatus
Commiſſum. Sibi. Perficiundæ. In. Uſus. Maritimos.
Opticæ. Munus. Adcuravit
Ampla. A. Ludovico. XV. Rege. Xmo. Attributa. Penſione
Inter. Hæc. Et. Poeſim. Mira. Ubertate. Et. Facilitate. Excoluit
Doctas. Non. Semel. Suſcepit. Per. Europam. Peregrinationes
Multorum. Amicitias. Gratia. Virorum. Principum. Ubique. Floruit
Ubique. Animum. Chriſtianarum. Virtutum
Veræque. Religionis. Studioſum. Præ-ſe-tulit
Ex. Gallia. Italiam. Reviſens. Jam. Senex
Cum. Ibi. In. Elaborandis. Edendiſque. Poſtremis. Operibus
Plurimum. Contendiſſet. Et. Novis. Inchoandis. Ac. Veteribus. Abſolvendis
Seſe. Adcingeret
In. Diuturnum. Incidit. Morbum. Eoque. Obiit. Mediolani
Id. Feb. An. MDCCLXXXVII. Natus. Annos LXXV. Menſes IX. Dies II.
Huic. Optime. Merito. De. Republica. Civi
Quod. Fidem. Atque. Operam. Suam. Eidem. Sæpe. Probaverit
In. Arduis. Apud. Exteras. Nationes
Bene. Utiliterque. Expediundis. Negotiis
Quodque. Sui. Nominis. Celebritate. Novum. Patriæ. Decus. Adtulerit
Poſt. Funebrem. Honorem. In. Hoc. Templo. Cum. Sacro. Et. Laudatione
Publice. Delatum
Ejuſdem. Templi. Curatores
Ex. Senatus. Conſulto
M. P. P.

Beſides the works which we have mentioned, he wrote ſeveral others on various ſubjects, as, on the project of turning the navigation to Rome from Fiumicino to Maccareſe; a third on two torrents in the territory of Perugia; a fourth on the bulwarks on the river Ponaro; a fifth on the river Sidone in the territory of Placentia; a ſixth on the entrance into the ſea of the Adige. He wrote other ſuch works on the bulwarks of the Po; on the harbours of Ancona, of Rimini, of Magna Vacca, and Savona, beſides others, almoſt all which were printed. He had likewiſe received a commiſſion from Clement XIII. to viſit the Pomptin lakes, on the draining of which he drew up his opinion in writing, to which he added further elucidations at the deſire of Pius VI.

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1 Boſcovich's Theoria Philoſophiæ Naturalis,

We have ſpoken of Boſcovich as the founder of a new ſyſtem of natural philoſophy, which has occupied much of the attention of the learned, and which alone will render the name of its author immortal. It becomes us therefore to give ſuch a ſynopſis of it, as may ſatisfy the general reader, or induce the ſtudent to ſearch for more information in the work from which we ourſelves have derived it.

In a ſubject ſo abſtruſe and remote from obſervation as many of the principles which we have to conſider in this theory, much difficulty in inveſtigation is to be expected, and perhaps the metaphorical language which we are conſtrained to employ, will tend not a little to embarraſs and miſlead us. We are alſo aware of the many obſtacles which a theory of ſuch magnitude has to encounter in the improved mode of philoſophiſing of the preſent day; we are aware that at the bare mention of a new theory in natural philoſophy, ſome of our readers will revolt from our page, affect a contempt of our labours, and call to their aid the authority of Bacon. But we would aſk ſuch, from whence does their ſpirit ariſe? we have found it in thoſe who never ſtudied a page of Bacon; and we have known it accompanied by indolence, and by a ſupine indifference to aught that dignifies and elevates humanity. It is ſurely no hard matter to condemn a theory, merely becauſe it is a theory; nor is it at all demonſtrable that ſuch condemnation requires any great effort of genius or underſtanding. Now the ſpirit of Bacon is a ſpirit of zeal, and labour, and perſeverance, and above all, of inveſtigation. Not then from his writings has this contempt ariſen, but from a total ignorance of them; not from his doctrine, but from an imaginary inſpiration of his principles.

We

Boſcovich's Syſtem of Natural Philoſophy.

We have reaſon to believe that the theory of Boſcovich would have received the ſanction of the illuſtrious Bacon; becauſe the foundation on which it is erected is conſecrated by irradiation from his works. Be this, however, as it may, we are convinced that ſuch an example of true genius will be acceptable to every friend of humanity, and to every cultivator of ſcience.

That we may do juſtice to our author in giving a ſynopſis of his theory, we ſhall follow the order which he himſelf has adopted; and ſhall ſubjoin ſome general obſervations and remarks which have occurred to us in the courſe of the work.

2 divided into three parts;

Boſcovich's Theoria Philoſophiæ Naturalis is divided into three parts, of which the *firſt* contains the explication of the theory, its analytic deduction, and its vindication.

The *ſecond* contains the application of the theory to mechanics, and

The *third* the application of the theory to phyſics. Of theſe in order, and firſt of the explication of the theory.

3 has ſome reſemblance to other theories.

This theory has ſomething in common with the Leibnitzian and the Newtonian.

4 Leibnitzian.

With the former it admits that the elements of matter are ſimple and inextended; but it differs from it, in denying the *continued extenſion* of the elements, and in aſſerting that the elements are perfectly homogeneous.

5 Newtonian.

Like the Newtonian, it allows the exiſtence of mutual powers or forces, which vary according to the diſtance by certain laws; but it goes further, in that it aſſerts theſe powers are both repulſive and attractive, and that when either of theſe terminates the other begins: but it differs from the Newtonian in explaining by one principle phenomena to which the latter applies three.

This one principle may be expreſſed by an algebraic formula, or by one continued geometrical curve; and it is the law by which the powers of repulſion and attraction act. As continued extenſion of bodies is rejected from this theory, it is obvious, that as on the one hand a repulſive power muſt render it impoſſible, ſo on the other an attractive power muſt give riſe to the apparent examples of it, to the phenomena of cohesion: this accordingly is one eſſential characteriſtic of the theory.

From theſe few remarks we may deduce the principles of the theory.

6 Principles of it.

The firſt elements or atoms of matter are indiviſible, inextended, but ſimple, homogeneous, and finite in number. They are diſperſed in an immenſe ſpace, in ſuch a manner as that any two or more may be diſtant from each other any aſſignable interval. This interval may be *indefinitely* augmented or diminiſhed, but cannot entirely vaniſh. Actual contact of the atoms is therefore impoſſible, ſeeing that the repulſive power which prevents the entire vaniſhing of the interval, muſt be ſufficient to deſtroy the greateſt velocities by which the atoms tend to unite. The repulſive power muſt *encircle* every atom, muſt be equal at equal diſtances from the atoms, and moreover, muſt increaſe as the diſtance from the atoms diminiſhes. On the contrary, if the diſtance from the atoms increaſes the repulſive power will diminiſh, and at laſt become equal to nothing, or vaniſh: then, and not till then, an attractive power commences, increaſes, diminiſhes, vaniſhes. But the theory does not ſtop here; for it ſuppoſes, that a repulſive power ſucceeds to the ſecond or attractive, increaſes, diminiſhes, vaniſhes; and that there are ſeveral alternations of this kind, till at the laſt an attractive power prevails, and though diminiſhing ſenſibly, as the ſquares of the diſtances increaſe, extends to the moſt diſtant regions of our ſyſtem.

Boſcovich's Syſtem of Natural Philoſophy.

7 A geometrical curve will expreſs the whole of the theory.

Such a proceſs as we have now mentioned may ſeem complicated and confuſed; but the curve line which expreſſes it is ſo ſimple, that we are perſuaded, our readers, though unacquainted with geometry, will comprehend it, and hence will be able to underſtand the theory itſelf.

We ſhall now proceed therefore to exhibit this curve, and to ſhew in what manner it elucidates the principles of the theory.

Plate XCIV. fig. 1.

The axis C'AC has an aſymptote of a curve in the point A, viz. the indefinite right line AB; on each ſide of which are placed two equal and ſimilar branches of a curve, viz. D'E'F'G', &c. and DEFGHIKL MNOPQRSTV; the latter of theſe having the aſymptotical arch ED, though indefinitely produced towards the right line AB, will never touch it; but it accedes to the axis C'AC, and touches it in ſome point E. From this point it recedes on the oppoſite ſide of the axis to ſome point F, bends again to the axis C'AC, and cuts it in the point G; from this it recedes in a ſimilar manner, on the ſide of the axis from whence it originated, and arrives at the point H. From the point H it bends to the axis C'AC, and cuts it in the point I; and ſo on in alternate fits of acceſſion and receſſion till it has completed the remaining arches IKL,LMN,NOP,PQR, RST; after which it becomes aſymptotical, forming the arch T*p*sV, which approaches the axis C'AC on the ſide oppoſite that from which it originated, in ſuch a manner as that the diſtances from the axis ſhall be in the reciprocal duplicate ratios of the diſtances from the aſymptote BA.

Now, if we raiſe and let fall perpendiculars on the axis C'AC in the points *a*, *b*, *d*, &c. the ſegments of the axis ſo formed, viz. A *a*, A *b*, A *d*, &c. are abſciſſes, and will repreſent the diſtances between any two atoms or points of matter; and the perpendiculars ſo conſtructed, viz. *a g*, *b r*, *d h*, are ordinates, and will repreſent the intenſity of the repulſive or attractive powers, according to their ſituation with reſpect to the axis C'AC; for, if on the ſame ſide with the aſymptote AB as *a g*, *b r*, they repreſent the former; and if on the ſide oppoſite to the aſymptote, as *d h*, the latter power.

From what we have ſaid, it is manifeſt, that the ordinate *a g* may be increaſed beyond any aſſignable limit, provided the correſponding abſciſſa A *a* be diminiſhed beyond any aſſignable limit; ſeeing that the limb of the curve ED is aſymptotical which terminates the ordinate *a g*, and conſequently never touches the right line AB; but that, if the abſciſſa be increaſed as to A *b*, then the ordinate will be diminiſhed to *b r*; and that by perpetually increaſing the abſciſſa to the point E, the ordinate will be perpetually diminiſhed till at the point E it will totally vaniſh.

Moreover, if we ſhall increaſe the abſciſſa to A *d*, we ſhall find that on the oppoſite ſide of the axis C'AC, there will appear the ordinate *d h*, which, by continuing

Boſcovich's Syſtem of Natural Philoſophy.

the ſame increaſe of the abſciſſa will increaſe to the point F, and then will diminiſh perpetually, as it approaches to the point G, where it will totally vaniſh. If the abſciſſa be ſtill increaſed, an ordinate ariſes on the oppoſite ſide, increaſes to H, diminiſhes to I, and vaniſhes, appears again, increaſing to K, diminiſhing to L, vaniſhing; and ſo on through all the remaining points and ſituations of the curve, till at length coming to *p o* and *s v*, it continues to diminiſh perpetually, but never again totally vaniſhes.

Such then is the nature of the curve, and ſuch, it muſt be admitted, will comply with the deſcription of the repulſive and attractive powers, and the manner in which they alternate, ſo eſſential to the theory. The

8 In what manner.

firſt power or that next the atoms is repulſive, and is greateſt at the leaſt diſtances from them; by increaſing the diſtances it diminiſhes, vaniſhes; is ſucceeded by attraction, which increaſes, diminiſhes, vaniſhes; is in like manner ſucceeded by repulſion; and thoſe two powers alternate repeatedly, when the attraction ſucceeding, conſtitutes the general gravity of Sir Iſaac Newton, and reaches to the planets, and the far diſtant comets of the ſyſtem of the ſun.

It is obvious, that the tranſitions which we have deſcribed muſt occur in the inſenſible diſtances, being all comprehended betwixt the atoms and the exterior attractive power; but it is alſo obvious that this law of the forces differs much from the Newtonian gravity, as the curve which expreſſes the latter is a hyperbola of the third order, lying all on one ſide of its axis which it never cuts; conſequently it does not admit of any tranſitions, as we have before hinted at. It is of conſequence to remember this diſtinction, for we ſhall find that on it depends much of our reaſoning in the application of the theory to phyſics.

Some further explanation of the curve remains to be given in the ſecond part: in the mean time we proceed to take notice of certain geometrical properties eſſential to it, as anſwering the conditions of the principles of the theory.

Boſcovich, in an after part of the work, demonſtrates ſtrictly that the curve is poſſeſſed of theſe properties; but we do not think it neceſſary to detail his demonſtration, as it is only acceſſible to thoſe who are verſed in the high geometry, and as we imagine that a bare ſtatement of the conditions required will ſatisfy the generality of our readers.

9 This curve has ſix conditions.

The conditions neceſſary in the curve are ſix in number. Firſt, That it be regular, ſimple, and not an aggregate of arches of different curves. Secondly, That it ſhall cut the axis C′AC in certain given points only, and at the two diſtances AE′, AE; AG′, AG, &c. which are equal on both ſides of the aſymptote, the right line AB. Thirdly, That there ſhall be ordinates to correſpond to every abſciſſa. Fourthly, That there ſhall be equal ordinates at equal abſciſſes on each ſide of AB. Fifthly, That the right line AB be an aſymptote to the curves on each ſide of it; the area BAED aſymptotical and therefore indefinite. Sixthly, That the arches which are terminated by any two interſections may be varied in any manner, recede from the axis C′AC to any diſtance, and accede to whatever arches of whatever curves, cutting, touching, or oſcillating them whereſoever and howſoever we pleaſe.

If theſe conditions be anſwered, it muſt be evident that by this curve we can expreſs any intenſity of any force, in any direction we pleaſe; and of conſequence, that by one law of the forces, every thing in the univerſe, connected in any manner with motion, may be explained. Boſcovich's Syſtem of Natural Philoſophy.

We come now to conſider the analytic deduction of the theory, in which we ſhall follow cloſely the ſteps of Boſcovich.

10 The analytic deduction of the theory

Boſcovich ſets out, by examining the nature of the law of continuity, and the principles on which it is founded. In the year 1745 he publiſhed a diſſertation *De Viribus vivis*, in which he was led to conſider the phenomenon of the colliſion of bodies, and in conſequence, the dilemma into which former philoſophers had fallen by their mode of inveſtigating it, and the breach of the law of continuity which ſome had allowed to extricate themſelves from the dilemma.

Maclaurin, of whom Boſcovich ſpeaks in terms of the higheſt reſpect, "Summus noſtri ævi geometra et philoſophus," was the principal advocate for the breach of the law of continuity in the colliſion of bodies, and ſpoke with ſome indignation of thoſe who aſſerted that this law was univerſal. He of courſe, believed in the production of motion by impulſe, and in the immediate contact of bodies. Now, Boſcovich, as we have before mentioned, rejects both of theſe ſuppoſitions, and conſequently explains the phenomenon in a very different manner from Maclaurin, and endeavours to prove that the law of continuity is univerſal, and that no inſtance of a breach of it is ever obſervable or poſſible.

Before proceeding to his reaſoning on this ſubject, we ſhall explain what is meant by the law of continuity, and give one example of it, to which all others are referable.

11 from the law of continuity,

The law of continuity (ſays Boſcovich) conſiſts in this, that any quantity whilſt paſſing from one magnitude to another, muſt paſs through all the intermediate magnitudes of the ſame kind: or, according to the law of continuity, all changes in nature are produced by inſenſible and infinitely ſmall degrees; ſo that no body can in any caſe paſs from motion to reſt, or from reſt to motion, without paſſing through all poſſible intermediate degrees of motion. Maclaurin's Newton, b. 1. c. 4.

Let there be a right line AB (fig. 2.), to which another line CDE is related; let AB repreſent the time, and from any points of it, F, H let there be erected the perpendiculars FG, HI, which (ordinates) may repreſent any quantities continually variable, and will correſpond to the moments of time F, H; but to the intermediate moments K, M, other magnitudes KL, MN, will correſpond; and if from the point G to the point I there goes a continued and finite part of the line CDE, it is evident that there is no intermediate point of the line AB, as K, to which ſome ordinate KL does not correſpond; and converſely that there is no ordinate of magnitude intermediate betwixt FG, HI which does not correſpond to ſome point intermediate betwixt F, H. Now the variable quantity expreſſed by this variable ordinate, changes according to the law of continuity; becauſe from the magnitude FG, which it has in the moment of time F, to the magnitude HI, which it has in the moment of time H, it paſſes

Boſcovich's Syſtem of Natural Philoſophy

paſſes through all the intermediate magnitudes KL, MN correſponding to the intermediate moments K, M, and to every moment a determinate magnitude correſponds.

This then may be ſufficient to explain the nature of the law of continuity, about which we may remark there can be no ambiguity; for the terms which expreſs it are preciſe, it is a matter of fact, and one example of it is enough to give us an adequate idea of it. We proceed, therefore, to conſider on what its univerſality is founded; and here two queſtions naturally occur: Have we diſcovered the univerſality of this law by a laborious induction? or does it neceſſarily reſult from the nature of continuity? Boſcovich anſwers both of theſe queſtions in the affirmative.

12 which is diſcovered to be univerſal.

1. It is diſcovered by induction. Here we beg to tranſcribe the words of our author, as much more ſatisfactory than any thing we can give: "Quin immo in motibus ipſis continuitas ſervatur etiam in eo, quod motus omnes in lineis continuis fiunt nuſquam abruptis. Plurimos ejuſmodi motus videmus. Planetæ et cometæ in lineis continuis curſum peragunt ſuum, et omnes retrogradationes fiunt paullatim, ac in ſtationibus ſemper exiguus quidem motus, ſed tamen habetur ſemper, atque hinc etiam dies paullatim per auroram venit, per veſpertinum crepuſculum abit, ſolis diameter non per ſaltem, ſed continuo motu ſupra horizontem aſcendit, vel deſcendit. Gravia itidem obliquè projecta in lineis itidem pariter continuis motus exercent ſuos, nimirum in parabolis ſecluſa aeris reſiſtentia, vel ea conſiderata, in orbibus ad hyperbolas potius accedentibus, et quidem ſemper cum aliqua exigua obliquitate projiciuntur, cum infinities infinitam improbabilitatem habeat motus accuratè verticalis inter infinities infinitas inclinationes, licet exiguas, et ſub ſenſum non cadentes, fortuito obveniens, qui quidem motus in hypotheſi telluris motæ a parabolicis plurimum diſtant, et curvam continuam exhibent etiam pro caſu projectionis accuratè verticalis, quo quieſcente penitus tellure, et nulla ventorum vi deflectente motum, haberetur aſcenſus rectilineus, vel deſcenſus. Immo omnes alii motus a gravitate pendentes, omnes ab elaſticitate, a vi magnetica, continuitatem itidem ſervant, cum eam ſervent vires illæ ipſæ, quibus gignuntur. Nam gravitas, cum decreſcat in ratione reciproca duplicata diſtantiarum, et diſtantiæ per ſaltum mutari non poſſint, mutatur per omnes intermedias magnitudines. Videmus pariter vim magneticam a diſtantiis pendere lege continua; vim elaſticam ab inflexione, uti in laminis, vel a diſtantia, ut in particulis aeris compreſſi. In iis, et omnibus ejuſmodi viribus, et motibus, quos gignunt, continuitas habetur ſemper, tam in lineis, quæ deſcribuntur, quam in velocitatibus, quæ pariter per omnes intermedias magnitudines mutantur, ut videre eſt in pendulis, in aſcenſu corporum gravium, et in aliis mille ejuſmodi, in quibus mutationes velocitatis fiunt gradatim, nec retro curſus reflectitur, niſi imminuta velocitate per omnes gradus. Ea diligentiſſimè continuitatem ſervant omnia. Hinc nec ulli in naturalibus motibus habentur anguli, ſed ſemper mutatio directionis fit paullatim, nec vero anguli exacti habentur in corporibus ipſis, in quibus utcunque videatur tenuis acies, vel cuſpis, microſcopii ſaltem ope videri ſolet curvatura, quam etiam habent alvei fluviorum ſemper, habent arborum folia, et frondes, ac rami, habent lapides quicunque, niſi forte alicubi cuſpides continuæ occurrant, vel primi generis, quas natura videtur affectare in ſpinis, vel ſecundi generis, quas videtur affectare in avium unguibus, et roſtro, in quibus tamen manente in ipſa cuſpide unica tangente continuitatem ſervari videbimus infra. Infinitum eſſet ſingula perſequi, in quibus continuitas in natura obſervatur. Satius eſt generaliter provocare ad exhibendum caſum in natura, in quo continuitas non ſervetur, qui omnino exhiberi non poterit." (*Theoria*, p. 18.)

Boſcovich's Syſtem of Natural Philoſophy.

From theſe and other examples, in which the law of continuity is manifeſtly held, Boſcovich infers, that it is univerſal; and that in ſo far as induction ſupports us, we are at liberty to apply it in the explanation of phenomena. Nay, we are by the ſame principle compelled to admit it in caſes where obſervation fails us; becauſe to imagine that in ſuch caſes this law is broken and ſome other is adopted, is to tranſgreſs one of the fundamental principles of true philoſophy: it is to multiply cauſes unneceſſarily; it is to limit the power of the Creator by the imperfection of our own ſenſes; and it will plunge us into difficulties which no effort of human reaſon will remove. Beſides this, it is very eaſy to conceive that the law is permanent; and as no abſurdity, therefore, accompanies the ſuppoſition, and no fact can be brought to overthrow it, whereas the contrary is unſupported by any fact, but is plainly repugnant to all, it is ſurely rational to make uſe of it, and to hold it as the general principle, till ſome higher one be diſcovered on which it depends.

13 Its univerſality evinced by a poſitive argument.

From induction alone, therefore, we may infer the univerſality of the law; but Boſcovich has other arguments which he calls poſitive, to ſupport and evince it. This leads us to the ſecond queſtion, Does this univerſality neceſſarily ariſe from the nature of continuity? The limit which joins the precedent and conſequent of any thing, is common to both, and is therefore indiviſible. Thus, a ſuperficies ſeparating two ſolids, wants thickneſs, and is that in which a tranſition from the one to the other occurs; a line dividing two parts of a continued ſuperficies wants breadth; a point diſcriminating two ſegments of a continued line wants every dimenſion. So it is with regard to time, for the limit of two conjunct portions is common to both, and indiviſible; and, as every change of a variable quantity from one magnitude to another muſt be made in time, ſo every change muſt be *influenced* by the continuity of time. But to every moment of time, a certain magnitude of the variable quantity correſponds, and the limit of two moments of time is common and indiviſible; therefore, the limit of two magnitudes correſponding to theſe two moments, muſt be common and indiviſible. Moreover, it is impoſſible for any quantity to have two magnitudes at the ſame time, and when continually varying, that it ſhall have the ſame magnitude at different times; much more impoſſible, therefore, that in the limit of two moments of time it ſhall have two magnitudes, the one correſponding to the precedent, and the other to the conſequent moment, or ſhall not have gone through the intermediate magnitudes in the intermediate moments of time. For the ſame reaſon, a body cannot have two velocities at the ſame time, and therefore cannot have two velocities in the limit common to two moments of time; and when continually changing its velocity, cannot have the

ſame

Boſcovich's Syſtem of Natural Philoſophy.

ſame velocity in different moments of time, but muſt go through all the intermediate velocities in the intermediate moments of time. Hence then, in paſſing from the magnitude 8 to the magnitude 12, the variable quantity paſſes through the magnitudes 9, 10, 11. In going from the velocity 7 to the velocity 11, a body muſt go through the velocities 8, 9, 10. The increaſe of temperature goes on gradually: the mercury in the thermometer riſes gradually, going through every intermediate degree from one to another. Now as this reaſoning is uninfluenced by any conſiderations of the hardneſs, ſoftneſs, elaſticity or other property of bodies; theſe, it is evident, do not influence the univerſality of the law as reſulting from the nature of continuity.

From theſe arguments, therefore, and from induction, Boſcovich concludes, that the law of continuity is eſſentially univerſal, and that a breach of it is metaphyſically impoſſible. The uſe made of this deduction in explaining the colliſion of bodies, muſt at once be underſtood by our philoſophical readers. If in this and all other phenomena, the law of continuity is preſerved, there can no actual contact take place amongſt bodies; and it is from the univerſality of the law ſo eſtabliſhed that Boſcovich derives this original principle of his theory.

14 Therefore actual contact impoſſible.

To apply this then in the colliſion of bodies, we argue in the following manner. Since the bodies cannot come into immediate contact with the preceding velocities, it is neceſſary that their reſpective velocities be changed before contact, that either the velocity of the antecedent body ſhall be augmented, or that the velocity of the conſequent body ſhall be diminiſhed, or that both of theſe changes ſhall occur. Now the cauſe operating betwixt the bodies, ſo as to retard the one, and to accelerate the other, muſt be a power, and muſt act *from* the bodies, and muſt alſo be ſufficient to overcome the greateſt velocities with which the bodies tend to unite, and be mutual, becauſe action and re-action are equal. In fine, this is the interior repulſive power according to the definition. This mode of explaining the phenomenon, we may obſerve, is general, ſeeing that no hardneſs, ſoftneſs, or elaſticity of the bodies, has any influence on the general principle from which it is deduced; but theſe properties will influence the particular caſes of the phenomenon, and cauſe certain modifications, which, however, do not concern us at preſent.

15 Repulſive power.

In this manner we derive evidence for the exiſtence of the interior repulſive power; but for this we have alſo the light of induction to aſſiſt us, as we ſhall prove in the concluſion of our article.

As the repulſive power may be increaſed to infinity, by diminiſhing to infinity the diſtances betwixt the atoms of matter, it is obvious, that no part of matter can be contiguous to another part; from which it follows, that the primary elements of matter are ſimple and uncompounded. From ſimilar arguments, and from others deduced from the abſurdities involved in the contrary ſuppoſition, Boſcovich maintains, that they are alſo inextended and indiviſible.

16 Inextenſion of the atoms.

17 Attractive power.

The exiſtence of an attractive power is allowed on all hands; we need not therefore enumerate Boſcovich's arguments on the ſubject. For proofs of the tranſitions from one power to another, we are referred to the phenomena of effervescence, fermentation, coheſion, &c.; the conſideration of which belongs to the third part of our ſubject.

Boſcovich's Syſtem of Natural Philoſophy.

To prove the homogeneity of the atoms, Boſcovich makes uſe of the ſame reaſons which have been employed by other philoſophers; and he removes the objections made to it by Leibnitz, on the principle of the ſufficient reaſon, and the viſible diverſity of bodies: the former he contends to be falſe, being founded on that doctrine of neceſſity which Leibnitz maintained; and with reſpect to the latter, he deſcribes a beautiful and ſtriking analogy, which we cannot refrain from tranſcribing.

18 Homogeneity of the atoms.

"Fieri poſſent nigricantes literæ, non ductu atramenti continuo, ſed punctulis rotundis nigricantibus, et ita parum a ſe invicem remotis, ut intervalla non niſi ope microſcopii diſcerni poſſent, et quidem ipſæ literarum formæ pro typis fieri poſſent ex ejuſmodi rotundis ſibi proximis cuſpidibus conſtantes. Concipiatur ingens quædam bibliotheca, cujus omnes libri conſtarent literis impreſſis, ac ſit incredibilis in ea multitudo librorum conſcriptorum linguis variis, in quibus omnibus forma characterum ſit eadem. Si quis ſcripturæ hujuſmodi et linguarum ignarus circa ejuſmodi libros, quos omnes a ſe invicem diſcrepantes intueretur, obſervationem inſtitueret cum diligenti contemplatione, primo quidem inveniret vocum farraginem quandam, quæ in quibuſdam libris occurrerent ſæpe, cum in aliis nuſquam apparerent, et inde lexica poſſet quædam componere totidem numero, quot idiomata ſunt, in quibus ſingulis omnes ejuſdem idiomatis voces reperirentur, quæ quidem numero admodum pauca eſſent, diſcrimine illo ingenti tot, tam variorum librorum redacto ad illud uſque adeo minus diſcrimen, quod continerentur lexicis illis, et haberetur in vocibus ipſa lexica conſtituentibus. At inquiſitione promota, facile adverteret, omnes illas tam varias voces conſtare ex 24 tantummodo diverſis literis, diſcrimen aliquod inter ſe habentibus in ductu linearum, quibus formantur, quarum combinatio diverſa pareret omnes illas voces tam varias, ut earum combinatio libros efformaret uſque adeo magis a ſe invicem diſcrepantes. Et ille quidem ſi aliud quodcunque ſine microſcopio examen inſtitueret, nullum aliud inveniret magis adhuc ſimile elementorum genus, ex quibus diverſa ratione combinatis orirentur ipſæ literæ; at microſcopio arrepto, intueretur utique illam ipſam literarum compoſitionem e punctis illis rotundis prorſus homogeneis, quorum ſola diverſa poſitio ac diſtributio literas exhiberet. Hæc mihi quædam imago videtur eſſe eorum quæ cernimus in natura. Tam multi, tam varii, illi libri corpora ſunt, et quæ ad diverſa pertinent regna, ſunt tanquam diverſis conſcripta linguis. Horum omnium chemica analyſis principia quædam invenit minus inter ſe difformia, quam ſint libri, nimirum voces. Hæc tamen ipſæ inter ſe habent diſcrimen aliquod, ut tam multas oleorum, terrarum, ſalium ſpecies eruit chemica analyſis e diverſis corporibus. Ulterior analyſis horum veluti vocum, literas minus adhuc inter ſe difformes inveniret, et ultima juxta theoriam meam deveniret ad homogenea punctula, quæ ut illi circuli nigri literas, ita ipſa diverſas diverſorum corporum particulas per ſolam diſpoſitionem diverſam efformarent: uſque adeo analogia

Boſcovich's Syſtem of Natural Philoſophy.

ex ipſa naturæ conſideratione derivata non ad difformitatem, ſed ad conformitatem elementorum nos ducit." (*Theoria*, p. 49.)

It is from theſe ſimple principles which we have enumerated that Boſcovich deduces analytically the whole of his ſyſtem; and he now proceeds to remove or explain away the objections made to it.

19 Objections to the theory obviated.

It has been objected in the firſt place to the mutual powers, that they are occult qualities, and that they induce action at a diſtance. But in reply, ſo far from being occult they are very manifeſt, an idea of them can eaſily be formed, their exiſtence is evinced by a poſitive argument, and their effects are continually before our eyes; we may add alſo, that the ſame objection was made to the Newtonian attraction, and that the ſame arguments ſerve to remove it from both. As to the mutual powers inducing action at a diſtance, much indeed may be ſaid, but it is very queſtionable if all that can be ſaid will ever clear up the obſcurity that perpetually involves this inextricable phenomenon. We reſerve ſome remarks on the commonly received notions on the ſubject, for our concluſion; in the mean time, we may affirm, that it is as eaſy to conceive motion produced by the powers we have ſpoken of, i. e. at a diſtance, as produced by immediate impulſe. We know, indeed, that till of late, philoſophers were accuſtomed to conſider the connexion between impulſe and motion ſo eſſential, and their notions on the ſubject ſo clear and fundamental, that whenever they could reduce any phenomenon to that predicament, they flattered themſelves every difficulty vaniſhed, and conſequently further inveſtigation was ſuperfluous. But we alſo know, that till of late, water was held to be a ſimple body, and that when it could be ſhewn to ariſe in any chemical experiment, it was cuſtomary in chemiſts to believe it had previouſly exiſted in the ſubjects of their experiment. Do we coincide in this belief in the preſent day?

It has been objected, that the theory itſelf admits a ſudden tranſition from one power to another; but a due inſpection of the curve, and the explanation of it which we have given, will convince that this is impoſſible, for that every change is made by paſſing through every intermediate degree.

The principal objections, as might have been expected, have been made to the rejection of contact, to the inextenſion of the atoms, and to their indiviſibility. But it is allowed, that bodies approach ſo near to each other, as to leave no ſenſible diſtance between them; and that the reſiſtance which we experience is made by the repulſive power which gives us the ſame ſenſation as actual contact. We can *form no idea*, it is true, of an inextended indiviſible atom of matter, becauſe all our ideas of matter are aſſociated with extenſion and parts; and ſo difficult is it to break the aſſociation, we imagine theſe are eſſential to it. Boſcovich directs us to conſider the nature of a mathematical point, in which there is involved no notion of extenſion or parts, and that from this we can form an idea of an inextended atom. The notion of an inextended and ſimple atom is not peculiar to the theory of Boſcovich. Zeno and his followers among the ancients, and the modern Leibnitzians adopted it. But Boſcovich, by denying actual contact and continued extenſion, gets rid of the abſurdities which reſulted from their opinions.

Boſcovich's Syſtem of Natural Philoſophy.

Some have aſſerted that the atoms of this theory do not differ from ſpirits, becauſe they have not extenſion, which is the characteriſtic of matter. Does then extenſion conſtitute matter, and the want of it ſpirit? We apprehend not. The diſcrimination of matter and ſpirit conſiſts in theſe two circumſtances: the former is perceptible by our ſenſes, and is incapable of thought and volition; whereas, the latter does not affect our ſenſes, but can both think and will. But the perceptibility of matter ariſes from its impenetrability, not from continued extenſion. Beſides this, the atoms have repulſive and attractive powers, though they do not therefore reſemble ſpirit. For were we to admit the exiſtence of a kind of being poſſeſſed of theſe active powers, conjoined with inertia, and having at the ſame time cogitation and volition; it would neither be matter nor ſpirit, but a *tertium quid*, diſtinguiſhed from the former by cogitation and volition, and from the latter by inertia, and by powers which induce impenetrability.

Boſcovich treats the other metaphyſical objections to his theory in a ſimilar manner; but we think it very unneceſſary to dwell longer on them, and ſhall therefore proceed to the ſecond part of our ſubject.

20 Application to mechanics.

II. We are obliged to be conciſe in our account of the application of the theory to mechanics, becauſe though very valuable in itſelf, it can hardly be abridged, and would prove intereſting to thoſe only who are verſed in mechanical ſcience. There remain, however, ſome further circumſtances of the curve to be conſidered, which are eſſential to the fully underſtanding the theory itſelf, and the manner in which it is to be applied either to mechanics or to phyſics. We propoſe to deliver them in this place in conformity with our author's plan, though they are equally ſuitable to any of the three parts.

21 Further remarks on the curve.

The circumſtances we mean are of three kinds. 1ſt, The arches of the curve. 2dly, The areas comprehended betwixt the axis, and the arches which the ordinates generate by continually flowing. 3dly, The points in which the curve cuts the axis.

22 Arches.

1. The arches are either repulſive or attractive, according as they are ſituated on the ſame ſide of the axis with the aſymptotic limb ED, or on the ſide oppoſite, and terminate the ordinates exhibiting the repulſive or the attractive powers. The arches may bend towards the axis, and turn again from it without touching or cutting it, as in the arch P *e f*; this bending may be repeated, and may occur on either ſide of the axis, and it may admit of many varieties in figure and ſize, ſo as to expreſs every poſſible action and mode of action.

23 Areas.

2. The areas may be of any magnitude however great or ſmall, or they may be infinite, according as the arches depart more or leſs from the axis, or become aſymptotical with reſpect to it. The abſciſſes repreſent the diſtances betwixt the atoms, and the ordinates the preſent force by which they are acting: the areas which the ordinates run through, expreſs the increment or the decrement of the ſquares of the velocities which are generated. From theſe principles it is eaſy to ſee in what manner the doctrine of dynamics may be applied in the theory. And from this very circumſtance it is clear that this theory does not interfere with principles in mechanics which are deduced from reaſoning abſtractedly

Boſcovich's Syſtem of Natural Philoſophy.

ſtractedly on ſpace, velocity, and time, and in which the nature and properties of matter have no place. This remark is momentous, becauſe it ſerves us in forming an adequate opinion of the merits of the theory, and it completely overthrows the ſcepticiſm concerning mechanical knowledge into which ſome have been led by imperfectly underſtanding the object and the principles of Boſcovich. We beg to impreſs this on the minds of our readers, and to aſſure them, that though the theory of Boſcovich be moſt ſatisfactorily eſtabliſhed, there will not one fundamental principle in the ſcience of mechanics be overturned. This will no doubt mortify the ignorant ſceptic, but it will animate the true ſtudent to greater exertions, and it may open to him a field in which glory and fame remain yet to be reaped. To return, the aſymptotic area included betwixt any aſymptote and ordinate may be either infinite, or finite of any magnitude however great or ſmall: or more generally, the area is infinite if the ordinate increaſes in the ſimple reciprocal ratio; but if the ratio be leſs in any degree, the area is finite.

24 Points.

3. The points in which the curve cuts the axis are of two kinds, one where the tranſition is from repulſion to attraction, the other where it is from attraction to repulſion. Now theſe are called limits, and though they have ſomething in common with each other, yet do they eſſentially differ. They have this in common, that if two atoms be placed at the diſtance of any limits from each other, no mutual power is exerted by them; conſequently if they are reſpectively at reſt, they continue ſo. But if they be moved from their reſpective reſt, then an eſſential difference is obſervable betwixt theſe two kinds of limits. In the limit of the firſt kind, viz. where the tranſition is from repulſion to attraction, the atoms reſiſt further ſeparation, and endeavour to regain their former diſtance by the attractive power then operating; and they reſiſt nearer approach than the limit, and endeavour to regain their former diſtance, by the repulſive power then operating. This therefore is called a *limit of coheſion*, ſeeing that if an atom be any way removed from it, it endeavours to regain it.

25 Limits of coheſion.

26 Of non-coheſion.

But in the limit of the ſecond kind, if the diſtance betwixt the atoms be in the leaſt increaſed, then will theſe atoms tend from each other more and more, by the repulſive power then operating; and if the diſtance betwixt them be in the leaſt diminiſhed, then they will tend to each other more and more, by the attractive power then operating. This therefore is called a *limit* of *non-coheſion*, ſeeing that if an atom be any way removed from, it departs more and more from it. Now the limits of coheſion may be very ſtrong or very weak; for if the curve cuts the axis perpendicularly, it is evident that the ordinates on each ſide of the limit are the greateſt, and therefore the forces which they expreſs the greateſt. On the other hand, if the curve cuts the axis in a very ſmall angle, it is alſo evident that the ordinates on each ſide of the limit are very ſmall, and therefore the forces which they expreſs very ſmall; and theſe in any proportion. Of the limits of non-coheſion we may obſerve that, in a ſimilar manner, according to the angle formed by the curve in cutting the axis at the points repreſenting them, the atoms will recede from, or accede to each other with greater or ſmaller velocity, when their reſpective diſtance is changed.

Boſcovich's Syſtem of Natural Philoſophy.

The remarks which we have now made, together with the former explanation of the curve, are ſufficient to acquaint our readers with the general principles of the theory, and will ſerve to exhibit the manner in which it may be applied to mechanics and to phyſics. Of the former, we have already mentioned, it is difficult to give even an abridgment; we propoſe then to employ the remainder of this part in enumerating the particular ſubjects in mechanics to which our author has applied his theory, and in giving our opinion of the degree of ſucceſs with which his application is attended.

27 Combination of the atoms

He commences by ſhowing in what manner maſſes of matter may be formed by the atoms, ſuppoſing them endowed with the powers of repulſion and attraction; and firſt of the combination of two atoms, then of three, and ſo to the moſt complicated bodies. He proves that the maſſes ſo formed will be poſſeſſed of different properties, in conſequence of the diſpoſition of the powers which in certain caſes will always attract, in others always repel, and in others again will do neither, i. e. will be neutral. From theſe differences will neceſſarily reſult peculiarities in the mode of the action of different maſſes, and theſe ſo endleſs and diverſified, as to include every poſſible phenomenon in nature. It is eaſy to conceive that the varieties in figure will readily reſult from the poſition of the atoms, and the influence of the powers in reſpect to each other. Thus a pyramid may be formed of four atoms, and a cube of eight; theſe ſmaller or primary maſſes may be combined to form ſecondary, and ſo on to any order. Regular and irregular bodies will thence be formed; and yet it may be ſhown that the moſt irregular and complicated may be reduced to the primary or original forms, from whence they were conſtructed. The cryſtallization of ſalts, for example, may in this manner be accounted for, and the reduction of them into the primitive forms be explained on the principles of the theory. Theſe phenomena imply compoſition and equilibrium of forces, which ſtrictly belong to mechanics; our author therefore proceeds to conſider theſe and other ſubjects connected with them: as the centre of gravity; the equality of action and reaction; the colliſion of bodies; the centre of equilibrium; the centre of oſcillation; the centre of percuſſion. In all of theſe we may obſerve his law of the forces is ſtrictly applicable; that by it ſome very difficult problems are ſolved, and ſome intricate phenomena explained, with an accuracy and preciſion highly creditable to Boſcovich, and ſtrongly preſumptive of the value of his theory. The formulæ which his inveſtigations afford are certainly curious and intereſting to the ſpeculative, and may be uſeful to the practical mechanic. He adds a few remarks on the preſſure and velocity of fluids, which are equally clear, and in our opinion ſatisfactory.

28 Forming different bodies,

29 Cauſing the mechanical phenomena

III. We have already anticipated ſome of the principles which more properly belong to this part, in which we conſider his application of the theory to phyſics. This neceſſarily comprehends all the general properties of matter, ſome of which have already engaged our attention when treating of the analytic deduction and vindication of the theory, but ſtill require ſome particular obſervations.

30 Application to phyſics.

The impenetrability of the atoms is a neceſſary conſequence of the interior repulſive power increaſing as

31 Impenetrability.

Boſcovich's Syſtem of Natural Philoſophy.

the diſtance diminiſhes; but it alſo ariſes from the inextenſion of the atoms, and their indiviſibility: becauſe as ſpace is infinitely diviſible, it is infinitely improbable that any two atoms ſhould ever meet in the ſame part of it, though no repulſive power exiſted, ſeeing that they may move in an infinite number of the parts of ſpace which are unoccupied. So that, independent of any repulſive power, it is infinitely improbable that any compenetration ſhould occur.

32 Extenſion.

Phyſical extenſion neceſſarily ariſes from the impenetrability of the atoms; becauſe by it, no two atoms can occupy the ſame part of ſpace, and are therefore kept *without* each other; but it is not mathematical or continued extenſion, ſeeing that ſome ſpace muſt intervene betwixt all the atoms. Our ſenſes, it is true, cannot perceive this ſpace on account of its ſmallneſs; no more can they perceive the diſtances betwixt the particles of water or other fluid, and yet from certain phenomena it is demonſtrable that ſuch diſtances exiſt.

33 Figurability.

From extenſion ariſes *figurability*, ſeeing that by the combination of the atoms certain forms muſt be produced: it can be eaſily ſhown that, on account of the various limits of coheſion, there may be very different quantities of matter under the ſame figure; and this involves the conſideration of *denſity*. The maſs of a body is the whole quantity of matter pertaining to it, or the number of atoms which compoſe it. But it may be remarked that our idea of the maſs is very vague, arbitrary, and confuſed, owing to the apparent heterogeneity of bodies.

34 Inertia.

The inertia of bodies is the conſequence of the inertia of the atoms and of the mutual powers; and by it we underſtand the determination to perſevere in the ſame ſtate of reſt or uniform motion in a right line, unleſs forced by ſomething external to change from it.

35 Mobility.

Mobility, one of the general properties of bodies, being eſſential to the atoms, is ſo to the maſſes formed of them. It is a conſequence of the mutual powers of the theory. Now all the motion we obſerve is merely relative, either in reſpect of the earth, the planetary ſyſtem, or the ſyſtem of the fixed ſtars. From this perhaps we may derive an argument for the univerſality of the law of continuity in the caſe of motion, ſeeing that the inſtances where the law appears to be broken, muſt be explained by the combined influence of moving powers which act continually and gradually; and that there is not one example of abſolute reſt in the univerſe.

36 Componibility.

Though continued extenſion and diviſibility be denied to the atoms, it is allowed that they may be infinitely compounded; and hence componibility is contraſted with diviſibility in the theory.

37 Gravity.

General gravity, according to the Newtonian principles, is allowed in this theory, as we have before mentioned; and we may now remark, that the objection urged againſt it, as tending to produce an aggregate of all the matter in the univerſe, by drawing the planets, comets, and fixed ſtars, into one portion of ſpace, may be obviated by ſuppoſing that a repulſive power ſucceeds the attractive after it has reached to the comets of our ſyſtem; or that as by the curve, the limb T *p s* V ceaſes to be aſymptotical, and cuts the axis ſo as to exhibit an arch of repulſion on the oppoſite ſide.

Of all the general properties of matter, that of *coheſion* is moſt ſimply and beautifully explained by this theory; but as we have already ſpoken of its limits and their varieties, we need not now enlarge on it. We have to conſider certain other properties of bodies, which from not being general have been called *ſecondary*. Of theſe the principal are ſolidity and fluidity.

Boſcovich's Syſtem of Natural Philoſophy.

38 Coheſion.

39 Fluidity.

Fluidity.—Boſcovich imagines that the particles of fluid bodies are ſpherical, and that their forces are more directed to their centres than to their ſurfaces: by which motion is allowed freely when any force is applied to them from without; and that when at reſt all the particles are in equilibrium in reſpect of each other, but that the preſſure of incumbent bodies, and containing veſſels, always cauſes ſome deviation from it. He ſays there are three kinds of fluids: one in which the particles or maſſules have no mutual power; one in which they have repulſive power, and the other in which they have an attractive power. Of the firſt we have examples in ſand and fine powders; of the ſecond are the elaſtic fluids, as air; and of the third, all liquors, as water, mercury, &c. Now theſe three kinds are produced by the original differences in the primary particles which compoſe them; and we are able on the principles of the theory to ſpecify the cauſes of the diverſity in the phenomena which they exhibit.

40 Solidity.

Solidity is the conſequence of the irregular figure of the particles and their great deviation from ſphericity, by which free motion among them is prevented, and their coheſion better ſecured. Now the diverſity in ſolids ariſes from the various degrees of ſtrength in the limits of coheſion; and the ſame principles will give riſe to a claſs of bodies intermediate betwixt ſolids and fluids, viz. the viſcous, whoſe particles attract each other more ſtrongly than the fluids, and not ſo ſtrongly as the ſolids.

41 Organization.

If we imagine the particles to be ſo formed as to attract on ſome ſides, and to repel on others, and to attract certain particles ſimilarly conſtructed, and to repel others, we may conceive in what manner the regular bodies denominated *organized* are compounded; and for theſe the varieties admitted in the limits of coheſion, ſituation, and combination of atoms, will abundantly ſuffice. Humidity is only relative, ſeeing that water, e. g. adheres to our fingers, and may be eaſily ſpread out on glaſs, wood, &c. whereas it does not affect oleaginous and reſinous bodies: now this is in conſequence of the partial arrangement of the powers in different bodies, and the varieties in the combination, &c. of the particles.

42 Chemical phenomena.

Of the chemical operations Boſcovich remarks in general, that they may be all traced to the ſame principle, the law of the forces, and the differences in the particles which thence ariſe; and that were they ſubjected to the obſervation of our ſenſes, a general reaſon for them would be diſcovered; but for this there are required an intimate knowledge of the texture of all the particles, and a power of geometry and analyſis which far exceeds the human mind. He explains ſome of them in the following manner: And firſt of ſolution. The particles of ſome ſolids have a leſs attraction for each other than for the particles of ſome fluids, and conſequently when theſe are applied to each other, the particles of the former will ſeparate and combine with thoſe of the latter, ſo as to form a mixture in which the two bodies are ſuſpended in combination.

But

Boſcovich's Syſtem of Natural Philoſophy.

But the ſeparation of the particles of the ſolid can only take place ſo long as the particles of the fluid are in the ſphere of their attraction; and when either of them get beyond it, or when the attraction of the mixture ſo formed, becomes equivalent to the attraction of the particles of the ſolid for each other, then no more ſolution will take place, and the menſtruum is ſaid to be ſaturated. But if into this mixture another ſolid, whoſe particles have a greater attraction for the menſtruum than thoſe of the former, be thrown, then the menſtruum will leave the former ſolid, or its particles, and adhere or combine with the latter; in which caſe the former ſolid in the form of powder will fall to the bottom, or what is called precipitation will occur. In ſhort, he gives pretty nearly the common explanation of the phenomena; and on ſimilar principles he accounts for the mixture of fluids. Now if the particles of two fluids which are mixed together, come into the limits of coheſion, a ſolid will be thereby generated, of which we have ſome examples. On the other hand, two ſolids triturated together may compoſe a fluid, in conſequence of the particles of each departing from the limits of coheſion.

If we conſider that the firſt limb of the curve exhibits impenetrability, the laſt gravity, and the interſections the various kinds of coheſion, we may form ſome notion of the manner in which fermentation, evaporation, deflagration, &c. are cauſed; for whilſt atoms accede to each other with any velocity, they increaſe the velocity in every attractive arch, but they diminiſh it in every repulſive arch; whereas on the contrary, whilſt they recede from each other, they increaſe it in every repulſive arch, and diminiſh it in every attractive arch, until in the former caſe they arrive at a repulſive arch, or in the latter an attractive one, which is ſufficiently ſtrong to extinguiſh the whole velocity. When they do ſo, they are reflected in the ſame courſe, and oſcillate backwards and forwards. Beſides this, if bodies compoſed of particles which have different properties, in conſequence of the different ſituation and combination of the powers, be mixed together, an agitation among them muſt neceſſarily ariſe in order to attain an equilibrium; hence oſcillations, perturbations of various kinds, will follow, and cauſe the great diverſity of phenomena which are obſerved. Now all of theſe take place within the ſphere of general gravity, which does not *immediately* influence the operations. Subſtances which are diſſolved may not only be obtained again by precipitation, but alſo by evaporation of the menſtruum in which they are diſſolved. In this latter caſe the bodies generally aſſume ſome regular forms, denominated cryſtals. Now this ariſes from the particles coming gradually into the ſphere of the attractive power of each other, and conſequently attaining to ſome limit of coheſion by the menſtruum, which formerly kept them aſunder, being gradually removed; whereas in the former caſe, where we obtain them by precipitation, the menſtruum is ſuddenly removed from betwixt the particles, which are conſequently left beyond the ſphere of attraction of each other, and do not therefore aſſume any regular form. It will follow from this, that the more ſlowly evaporation is performed, the more regular will be the cryſtals which are depoſited; and this is verified by obſervation.

Boſcovich's Syſtem of Natural Philoſophy.

We profeſs not to underſtand Boſcovich's notion of the nature of fire; but leſt our readers may require it, we beg to tranſcribe his own words: "Ignem ego arbitror eſſe quoddam fermentationis genus, quod acquirat vel potiſſimum, vel etiam ſola *ſulphurea ſubſtantia*, cum qua fermentat materia *lucis* vehementiſſimè, ſi in ſatis magna copia collecta ſit. Ignem autem voco eum, qui non tantum rarefacit motu ſuo, ſed et calefacit, et lucet; quæ omnia habentur, quando materia illa ſulphurea ſatis fermenteſcit." And he obſerves in another place, that if fire be excited only by a fermentation of ſulphureous ſubſtance, where there is none of this ſubſtance there is no danger of fire! 43 Fire.

Boſcovich retains the Newtonian opinion concerning light, viz. that it is an effluvium or emiſſion from the ſun, propagated with immenſe celerity, and retained in certain bodies, from which it may be extricated by certain means. He holds the atoms of light to be immenſe, but ſtill finite in number, and endeavours on the principles of his theory to account for the wonderful properties with which light is endowed. In doing ſo, he makes extenſive uſe of the repulſive power, the varieties in the limits of coheſion, and we may add, with much plauſibility and ſucceſs. Sir Iſaac Newton, in explaining the reflexion of light, found it neceſſary to admit the exiſtence of a repulſive power, for which, however, he had made no proviſion in his ſyſtem. The late experiments in optics by Mr Brougham ſerve to confirm the ſuppoſition of the exiſtence of a repulſive power in regard of light at leaſt. Boſcovich refers his reader to his diſſertation *De Lumine* for more information concerning the reflexion, refraction, &c. of light and colours, and for the application of the principles of his theory to them. 44 Light.

He proceeds to explain many of our ſenſations; but we muſt confeſs there is very little praiſeworthy in his remarks concerning them: indeed we can ſee no reaſon why they ſhould be introduced at all into a ſyſtem of natural philoſophy, erected on ſuch or any other foundation which concerns the external world only. In the ſmall example of the ardour of ſyſtematic arrangement and application of phyſical principles to the intellectual world, which Boſcovich has given us, we obſerve a ſtriking coincidence with the doctrine of Hartley; but our opinion of that doctrine is not in the leaſt meliorated by ſuch coincidence. It is a doctrine which affects to teach more than it is given to man to know; a doctrine by which we are induced to depart from the humble but ſecure path of obſervation, and to wander in the boundleſs incomprehenſible field of tranſcendentals, and which, howſoever harmleſs its conſequences may be, as it augments the vanity of man, prevents the employment of his faculties in the inquiry into familiar truths. 45 Senſations.

Boſcovich adopts Franklin's hypotheſis of electricity, which he defends on the principles of his theory; but we muſt refer our readers to the work itſelf, for his reaſoning on electricity and magnetiſm. We would only remark, that as our knowledge of theſe curious phenomena is much augmented even ſince the time of Boſcovich, his theory was applied to them with diſadvantage; but perhaps theſe very phenomena afford the beſt proofs of the truth of ſome of its principles. 46 Electricity and magnetiſm.

We have now followed Boſcovich through the conſideration of his theory, and we flatter ourſelves that, 47 Concluding remarks.

in

Boſcovich's Syſtem of Natural Philoſophy.

in ſo doing, we have given ſuch an exhibition of its peculiar principles as will at leaſt excite the curioſity of our readers, though it may not gratify it; and indeed, little more could be expected from us in detailing a ſyſtem of ſuch magnitude, and affecting to comprehend ſo much. We have however engaged ourſelves to give ſuch obſervations and remarks as may have been ſuggeſted to us in the courſe of the work. In conformity with this, we beg the retroſpection of our readers to thoſe circumſtances in the theory which are moſt peculiar to it, and which ſerve to fix on it the characteriſtic feature of originality. Of theſe the rejection of contact, as it is the moſt conſpicuous, ſo it requires the moſt particular attention, as on it reſts the greateſt part of the reaſoning and fabric of the ſyſtem.

We have ſeen that Boſcovich ſupports this principle on the univerſality of the law of continuity, and on the exiſtence of the interior repulſive power. Of the former we have to obſerve, that the mode of proving it by induction is ſtrictly philoſophical, juſt, and convincing; but that the metaphyſical or *poſitive* arguments uſed for the ſame purpoſe are by no means ſo. We do not mean to aſſert that theſe arguments have no weight, but only that they are not ſo far removed from a conſiderable ſource of error and miſconception, as to prevent all ſuſpicion of their accuracy, and to entitle them to an unqualified application to the ſubject we conſider. It is true indeed, that no appeal to obſervation can directly determine the queſtion, and therefore, it may be ſaid, we muſt have recourſe to ſome other authority. But, to us at leaſt, it ſeems as true, that the proof by induction is the only ſatisfactory one we can have; and that if we are careful to keep in view that precept of philoſophy which teaches us not to multiply cauſes unneceſſarily, and to reaſon from analogy on the ſimplicity and ſteady uniformity of nature, there will be no occaſion to have recourſe to other authority.

We are diſpoſed to believe, that the metaphyſical arguments which Boſcovich employs may be retorted on the theory itſelf. Does not the theory ſeem to admit a breach in the law of continuity, when it denies the continued extenſion of bodies? Or, as it rejects the diviſibility and extenſion of atoms, muſt we not imagine and believe, on the faith of the law of continuity, that theſe atoms are mere *nuclei* of repulſive powers? Or ſhall we admit that the law of continuity depends on ſome higher principle not yet diſcovered, a principle in which extenſion or duration are concerned; that where there is neither extenſion nor duration, the law does not hold; that conſequently, in the caſe of the atoms and their mode of union, this law ſuffers a breach; i. e. that the metaphyſical arguments do not prove its univerſality, or that a breach of it is impoſſible? Such are the myſteries into which we are enveloped, when we wander from that path which is aſſigned to human reaſon.

As to the exiſtence of the interior repulſive power, it may be obſerved, that if it be proved or evinced to us, the impoſſibility of contact muſt be admitted. Now we are of opinion that a power of repulſion does exiſt in the neareſt vicinity of many bodies; but we pretend not to know the law by which it operates, or even that it increaſes to infinity on the diminution of the diſtance. We are ſatisfied that it occaſions many very curious phenomena, ſome of which have been explained by it; and we ſincerely believe that the inveſtigation of its laws and the extent of its influence will fabricate a crown as unfading as that of Newton. But we are convinced that were the theory of Boſcovich concerning it tacitly confided in, ſuch a crown could never be obtained. Nay we inſiſt further, that though by *reaſoning* it could be determined that ſuch a power does exiſt, it would be uſeleſs to us, till the moſt laborious induction be practiſed to diſcover how far it influences obſervable phenomena, and how far it may be ſubjected to human artifice and ingenuity.

Boſcovich's Syſtem of Natural Philoſophy.

The phenomena which give evidence of the exiſtence of a power of repulſion are chiefly optical; but it belongs not to this article to explain them. We may however juſt mention that we allude to the experiments of the object-glaſſes of long teleſcopes, the brilliancy of dew drops while ſupported on leaves or rolling on the ſurface of water, in which it is demonſtrable that a certain ſpace intervenes betwixt bodies which are apparently in contact, and that this ſpace can be cauſed by repulſive power alone. Sir Iſaac Newton himſelf virtually admitted the exiſtence of ſuch a power, as appears from the laſt queſtion of his optics; indeed it is very certain that the attractive power alone will not produce many of the phenomena of which he ſpeaks.

Concerning the other principles of the theory we have little to remark, ſeeing that moſt of them reſult from thoſe we have now conſidered. The tranſitions of the powers are in our opinion to be aſcertained only by obſervation, and this it muſt be confeſſed is no eaſy matter: the phenomena of fermentation, efferveſcence, &c. to which we are referred for proofs of the exiſtence of theſe tranſitions, ſeem to be eaſily explained on ſuch a ſuppoſition; but it is nevertheleſs probable that the ſuppoſition was prior to the obſervation of the laws by which theſe phenomena are regulated. It may be worth while remarking, that if we are able to conceive theſe tranſitions as exiſting, we can alſo conceive how motion may be produced at a diſtance, which was held up as an abſurdity in the ſchools. It muſt be very evident to our readers that the theory of Boſcovich ſuppoſes this production of motion, and that any other mode is impoſſible, ſeeing that contact is ſo. But we are not therefore to believe that the repulſive or attractive powers are efficient cauſes; though they certainly are phyſical ones, i. e. they are higher principles than the phenomena which ſucceed them, and may for aught we know depend on ſome one more general principle which this theory does not comprehend. We do not therefore foreſee any dangerous conſequences of the ſuppoſition of matter acting on matter at a diſtance; nor can we believe that theſe two expreſſions are equivalent or conſecutive, viz. if matter act where it is not, it may act when it is not. The one is a reference to ſpace, the other to time, and betwixt theſe we know no mean of compariſon.

We ſee then that the theory of Boſcovich is intimately connected with the moſt abſtruſe metaphyſical inquiries and diſquiſitions that can employ the mind of man; in particular, that which attempts to diſcover the mode in which our perception of the material world is carried on. For ſuch, we confeſs, we have not talents of inveſtigation, and indeed we are convinced that no inveſtigation has yet been, or ever will be, ſucceſsful;

Boſcovich's Syſtem of Natural Philoſophy.

ful; but we are alſo convinced, that if the theory of Boſcovich be eſtabliſhed, many prepoſterous dogmas will be overturned: as ſuch we prefer it to any that has hitherto been offered to the world. But it is to be conſidered as valid, in ſo far only as induction ſatisfies us of its principles; that it can be ſatisfactorily applied to the ſolution of many phenomena where other theories fail us; that it does not in anywiſe inform us of the nature, or ſuperſede inquiry into the laws of matter. We are of opinion that it was his very intimate knowledge of theſe laws, and his diligent inquiry into matters of fact, that led Boſcovich to the diſcovery of the law of continuity and of the forces, and made him ſee the propriety of erecting ſome new ſyſtem in which theſe might bear a part. The merit of Boſcovich conſiſts not in having diſcovered the *cauſe* of motion, or on what it depends. He attempted a more humble ſtrain: he inveſtigated familiar operations, and acquainted himſelf with vulgar things. No myſterious analogy indeed conducted him either to the harmony or to the beauty of the ſpheres; but then, no ſtupendous vacuum intercepted his path, and no unruly vortices whirled him from rectitude. That he ſtopped not where prudence might have directed, and beyond which his guide could go no farther, was the failing of genius elevated by ſucceſs, the lot of the reſplendent few who are dazzled by their own luſtre. But it would ill become his followers to attempt continuing to the end on that path which he pointed out; moderate minds ſhould accompany him as their friend, only ſo long as they perceive he is directed by a friend which is greater than him: let them remember that it is his obſervations alone which are valuable, the ſimple arrangement of them which they ſhould eſteem; it is the plain narrative of the honeſt traveller which will aſſiſt them, not the pompous fabric of the ſelf-deluded noveliſt.

The only theory with which we can properly compare this of Boſcovich, is the Newtonian, and in ſo doing its ſuperiority will appear; but for very obvious reaſons we enter not minutely into the compariſon, and will only add that in the Newtonian, we muſt have recourſe to the three principles of gravity, coheſion, and fermentation, for the explanation of phenomena; and even theſe are inſufficient in the modern chemiſtry: but we learn from the former that theſe are only portions of a more general principle, that they reſult from one fundamental law, and that to this law may be referred as well the formation of a dew drop, as the rolling of the ſpheres (A).

Boſcovich's Syſtem of Natural Philoſophy.

Some of the admirers of Boſcovich may be ſurpriſed that we affirm, his theory gives no information of any one efficient cauſe in nature, and that all the diſcovery he has made is, that of ſome events which precede the Newtonian gravity. We have already borne ample teſtimony to the merits of Boſcovich, and we think we are ſecure from any ſuſpicion that we endeavour to depreciate the value of his theory; ſuch indeed is far from our thoughts, but we muſt ſay it is farther from our thoughts to conſider it as the ultimatum in natural philoſophy, or that it diſcloſes to us the moſt ſupreme proceſs in nature. We will venture farther; for we will maintain, that though all the principles of the theory were eſtabliſhed on a firm and invariable foundation, as they are not, it would be impoſſible for any one to determine what ſhall be the conſequences reſulting from them, prior to experience of the regularity and the conſtancy of the conjunction of events; and that of conſequence the ſame, nay greater, labour of induction and obſervation is required in the phenomena of the material world; greater, becauſe the objects are increaſed in number by the diſcovery which Boſcovich has made. But this aſſertion concerns the laws of nature alone, not the laws of human thought, of which, in our opinion, Boſcovich has made too free uſe. He tells us that one conſequence of the interior repulſive power is, the impoſſibility of contact, and that another is the impenetrability of the atoms. Now it requires no great exertion of underſtanding to perceive that he is diſplaying a law of human thought, for theſe conſequences of which he ſpeaks are parts of the ſame conception, and that no reaſoning *a priori* is employed to determine their connexion; for we cannot poſſibly imagine, that contact or penetrability of the atoms ſhould

(A) It may be a ſatisfaction to our readers to know that Sir Iſaac Newton entertained notions very ſimilar to thoſe of Boſcovich concerning the cauſes of motion at the inſenſible diſtances, though it is to be regretted that he had made no proviſion for them in his ſyſtem. The laſt queſtion in his optics plainly indicates that he himſelf was convinced that no law by which an attractive force might be ſuppoſed to act would be ſufficient for the explanation of certain phenomena which take place in the immediate vicinity of the atoms of matter. "And if all theſe things are ſo, then all nature will be very ſimple, and conſiſtent with itſelf, effecting all the great motions of the heavenly bodies by the attraction of gravity, which is mutual between all thoſe bodies, and almoſt all the leſs motions of its particles by another certain attractive and repulſive force, which is mutual between thoſe particles. Now it ſeems that theſe elementary particles not only have in themſelves the *vis inertiæ*, and thoſe paſſive laws of motion which neceſſarily ariſe from that force, but that they likewiſe perpetually receive a motion from certain active principles; ſuch as gravity, and the cauſe of fermentation, and of the coheſion of bodies. And I conſider theſe principles, not as occult qualities, which are feigned to flow from the ſpecific forms of things, but as univerſal laws of nature, by which the things themſelves were formed. For that truly ſuch principles exiſt, the phenomena of nature ſhew, although what may be their cauſes has not as yet been explained. To affirm that every ſpecies of things is endued with ſpecific occult qualities, by which they have a certain power, is indeed to ſay nothing; but to deduce two or three general principles of motion from the phenomena of nature, and then to explain how the properties and action of all corporeal things follow from thoſe principles, this truly would be to have made a great advancement in philoſophy, although the cauſes of thoſe principles were not as yet known. Wherefore I do not heſitate to maintain the above ſaid principles of motion, ſeeing they extend widely through all nature." *Newton's Optics.*

Boſcovich's Syſtem of Natural Philoſophy.

ſhould occur, if ſuch a repulſive power exiſts, or that the impoſſibility of the former, and impenetrability, ſhould be cauſed by any thing elſe than ſuch a power. The moſt ignorant of the ſons of men are as well qualified to underſtand this as the greateſt philoſophers who have adorned humanity; and if it be entitled to the name of diſcovery, it is one in which all mankind have ſhared; but for having expreſſed it in words, and incorporated it with others which ſome kindred genius alone could have made, all are indebted to Boſcovich, and muſt acknowledge that in his hands it has ſerved to fabricate a laſting monument of genius, induſtry, and ſagacity. We are not therefore to conſider that theſe are inſtances wherein any conſequences have been determined *a priori*; and they do not affect our aſſertion, that prior to experience of the regularity and the conſtancy of the conjunction of events, it would be impoſſible for any one to determine *a priori* what ſhall be the conſequences reſulting from the principles of the theory. To illuſtrate our meaning in the aſſertion, we ſhall ſuppoſe that the tranſitions of the powers have been *diſcovered* to exiſt in the conſtitution of matter; and we then aſk, if, prior to the knowledge of the phenomena of fermentation, &c. it could have been determined that theſe phenomena ſhould neceſſarily reſult from them: we apprehend it could not, and our reaſon is, that we cannot find any mode of connexion betwixt any tranſitions of any forces and theſe phenomena; for we can conceive the former to exiſt without the latter, and this might have been the caſe, for aught we know to the contrary; and we think we are authorized in ſaying, that theſe tranſitions are only rules or methods obſerved in the production of ſuch phenomena, that they are events prior to fermentation, &c. and remain themſelves to be accounted for. We may ſay the ſame of the repulſive and attractive powers, and of all the other principles in the theory which are not laws of human thought. Cauſation is inſcrutable, the labours of every age ſerve only to add to its myſtery, ſeeing that they conduct us nearer to the boundaries of human obſervation, and diſcover to us the deluſive glare of every weak meteor which promiſed permanent and enlightening luſtre.

We have ſeen that the general properties of matter may be well explained by the theory; and ſo far therefore we muſt admit that the theory is applicable to the objects of inveſtigation, and may be uſeful to connect together ſome general principles. There remains to us to make one remark concerning one of theſe, viz. Newtonian gravity. The ſuppoſition that it terminates beyond the comets of our ſyſtem, and is ſucceeded by repulſion, appears to us very unneceſſary, not to ſay unlikely, though highly worthy the accommodating genius of Boſcovich. We are of opinion, that the objections urged againſt Sir Iſaac Newton on this ſubject, may be much better and more ſimply obviated by a ſuppoſition which the modern improvements in aſtronomy have nearly confirmed, viz. that there are ſyſtems of ſuns and revolving planets, ſimilar to, and reaching to the limits of, our own; and that thoſe are ſufficient to counteract the neceſſary effects of univerſal gravity or attraction. If ſuch be the caſe, inequalities in our ſyſtematic motions, relative to others, may ariſe from the varying ſituations of the other ſyſtem; and, if we conſider the fixed ſtars as forming theſe, we may obſerve differences in their poſitions and magnitudes, in conſequence of ſuch variations. Our aſtronomical readers will perceive that we allude to the apparent approach of our ſun to the conſtellation Hercules in the northern hemiſphere, the gradual widening of the ſtars in that quarter of the heavens, and the conſequences of it. But without any ſuch confirmation it muſt be acknowledged, that our ſuppoſition is much more probable, and gives a more elevated notion of the great Artificer's ſkill than that of Boſcovich, and we are the more anxious to retain it, that one of the principles in the theory may not be broken, that the tranſitions of the powers occur in the inſenſible diſtances. We requeſt the attention of our readers to Boſcovich's *provident* ſuppoſition on another account. Does it not indicate one of the modes by which his theory was formed? Does it not plainly ſhew us how far genius will be exerted when obſervation fails? Does it not ſatisfactorily demonſtrate that part of this ſplendid theory is the offſpring of an imagination heated by ſyſtematic love, and animated by a reconciling enthuſiaſm? Indeed when the imagination is the provider, the reaſon can be well ſatisfied; for what is wanting can be readily ſupplied, what is diſpleaſing can be eaſily rejected, what is unſhapely can be faſhioned to conformity, and all can be decorated and adorned, till at laſt there ariſes ſome fine fabric to pleaſe and to delight. But we require more than deluſive ornament, and yet we expect not perfection; we know that every theory of natural philoſophy has failed hitherto, not from a deficiency but rather from a luxuriancy in grandeur, which, ſurpaſſing, has eclipſed the minute gems that glitter below; no one has failed in *explaining* the ſtupendous ſtructure and the mighty rollings of worlds, which no eye ever comprehended, and no hand ever approached; but take it from its godlike work to the mean purpoſes and the trivial uſes of man, and behold the airy phantom ſhrink from our view. It is in explaining familiar circumſtances, or, ſo to ſpeak, the events of our neighbourhood, that every one has failed; but it is conſoling to mankind to know, that in every ſucceeding one, there is a greater approximation to perfection, a greater extent and more facility of application; and we will acknowledge that this of Boſcovich, though not totally invulnerable, certainly leaves the leaſt uncovered.

Boſcovich's Syſtem of Natural Philoſophy.

The obſervations which we have now made ſeem to us very proper to introduce thoſe we have to offer on the application of the theory to phyſics. We are of opinion that Boſcovich, in his account of ſolidity and fluidity, has rather given a deſcription, and related ſome properties, than propoſed an explanation or deduction on the principles of his theory: but in a ſyſtem of ſuch extent, and promiſing ſo much, we require more than this, and it is our opinion that more may be given. Without pretending that we have complete ſucceſs in our attempt, or wiſhing to preclude others, we offer the following as at leaſt a probable one.

We can imagine, that any number of atoms ſhall come into the limits of coheſion of each other in ſuch a manner as that a maſs of ſome determined form ſhall be produced; and that the powers on each ſide of theſe limits are ſo ſtrong, as to withſtand conſiderable divellent force from without. Now in a maſs ſo conſtructed

Boſcovich's Syſtem of Natural Philoſophy.

ſtructed every atom is retained in its ſituation by powers of the ſame kind, acting by the ſame laws, and which cannot be increaſed or diminiſhed by any other means than varying the diſtance betwixt theſe atoms. The powers ſo influenced are thoſe only which belong to the particular atoms whoſe reſpective diſtances are changed; for the powers of the atoms whoſe diſtances are not changed remain the ſame; therefore a portion of the maſs may be ſeparated, or the whole maſs may be moved, without cauſing any relative motion among the atoms; for, in the former caſe, a few only, in the latter, none, of the limits of coheſion are diſturbed. This then is the ſtructure which the atoms of matter would form, did ſuch laws as we have conſidered exiſt; and it appears to us that it is the *natural* ſtructure; for we ourſelves cannot conceive how a fluid body ſhould be compoſed by ſuch laws, independent of compoſition of them. But admitting compoſition, we would explain fluidity in the following manner: As in a maſs, ſuch as we have deſcribed, there are ſpaces betwixt all the atoms; it is poſſible that other atoms may be introduced *within* it, or that in the vacant intervening ſpace the powers of other atoms may operate. Now, it is eaſy to conceive, that in the former caſe very various effects will reſult in conſequence of the differences in the proximity of the atoms; for ſome will quit the limits of coheſion in which they were prior to the introduction of the adventitious atoms, and will enter into new ones, and will vibrate from one to another, if there be a conſtant addition of atoms made, or if any of thoſe which have been introduced be removed; and that in the latter caſe, in conſequence of the compoſition of forces, very different effects will reſult, according as the compoſition is of ſimilar or different powers acting in the ſame or different directions, and of different intenſities: in either caſe relative motion among the particles will occur, and the maſs will yield to the leaſt extrinſic force; an equilibrium will ſometimes be produced, but it will be deſtroyed very readily in different ways, as by the addition or ſubtraction of the adventitious atoms, and by the application of forces to the maſs. We might ſpecify ſome of the particular circumſtances which would tend to the production of different fluids did our limits permit; but as this would be prolix, we ſhall only mention ſome of the conſequences which may be deduced from the principles we have ſtated, and granting that they are well founded, we ſhall conſider how far they coincide with the phenomena we obſerve. *Every fluid muſt be a compound body.* This will be pretty generally admitted by modern chemiſts; for though they well know that the compoſition of ſeveral fluids is not yet diſcovered, they will allow that the rational preſumption from analogy is, that when our analytical powers are augmented, we ſhall be able to diſcover the compoſition of all of them; nor is it any objection to the rationality of the preſumption that many of the *gaſeous* fluids are ſimple or elementary, for it muſt be remembered, that all of them are combined with caloric or the matter of heat. Nay caloric itſelf, which we hold to be a ſubſtance, may, for ought we know to the contrary, be a ſolid body; it is indeed almoſt univerſally believed to be fluid, and eſſentially ſo; but, for this belief we can find no other reaſon than that it cauſes fluidity, and ſurely that is a very unphiloſophical one; for in a ſimilar manner, and we venture to ſay, with as much truth, if matter or its atoms be conſtructed in the way Boſcovich deſcribes; and if they poſſeſs the power of repulſion and attraction, then all matter is fluid, for all the atoms of it will cauſe fluidity in certain circumſtances. We do not deny that when it combines in ſufficient quantity with bodies it cauſes fluidity; but we beg to remind our readers that there are caſes of fluids being generated by the trituration of ſolids together, and ſurely they will acknowledge, that what is true in the one caſe, is at leaſt poſſible in the other; but we will even admit, that caloric is the principal cauſe of fluidity (though we are aware that in admitting it, we depart from true philoſophy), and yet we do not perceive, that the leaſt objection to our ſuppoſition will thence ariſe. May not caloric be compoſed of the very ſmalleſt, or the primary atoms of matter, and conſequently be more eaſily inſinuated betwixt the atoms of other bodies which are compoſed of the aggregates of theſe primary atoms? Do we not find that it correſponds pretty accurately with the deſcription of theſe atoms which Boſcovich has given? Does it not ſeem in the leaſt diſtances to repel its own particles, and at greater diſtances to be attracted by the particles or atoms of other bodies?

Boſcovich's Syſtem of Natural Philoſophy.

The conſtant addition of adventitious atoms to the interſtices in a ſolid body, as we have before mentioned, will cauſe vibrations, and will at laſt, by totally ſeparating the atoms from the limits of coheſion and the ſphere of the attractive power, render them ſuſceptible of the influence of ſurrounding bodies, ſo that they leave each other, and combine with thoſe which ſurround them. When caloric is the body added, the moſt general effect which reſults from its repeated and conſtant addition is evaporation. Now the particles of an evaporated fluid will recombine if the ſuperabundant caloric which holds them aſunder be withdrawn, provided the bodies with which they unite do not attract them more powerfully than they do each other. But it is poſſible that ſuch an addition will in certain caſes ſtrengthen the combination of a ſolid, i. e. that fluidity will not always be the conſequence of inſinuating atoms into the vacant ſpaces, for it is poſſible to ſpecify circumſtances, in which a body already fluid, may be rendered ſolid by interpoſing amongſt its particles, the particles of another fluid.

When the adventitious atoms are removed, one of two conſequences will occur, either the atoms of a ſolid which has been rendered fluid by ſuch inſinuation, will be left within their ſpheres of attraction, and conſequently will enter into limits of coheſion, and form a ſolid again, or they may be left beyond theſe ſpheres, ſo as not to enter into limits of coheſion, but to form a looſe uncombined pulverulent ſubſtance. It may happen that in the latter caſe, the particles being ſeparated from each other beyond their ſpheres of attraction, will enter into combinations with other bodies, of whoſe influence they are now ſuſceptible. We have inſtances of both of theſe in the fuſion of metals: ſometimes on cooling theſe form again into ſolids; others, having their atoms too far ſeparated from each other, cannot ſo unite, but combine with other bodies, (generally oxygen) and form powders which retain no characteriſtics of metals; and ſome combine with other metals conſtituting alloys.

Boſcovich's Syſtem of Natural Philoſophy.

We recommend the proſecution of this ſubject to the philoſophical chemiſt; and though we encounter the charge of vanity, we cannot help flattering ourſelves with having pointed out a mode by which, though nothing ſhould be diſcovered, yet to reſolve ſome apparently unconnected phenomena into one general principle, and hence to abridge the labour of acquiring the ſcience of chemiſtry, and to facilitate the application of it to the practical purpoſes of life. We are of opinion that the facts in chemiſtry are now ſo numerous, as to require a generalizing ſpirit to reduce them into ſome kind of order, to ſhew their connexion in the chain of nature, and to derive from them by induction, certain principles which may be employed in the ſynthetic proceſs. Indeed without ſuch it will ſoon be found that no ordinary memory can retain what may be uſeful, but certainly is elegant in the art, and that a great body of evidence is inſufficient to enforce conviction, if it be huddled together in chaotic confuſion: pillars and porticoes and carved ſtones may be collected, and may aſtoniſh us by their grandeur; but unleſs they be methodized, connected, and combined, our aſtoniſhment will reſemble that which we feel, when we contemplate the prepoſterous ſtructure of ſome natural monſter, whoſe limbs are individually elegant, but ſerve by their elegance to magnify the error of their poſition. We do not wiſh to depreciate the merits of modern chemiſts, but we muſt confeſs, they appear to us more ſcrupulous about aſcertaining the few grains of earth in ſome *cockle ſhell*, than anxious to erect a temple to their ſcience, and are themſelves too much elevated by the diſcovery of a ſemi-metal, to be concerned about the deities which preſide. What we have ſaid may be thought mere declamation, if we do not accompany it with ſome example of the employment of ſuch a generalizing ſpirit; we know not how far it may become us to do ſo, but as the conſideration of the theory of Boſcovich, in which we have been engaged, has naturally led us to thoſe phenomena which ſeem beſt qualified to admit of its application, and as therefore, in ſome ſort reſulting from, or connected with our ſubject, we ſhall attempt to give a ſmall ſpecimen of it. It is well known to chemiſts, that although certain individual or ſingle bodies of the ſaline claſs be very ſoluble in water, the compounds formed of them are very inſoluble in that fluid, i. e. that though alkalies or acids be ſingly very ſoluble in water, the neutral ſalts formed by them are very inſoluble; and that many varieties in the degrees of ſolubility are to be met with in the compound bodies or neutral ſalts, which are contrary to what we ſhould expect from reaſoning on the varieties of theſe degrees, in the *ſimple* or elementary bodies which compoſe them.

For example, the ſulphuric acid is very ſoluble in water, and ſo is the vegetable alkali or potaſs; but the ſulphate of potaſs, which is a compound of theſe, is ſo difficult of ſolution, that 16 times its own weight of water, at the temperature of 60°, is required to effect it. The acetite of potaſs affords another example, though not ſo remarkable, requiring only about 10 times its own weight of water at the ſame temperature. Indeed, there are many inſtances of a compound or neutral ſalt being leſs ſoluble than either the alkali or the acid which enter into its compoſition; but in thoſe we have mentioned, the difference is ſo great as to have merited much attention, though as far as we know, there has not been aſſigned a reaſon for it. Now we apprehend the reaſon to be, that as both the ſimple bodies have an attraction for water, or that as there is an attraction betwixt water and theſe two bodies, the degree of attraction will be equal to the difference only of the ſeparate attractions betwixt water and the bodies individually; or, in other words, the attraction betwixt water and one of the bodies will be leſſened by the attraction betwixt water and the other body, ſo that the difference only of theſe two will influence. Now, in certain caſes, this difference will be equal to nothing, when the attractions are equal; but in every caſe, it is evident, it will be leſs than the greater of the attractions, and, of conſequence, the ſolubility of the compound will be leſs than that of the ſimple bodies which compoſe it. Now this conſequence is not affected by the *abſolute* ſolubility of the ſimple bodies, but by their ſolubility in reſpect to each other, i. e. relative alone; therefore, the compound of ſimple bodies, which themſelves are highly ſoluble, may be no more ſoluble than the compound of ſimple bodies, which themſelves are very little ſoluble.

Boſcovich's Syſtem of Natural Philoſophy.

The principle is univerſal. Other conſequences will reſult, which are not only curious, but, in our opinion important; and we do not in the leaſt heſitate to aſſert, that the principle may be applied to determine *à priori* the degrees of ſolubility of neutral ſalts, provided we are ſufficiently acquainted with the relative ſolubility of the ſimple bodies which compoſe them. One conſequence will be, that a compound formed of a very ſoluble and a very inſoluble ſimple body will be nearly, or quite, as ſoluble as the former, ſeeing that the attraction betwixt it and water will be little or not at all diminiſhed by the attraction betwixt the other very inſoluble body and water. As a proof of this, we may take the inſtance of the ſulphat of magneſia, which is ſoluble in its own weight of water at temperature 60: Now in this caſe, the magneſia is ſoluble to a very ſmall amount only; but the acid, it is well known, is ſo to a great degree; even the ſmall ſolubility of the magneſia, however, does in a certain degree impair the ſolubility of the compound. The ſame is true of the nitrat and muriat of magneſia; and, did our limits permit, we might adduce very many examples of the ſame: we might ſhew, that the compounds of very ſoluble acids with the metallic oxyds are ſoluble, if theſe oxyds are not ſo; but if they are, the ſolubility of the compound is impaired: and we might alſo apply the principle to bodies ſoluble in alcohol and other menſtrua, where it will be found to hold. But we leave the proſecution of the ſubject to our chemical readers, confeſſing, however, that we have found exceptions to its univerſality, which as yet we have not been able to reconcile. Perhaps, a principle ſtill more general, and higher in the order of events, may influence or modify this which we have ſpecified; it may be connected with ſome of thoſe varieties in the compoſition of forces, which *muſt* take place in the inſenſible diſtances, changing the limits of coheſion, and modifying the poſition and the action of the atoms of matter. We have ventured far in the expoſition we have given; did we perſevere, there might be imputed to us temerity.

We have attempted to apply Boſcovich's theory to ſeveral

Boſcovich's Syſtem of Natural Philoſophy || Boſhies-Men.

ſeveral other chemical phenomena, particularly thoſe of elective attraction and diſpoſing affinity; but though our ſucceſs has been ſomewhat flattering, we have not been able hitherto to collect and arrange our principles and reſults, ſo as to preſent them properly to the public. At ſome future ſtage of this work, however, ſuch may be in our power, when we hope to convince our readers, that the theory is ſufficiently accommodated to that object, and that it will aſſiſt us in deducing principles more general, than any yet received in chemical ſcience.

It is now time for us to conclude our account of the theory of Boſcovich; and in ſo doing, it becomes us to recommend to our readers, that they endeavour to form a juſt and an adequate opinion of its merits, of the objects which it has in view, and of the means which it employs to accompliſh them. Conſidered in reſpect to itſelf only, as the production of a great and an enlightened mind, no labour to comprehend it can be in vain or worthleſs, and no one can comprehend it without receiving the moſt elevated pleaſure; but there is another inducement for us to effect this purpoſe, different from any we have yet mentioned: we mean the tendency it will have to modify, and to ſubvert, many of the leading doctrines in the metaphyſics of the day. Nor ought this to alarm any of our readers, for if theſe doctrines be true and legitimate, they will be paramount to all objections, and the improvements made in every other ſcience will ſerve to confirm them; but if they are not ſo, ſurely the ſooner they are ſubverted the better it will be for ſcience and for us all; at all events, an inquiry into them is rational, and it may do good. This, however, we dare not now propoſe to ourſelves, and will therefore recommend our readers to peruſe the Eſſays on Perception, by Profeſſors Reid and Stewart, where they will find ſentiments which derive moſt of their validity from ſome of the Boſcovichian principles. They are ſentiments in which we have the honour to agree with theſe true philoſophers; though it is ſomewhat mortifying to us to confeſs, that they have convinced us that the phenomenon of which they treat is inexplicable.

It is indeed very mortifying to humanity to be convinced, that for many, very many centuries, our forefathers have been unceaſingly attempting to explain phenomena intellectual and material by a nullity, on principles which do not exiſt; but it would be ſtill more mortifying to find, that though there is ground for ſuch convictions, men calling themſelves philoſophers ſhould perſevere ſtedfaſtly in the ſame invariable courſe of error and abſurdity. In our own days, a light, clear and authoritative, has ariſen to direct and to animate us in the ſearch after truth; it is our own faults if we ſhut our eyes againſt its ſplendour, and ſuffer the interior man to be dark and unenlightened. Of this light the theory of Boſcovich forms a part: it has ſucceeded and ſurpaſſed that of Newton; it will be the parent of a greater than either; it profeſſes to conduct us to the interior veil of the temple of nature; but it has failed in this very ſublime attempt, failed, however, only after it has conducted us beyond Deſcartes, Leibnitz, and Newton.

BOSEA, GOLDEN-ROD TREE. See BOTANY *Index*.

BOSHIES-MEN, a ſpecies of Hottentots, ſo called, according to Dr Sparrman, from their dwelling in woody or mountainous places. They are ſworn enemies to a paſtoral life. Some of their maxims are, to live on hunting and plunder, and never to keep any animal alive for the ſpace of one night. By this means they render themſelves odious to the reſt of the inhabitants of the Cape; and are purſued and exterminated like the wild beaſts, whoſe manners they have aſſumed. Others of them again are kept alive, and made ſlaves of. Their weapons are poiſoned arrows, which ſhot out of a ſmall bow will fly to the diſtance of 200 paces, and will hit a mark with a tolerable degree of certainty at the diſtance of 50 or even 100 paces. From this diſtance they can by ſtealth, as it were, convey death to the game they hunt for food, as well as to their foes, and even to ſo large and tremendous a beaſt as the lion; this noble animal thus falling by a weapon which perhaps it deſpiſed, or even did not take notice of. The Hottentot, in the mean time, concealed and ſafe in his ambuſh, is abſolutely certain of the operation of his poiſon, which he always culls of the moſt virulent kind; and it is ſaid he has only to wait a few minutes in order to ſee the wild beaſt languiſh and die. The dwellings of theſe foes to a paſtoral life are generally not more agreeable than their maxims and manners. Like the wild beaſts, buſhes and clifts in rocks by turns ſerve them inſtead of houſes; and ſome of them are ſaid to be ſo far worſe than beaſts, that their ſoil has been found cloſe by their habitations. A great many of them are entirely naked; but ſuch as have been able to procure the ſkin of any ſort of animal, great or ſmall, cover their bodies with it from the ſhoulders downwards as far as it will reach, wearing it till it falls off their backs in rags. As ignorant of agriculture as apes and monkies, like them they are obliged to wander about over hills and dales after certain wild roots, berries, and plants (which they eat raw), in order to ſuſtain a life that this miſerable food would ſoon extinguiſh and deſtroy were they uſed to better fare. Their table, however, is ſometimes compoſed of ſeveral other diſhes, among which may be reckoned the larvæ of inſects, or that kind of caterpillars from which butterflies are generated; and in like manner a ſort of white ants (the *termes*), graſhoppers, ſnakes, and ſome ſorts of ſpiders. With all theſe changes of diet, the Boſhies-man is nevertheleſs frequently in want, and famiſhed to ſuch a degree as to waſte almoſt to a ſhadow. "It was with no ſmall aſtoniſhment (ſays Dr Sparrman), that I for the firſt time ſaw in Lange Kloof a lad belonging to this race of men with his face, arms, legs, and body, ſo monſtrouſly ſmall and withered, that I could not have been induced to ſuppoſe but that he had been brought to that ſtate by the fever that was epidemic in thoſe parts, had I not ſeen him at the ſame time run like a lapwing. It required but a few weeks to bring one of theſe ſtarvelings to a thriving ſtate, and even to make him fat; their ſtomachs being ſtrong enough to digeſt the great quantity of food with which they are crammed, as they may rather be ſaid to bolt than eat. It ſometimes happens indeed that they cannot long retain what they have taken in; but this circumſtance, it is ſaid, does not hinder them from beginning again upon a new ſcore."

Boſhies-Men.

The capture of ſlaves from among this race of men

Boſhies-Men.

is by no means difficult; and is effected (Dr Sparrman informs us) in the following manner. "Several farmers that are in want of ſervants join together and take a journey to that part of the country where the Boſhies-men live. They themſelves, as well as their Lego-Hottentots, or elſe ſuch Boſhies-men as have been caught ſome time before, and have been trained up to fidelity in their ſervice, endeavour to ſpy out where the wild Boſhies-men have their haunts. This is beſt diſcovered by the ſmoke of their fires. They are found in ſocieties from 10 to 15 and 100, reckoning great and ſmall together. Notwithſtanding this, the farmers will venture in a dark night to ſet upon them with ſix or eight people, which they contrive to do by previouſly ſtationing themſelves at ſome diſtance round about the craal. They then give the alarm by firing a gun or two. By this means there is ſuch a conſternation ſpread over the whole body of theſe ſavages, that it is only the moſt bold and intelligent among them that have the courage to break through the circle and ſteal off. Theſe the captors are glad enough to get rid of at ſo eaſy a rate; being better pleaſed with thoſe that are ſtupid, timorous, and ſtruck with amazement, and who conſequently allow themſelves to be taken and carried into bondage. They are however, at firſt treated by gentle methods; that is, the victors intermix the faireſt promiſes with their threats, and endeavour, if poſſible, to ſhoot ſome of the larger kinds of game for their priſoners, ſuch as buffaloes, ſea-cows, and the like. Such agreeable baits, together with a little tobacco, ſoon induce them, continually cockered and feaſted as they are, to go with a tolerable degree of cheerfulneſs to the coloniſt's place of abode. There this luxurious junketting upon meat and fat is exchanged for more moderate portions, conſiſting for the moſt part of butter-milk, frumenty, and haſty-pudding. This diet, nevertheleſs, makes the Boſhies-man fat in a few weeks. However, he ſoon finds his good living embittered by the maundering and grumbling of his maſter and miſtreſs. The words *t'guzeri* and *t'gaunatſi*, which perhaps are beſt tranſlated by thoſe of "young ſorcerer" and "imp," are expreſſions which he muſt frequently put up with, and ſometimes a few curſes and blows into the bargain; and this for neglect, remiſſneſs, or idleneſs: which laſt failure, if it cannot be ſaid to be born with him, is however in a manner naturalized in him. So that, both by nature and cuſtom deteſting all manner of labour, and now from his greater corpulency becoming ſtill more ſlothful, and having beſides been uſed to a wandering life ſubject to no controul, he moſt ſenſibly feels the want of his liberty. No wonder, then, that he generally endeavours to regain it by making his eſcape: but what is really a ſubject for wonder is, that when one of theſe poor devils runs away from his ſervice, or more properly bondage, he never takes with him any thing that does not belong to him. This is an inſtance of moderation in the ſavages towards their tyrants which is univerſally atteſted, and at the ſame time praiſed and admired by the coloniſts themſelves; which, however, I cannot eaſily reconcile with what I have learned of the human heart. Is it in conſequence of their fearing to meet with harder uſage in caſe they ſhould be retaken? This far, however, is certain, that none of this ſpecies of Hottentots are much given to violence or revenge. Free from many wants and deſires that torment the reſt of mankind, they are little, if at all, addicted to thieving, if we except brandy, victuals, and tobacco. It is not improbable likewiſe, that the advantages accruing from a theft may be overlooked by them, when their thoughts are taken up with regaining their liberty, the greateſt of all treaſures. It is neceſſary to obſerve here, that ſome of the Hottentots or Boſhies-men, who are thus forced into the ſervice of the coloniſts, live in ſmall ſocieties peaceably and quietly in deſert tracts, where the coloniſts cannot eaſily come at them, and are ſometimes in the poſſeſſion of a few cows. Theſe people probably originate from Boſhies-men who have run away from the coloniſts ſervice.

Boſhies-Men.

"I muſt confeſs (continues our author), that the Boſhies-men in ſome huſbandmen's ſervice are treated in the gentleſt manner, and perhaps even without ever having a harſh word given them; live very well with regard to proviſions; are well clad, relatively to their condition in life; and are very comfortably lodged, in compariſon of what others are, in their own ſtraw cottages. The chief of their buſineſs perhaps conſiſts in tending a herd of cattle or flock of ſheep during the heat of the day, when they have an opportunity of getting into a gentle ſtate of intoxication by ſmoking tobacco; a ſtate which excites in them ſenſations of as agreeable a nature as the frenzy produced by ſpirituous liquors and opium ſeems to afford to many others, who are never at eaſe but when they can procure to themſelves this delicious pleaſure. And yet, though they may thus agreeably paſs away the otherwiſe tedious hours of their lives in ſmoking and ſleep, they nevertheleſs generally run away. The coloniſts wonder at this, as a procedure entirely devoid of reaſon; without perceiving, that in ſo doing they ſuppoſe the Hottentots not endued with a deſire, which has its immediate foundation in nature, and which is common to the human race, and even to moſt brute animals, viz. an earneſt longing after their birthplace and families, and eſpecially after their liberty.

"The ſlave buſineſs, that violent outrage to the natural rights of mankind, always in itſelf a crime, and which leads to all manner of miſdemeanors and wickedneſs, is exerciſed by the coloniſts in general with a cruelty towards the nation of Boſhies-men which merits the abhorrence of every one; though I have been told that they pique themſelves upon it: and not only is the capture of thoſe Hottentots conſidered by them merely as a party of pleaſure, but in cold blood they deſtroy the bands which nature has knit between huſbands and their wives and children. Not content, for inſtance, with having torn an unhappy woman from the embraces of her huſband, her only protection and comfort, they endeavour all they can, and that chiefly at night, to deprive her likewiſe of her infants; for it has been obſerved, that the mothers can ſeldom perſuade themſelves to flee from their tender offſpring. The amiable tenderneſs of the mother, which perhaps glows with a more lively flame in the breaſt of this poor heathen than in thoſe of her Chriſtian tyrants, is the very circumſtance laid hold on by their perſecutors in order to rivet the chains of this wretched female ſo much the faſter. There are ſome mothers, however, that ſet themſelves free, when they have loſt

Bosnaserago || Bosquets.

all hopes of saving their children. After having made their escape, they sometimes keep secretly about the neighbourhood, in hopes of finding some opportunity of recovering their infants again."

BOSNA-SERAGO, a large and strong town of Turkey in Europe, and capital of the province of Bosnia. E. Long. 18. 57. N. Lat. 44. 40.

BOSNIA, a province of Turkey in Europe, seated between Sclavonia and Dalmatia. It belongs entirely to the Turks; but they were on the point of being expelled from it by the Christians, when the Spaniards invaded Sicily, and obliged the emperor to conclude the peace of Passarowitz in 1718, by which he gave up Bosnia to the Turks. It is 200 miles in length, and 75 in breadth. It is a barren country, and but little cultivated: the principal revenue arising chiefly from the silver mines. Among the game there are falcons, which are held in great esteem.

BOSPHORUS, or BOSPORUS, in *Geography*, a long and narrow sea, which it is supposed a bullock may swim over. In a more general sense, it is a long narrow sea running in between two lands, or separating two continents, and by which two seas, or a gulf and a sea, are made to communicate with each other: In which sense, bosphorus amounts to the same with what we otherwise call an arm of the sea, channel, or strait; the Italians, *faro;* the Latins, *fretum;* and the French, *pas, manche*. The word is Greek, βοσπορος, formed from βους, "bullock," and πορος, "passage."

The name *bosphorus*, is chiefly confined to two straits in the Mediterranean sea, viz. the *bosphorus of Thrace*, commonly called the *straits of Constantinople*, or *channel of the Black sea;* and the *Cimmerian* or *Scythian bosphorus*, so called, it seems, from its resemblance to the Thracian; now more commonly the *straits of Kapha*, or *Kiderleri*, from two cities standing on it.

The origin of the name is better agreed on than the reason why it was first given to the Thracian bosphorus. Nymphius tells us, on the authority of Accarion, that the Phrygians, desiring to pass the Thracian strait, built a vessel, on whose prow was the figure of a bullock; and which was hence called βους, "bullock; and served them for a ferry-boat. Dionysius, Vallerius Flaccus, Callimachus, Apollodorus, Marcellinus, &c. say, that Io, being transformed into a cow by Juno, passed this strait swimming, which hence was called *bosphorus*. Arrian tells us, that the Phrygians were enjoined by the oracle, to follow the rout which a bullock should mark out to them; and that, upon stirring one up, it jumped into the sea to avoid their pursuit, and swam over this strait. Others say, that an ox, tormented by a gad-fly, threw itself in, and swam over: and others, that anciently the inhabitants of these coasts, when they would pass over, joined little boats together, and had them drawn over by bullocks, &c.

BOSQUETS, in *Gardening*, groves so called from *boschetto*, an Italian word which signifies a *little wood*. They are compartments in gardens formed by branches of trees disposed either regularly in rows, or wildly and irregularly, according to the fancy of the owner. A bosquet is either a plot of ground enclosed with palisadoes of horn-beam, the middle of it being filled with tall trees, as elm or the like, the tops of which make a tuft or plume; or it consists of only high trees, as horse-chesnut, elm, &c. The ground should be kept very smooth and rolled, or else covered with grass, after the manner of green plots. In planting bosquets, care should be taken to mix the trees which produce their leaves of different shapes, and various shades of green, and hoary or mealy leaves, so as to afford an agreeable prospect. Bosquets are only proper for spacious gardens, and require a great expence to keep them up.

Bossage || Bost.

BOSSAGE, in architecture, a term used for any stone that has a projecture, and is laid rough in a building, to be afterwards carved into mouldings, capitals, coats of arms, &c. Bossage is also that which is otherwise called *rustic-work;* and consists of stones which advance beyond the naked or level of the building, by reason of indentures or channels left in the joinings. These are chiefly used in the corners of edifices, and thence called *rustic quoins*. The cavities or indentures are sometimes round, sometimes chain-framed, or bevelled, sometimes in a diamond form, sometimes enclosed with a cavetto, and sometimes with a listel.

BOSSE, ABRAHAM, an able engraver, born at Tours, was well skilled in perspective and architecture. He wrote two treatises, which are esteemed; the one on the manner of designing, and the other upon engraving.

BOSSINEY, or BOSS-CASTLE, a town of Cornwall, in England, which sends two members to parliament. W. Long. 5. 0. N. Lat. 50. 40.

BOSSU, RENE LE, born at Paris in 1631, was admitted a canon regular in the abbey of St Genevive, in 1649; and after a year's probation, took the habit. He taught polite literature with great success in several religious houses for 12 years, when he gave up the talk for retirement. He then published a parallel betwixt the principles of Aristotle's natural philosophy and those of Des Cartes, with a view to reconcile them; which was but indifferently received. His next treatise was on epic poetry; which Boileau declared one of the best compositions on that subject in the French language, and which produced a great friendship between them. He died in 1680, and left a great number of MSS. which are kept in the abbey of St John de Chartres.

BOSSUET, JAMES BENIGNE, bishop of Meux, was born at Dijon, on the 27th of September, 1627. He distinguished himself by his preaching, and the zeal he discovered in his endeavours to bring over the Protestants of France to the Romish church; by his opposition to quietism; and by his numerous writings both in French and Latin, which have been collected together, and printed at Paris in 17 vols 4to. This famous divine died at Paris, in 1704, aged 77.

BOSSUPT, a town of the Austrian Netherlands, in the province of Brabant. E. Long. 4. 30. N. Lat. 50. 52.

BOSSUS, MATTHEW, distinguished by his virtue and his learning, was born in 1427. He devoted himself to the ecclesiastical state in 1451, in the congregation of regular canons of Lateran, and afterwards taught divinity at Padua. His orations, his sermons, and his letters, have been often printed. He also wrote a sort of an apology for Phalaris, and other works. He died at Padua in 1502, aged 75.

BOST, a very strong town of Persia, and capital of the

Boſtangis, Boſton.

the province of Zableſtan. E. Long. 64. 15. N. Lat. 31. 50.

BOSTANGIS, in the Turkiſh affairs, perſons employed in the garden of the ſeraglio, out of whoſe number are collected thoſe that are to row in the Grand Signior's brigantines, when he has a mind to divert himſelf with fiſhing, or to take the air upon the canal. They who row on the left hand are only capable of mean employments in the gardens: but they who row on the right hand may be promoted to the charge of boſtangi-bachi, who has the general intendency of all the grand ſignior's gardens, and commands above 10,000 boſtangis.

BOSTON, a corporation town of Lincolnſhire in England, which ſends two members to parliament. It is commodiouſly ſeated on both ſides the river Witham, over which it has a handſome high wooden bridge; and, being near the ſea, enjoys a good trade. It has a ſpacious market-place, and the largeſt pariſh church without croſs aiſles in Europe, the ſteeple of which ſerves for a land-mark to ſailors. Boſton is a barony in the Irby family. E. Long. 0. 15. N. Lat. 53. 3.

BOSTON, the capital of New England in North America, built in 1630, in a peninſula of about four miles in circumference, at the bottom of Maſſachuſets bay, in a very convenient ſituation for trade. The following is a deſcription of this capital before the commencement of the late American war. "The town ſtands in W. Long. 71. 5. N. Lat. 42. 24. about nine miles from the mouth of the bay. At the entrance of this bay are ſeveral ſmall rocks which appear above water, and upwards of a dozen of ſmall iſlands, ſome of which are inhabited. There is but one ſafe channel to approach the harbour; and that ſo narrow, that two ſhips can hardly ſail through abreaſt; but within the harbour there is room for 500 ſail to lie at anchor in a good depth of water. On one of the iſlands of the bay ſtands Fort William, the moſt regular fortreſs in Britiſh America. This caſtle is defended by 100 guns, 20 of which lie on a platform level with the water, ſo that it is ſcarce poſſible for an enemy to paſs the caſtle. To prevent ſurpriſe, they have a guard placed on one of the rocks, at two leagues diſtance, from whence they make ſignals to the caſtle when any ſhips come near it. There is alſo a battery of guns at each end of the town. At the bottom of the bay is a noble pier near 2000 feet in length; along which on the north ſide extends a row of warehouſes for the merchants; and to this pier ſhips of the greateſt burden may come and unload without the help of boats. The greateſt part of the town lies round the harbour in the form of a half moon, the country beyond it riſing gradually and affording a delightful proſpect. The neck of land which joins the peninſula to the continent is but 40 yards over; which ſituation, if properly improved, might render the town impregnable on the land ſide. Boſton contains only about 18,000 inhabitants. They were more numerous 50 years ago; but the ſurpriſing increaſe of Newbury port, Salem, Marble-head, Cape Ann, Plymouth, Dartmouth, and the iſland of Nantucket, checked the growth and trade of the capital. The trade of Boſton, however, was ſo conſiderable, that, in 1768, 1300 ſail entered and cleared at the cuſtom-houſe there. The predominant religion is the Independent; though there are other perſuaſions, and ten churches ſerve for them all, but the Independents have ſix." Boſton has frequently ſuffered by fire, but the houſes that were thus deſtroyed have always been rebuilt to advantage. The late American war began here by the attack at Bunker's-hill, when many brave men loſt their lives."

Bofworth, Botallus.

BOSWORTH, a town of Leiceſterſhire in England, ſituated in W. Long. 1. 24. N. Lat. 52. 25. It has a lofty ſituation on a hill, and the country about it is fertile in corn and graſs. It is memorable for the deciſive battle fought near it between Richard III. and the earl of Richmond, afterwards Henry VII. wherein the former loſt his crown and life.

BOTALLUS, LEONARD, phyſician to the duke of Alençon, and to Henry III. was born at Aſti in Piedmont. He introduced at Paris the practice of frequent letting of blood; which was condemned by the faculty; but ſoon after his death it came into practice with all the phyſicians. He publiſhed ſeveral books in phyſic and ſurgery; and the beſt edition of his works is that of Leyden in 1660, octavo.

BOTANY

IS that ſcience which arranges, diſtinguiſhes, and names all plants or vegetables, to enable us to ſtudy their properties and uſes.

Vegetables conſiſt of an innumerable ſucceſſion of individuals which it is impoſſible to examine, and would be uſeleſs if it were poſſible. It is therefore neceſſary to diminiſh the labour by forming them into groups or claſſes, that the ſame name may apply to a great number of individuals. Now certain individual plants have ſo cloſe a reſemblance to others in their flower, fruit, leaves, and general appearance, that almoſt every man at firſt ſight would give them the ſame name. Thus every man who has ſeen the common daiſy once, and knows its name, will probably apply the ſame name without miſtake to every other individual of the ſame ſpecies. This forms the firſt ſtep in botany, or what is called arranging and naming plants according to their ſpecies. Nor is it only the firſt, but the eaſieſt ſtep in botany. It is alſo the moſt important; for all the individuals of the ſame ſpecies muſt in ſimilar circumſtances poſſeſs the ſame qualities. For example, we have no reaſon to doubt that each individual plant of common hemlock, or of foxglove, poſſeſſes the ſame medical qualities, though from their place of growth theſe qualities may differ in degree. It is therefore the individuals of the ſpecies alone that are uſeful; and the whole value of any arrangement conſiſts in enabling the botaniſt to diſtinguiſh and name the individuals, with the greateſt eaſe and accuracy. If the number of ſpecies were ſmall, definitions, or deſcriptions

Elements. ſcriptions of them would alone be ſufficient; but as they amount perhaps to 40,000 or 50,000 or more, to ſearch for every ſingle ſpecies amid ſuch a multitude would be a taſk for which neither human patience nor human life would be ſufficient.

To ſhorten the labour, it has been found very expedient to arrange plants into various diviſions; firſt into ſome very general diviſions which may reduce them into a ſmall compaſs, then to ſubdivide theſe general diviſions into others leſs comprehenſive, and theſe into others, till we arrive at the particular ſpecies which we are in ſearch of. Thus the arrangement deſcends from a general diviſion of all plants to every particular ſpecies.

Many plans of this kind have been attempted by various botaniſts, but the arrangement of the celebrated Linnæus is incomparably the moſt ingenious, moſt accurate, as well as the ſimpleſt and eaſieſt. That illuſtrious botaniſt divided all plants into claſſes, the claſſes into orders, the orders into genera, and the genera into ſpecies. The orders too, and the ſpecies, when numerous, he frequently ſubdivided into ſections.

Objections have been made to the arrangement of Linnæus, becauſe it admits diviſions which do not appear natural. But ſuch perſons, though diſtinguiſhed botaniſts, ſeem to us to have miſunderſtood the uſe and intention of that arrangement. It is not, and ought not to be, its object to give what has been called a natural arrangement; for nature does not claſs her productions. She places before us innumerable individuals, and leaves us to claſſify them according to the purpoſe which we have in view. If nature had formed plants into claſſes, orders, and genera, the botaniſt would have nothing to do but to ſtudy theſe. But in none of her works has nature done this. Claſſification is the work of man; and it is neceſſary for man merely on account of the limited nature of the faculties of his mind. Claſſification enables us to accompliſh by ſeveral ſteps or operations what we cannot accompliſh by one. But were our faculties much more exalted, were our penetration much more acute, and our memories perfectly retentive; could we at once ſurvey all the qualities of objects, diſcern their relations to one another, and retain the remembrance of theſe accurately, we ſhould have no occaſion to generalize at all. As generalization or claſſification is neceſſary to aid our limited faculties, the beſt claſſification is that which Elements. leads us without error, and by the eaſieſt proceſs, to the particular object which we have occaſion to inveſtigate.

The arrangement of Linnæus is therefore the beſt: It is, however, not ſo perfect in ſome of its parts as it may yet be rendered. This is the caſe in ſome of the genera which are diſtinguiſhed by marks that are too minute. But when we conſider the indefatigable mind of that illuſtrious man, the chaos in which he found botany, and the beautiful arrangement which he gave to it, we may juſtly inroll the name of Linnæus in the ſame liſt with Bacon, and Newton, and Locke.

A botanical ſyſtem is a dictionary by which a perſon who has ſtudied the rudiments of the ſcience may find out the name of every plant which he meets with. This dictionary has been much enlarged by the labours of the great many eminent botaniſts of the preſent time. We ſhall therefore point out the method of conſulting it, after giving a very conciſe view of the principles upon which it is founded. We will give a conciſe view, becauſe we think moſt or perhaps all the elementary books of this ſcience tend to confound and diſguſt beginners by phyſiological definitions, and by the multiplicity of terms which they require to be ſtudied at the very firſt outſet. Their plan is juſt as if a teacher of Latin was to require his pupils firſt to make themſelves maſters of a Latin dictionary before he allowed them to tranſlate. Our plan is to require of a beginner no more elementary knowledge than what is ſufficient to enable him to conſult the ſyſtem as he would do a dictionary. The meaning of the reſt of the botanical terms we think can beſt be learned by having recourſe to an explanation in an alphabetical form, as they occur in the inveſtigation. This we intend to add to the preſent article. And we wiſh ſincerely that every man who publiſhes a ſyſtem of botany would do the ſame; for we have ſtrong reaſons to believe that different writers uſe the ſame words in different ſenſes from one another. Linnæus, indeed, has defined his botanical terms; but in his two works, *Delineatio Plantarum* and *Philoſophia Botanica*, he ſometimes defines the ſame word differently. Now we ought to know which of his definitions ſucceeding botaniſts have adopted. Beſides almoſt every botaniſt introduces terms of his own which we ſhall look for in vain in the definitions of Linnæus.

ELEMENTS OF BOTANY.

The parts of a plant which it is neceſſary for the young botaniſt firſt to know, are the flower, and fruit. Theſe include ſeven; the calyx, corolla, ſtamen, piſtil, pericarp or ſeed-veſſel, ſeed and receptacle. We will deſcribe theſe in the order which will make them moſt eaſily diſtinguiſhed.

1. The corolla, which in common language is called the flower, and in fruit-trees the bloſſom, is the part which is moſt beautifully coloured, which is of the fineſt texture, and is often odorous. It is to be found of every colour, except green, a hue which it very ſeldom aſſumes. It is white, as in the bloſſoms of the cherry, yellow as in the primroſe and ranunculus or butter-cup, red as in the roſe, blue as in the violet. It is ſometimes of one piece, and ſometimes divided into diſtinct pieces, called *petals*. When the corolla conſiſts of one petal, the outer or upper part which is broad is named the *limb* or border; and the lower part which is narrow and hollow, by which it is fixed, is called the *tube*. When the corolla conſiſts of more than one petal, the lower part is called a *claw*, and the upper *lamina*.

In the corolla it is neceſſary to attend to its form, its diviſions, the number of its petals, its colour and the part to which it is attached. See Plate XCV. Fig. 11. a corolla of one petal: *a*, the tube; *b*, the laminas. Fig. 13. a corolla of more than one petal: *a*, the claw; *b b*, the laminas.

2. The calyx is ſituated on the outſide of the corolla, and encloſing it commonly at the baſe. It is generally

Elements. nerally of a greeniſh colour and of a coarſer texture than the corolla. It conſiſts of one part, or of two, three, &c. and is then ſaid to be one-leaved, two-leaved, three-leaved, many-leaved. The calyx is of various ſhapes, tubular, globular, inflated, &c.

There are ſeven ſpecies of calyx, perianth, involucre, glume, ament, ſpathe, calyptre, and volve. For explanation of theſe conſult the vocabulary and Plate XCV. Fig. 18. *a*, the calyx.

3. The piſtil, or piſtils, commonly appear in the centre of the corolla, from which they riſe like ſo many columns. There are from one to twelve in the ſame flower, and ſometimes more.

A piſtil conſiſts of three parts, the ſtigma, the ſtyle, and the germen. 1. The ſtigma is the higheſt part of the piſtil; which is ſometimes globular, ſometimes cleft, ſometimes croſs-ſhaped, &c. 2. The ſtyle is the pillar or thread which ſupports the ſtigma. 3. The germen is the pedeſtal or baſe of the piſtil, moſt commonly of a roundiſh or globular ſhape; but ſometimes long and ſlender. Sometimes there are ſeveral germens together. See Plate XCV. fig. 12. *c*. the ſtigma; *b*, the ſtyle, *a*, the germen.

4. The ſtamens, which reſemble threads or pillars, uſually ſtand between the corolla and the piſtil, are placed in regular order round the piſtils, or alternate with the petals. They are in number on one flower from one to ſeveral hundreds. But it is not neceſſary to count them when they are more than twenty.

A ſtamen conſiſts of two parts, the anther and the filament. 1. The anther is the ſummit of the ſtamen, containing a mealy or powdery ſubſtance called pollen, and is generally of a different colour from the filament. They are of different forms, globular, horned, &c. 2. The filaments are the threads or pillars which ſupport the anthers. The ſtamens are attached to the corolla, to the calyx, to the receptacle, or to the ſtyle. See Plate XCV. fig. 18. Filaments marked by *e*, *e*, *e*, *e*, *e*, *e*. Anthers *f*, *f*, *f*, *f*, *f*, *f*.

5. The pericarp, or ſeed-veſſel, is the caſe or covering of the ſeed, and is the external part of the germen come to maturity. It is of various ſhapes; globular, as in the poppy; long, as in the pod of the common garden or field pea: it is pulpy with a ſtone in the middle, as in the plum; pulpy, containing ſeeds encloſed in a caſe, as in the pear; juicy, and containing ſeeds which have only an external caſe, as the currant and gooſeberry.

There are eight ſpecies of pericarp; capſule, ſilique, legume, follicle, drupe, pome, berry, and ſtrobile. A deſcription of theſe will be given in the vocabulary. Conſult alſo Plate XCV. fig. 23. to 30.

6. The ſeeds are ſo well known, that they require no deſcription in the elements of the ſcience.

7. The receptacle is a point, line, or broad baſe, to which ſome or all of the ſix parts now deſcribed are attached. When it is the baſe of all theſe parts, it is called the receptacle *of the fructification*. When the calyx, corolla, and ſtamens only are attached to it, it is called the receptacle *of the flower*. When the germen together with the piſtil only is fixed to it, it is called the receptacle *of the fruit*. It is called *proper* when only one flower with its fruit is inſerted into it. It is called *common* when many flowers are attached to it, as in the common daiſies, dandelion. See Plate XCV. Fig. 13. *c*, a proper receptacle. Fig. 9. 10. a common receptacle. Elements.

Attention to the receptacle is moſt neceſſary chiefly in claſſes 11th, 13th, and 19th.

Beſides theſe ſeven, which are called the parts of fructification, becauſe when they exiſt together, they are ſuppoſed neceſſary for producing proper fruit, there is another part which Linnæus calls the *nectary*, that requires attention, as it is the foundation of ſome genera. It is difficult for beginners to diſtinguiſh it, as it varies much in its appearance, and is not very diſcernible in a great many ſpecies. It is ſometimes the name of a ſmall gland; ſometimes of a ſcale or a number of ſcales; ſometimes of a cup; ſometimes of a horn or ſpur on the corolla, as in larkſpur and violet; ſometimes of a groove or excavation. In ſhort, it appears to be a name for any ſingular or irregular appearance of any of the parts of the flower. In all accurate and perſpicuous ſyſtems, it is ſo well deſcribed that it can be eaſily found out. If this be done the name may be admitted, but if not it muſt lead to ambiguity and want of preciſion.

OF THE CLASSES.

The deſcriptions now given are ſufficient to enable the young botaniſt to underſtand the claſſes and orders.

All plants are arranged into 24 diviſions, called claſſes. In 23 of theſe claſſes, the flowers, or the piſtils and ſtamens, or at leaſt the ſtigmas and anthers, are evident. The 24th claſs comprehends all plants in which the flowers are inviſible to the naked eye, as moſſes, ferns, muſhrooms.

The principles upon which the claſſes are formed are few, ſimple, and beautiful. All plants which have only one ſtamen, are of the firſt claſs; thoſe that have only two, are of the ſecond; thoſe that have only three, are of the third: and ſo on, the number of ſtamens being the ſame with the number of the claſs in the firſt ten claſſes. See Plate XCIV. fig. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

In the next three claſſes, the place to which the ſtamens are fixed muſt be attended to as well as the number of the ſtamens. Thus the 11th contains thoſe plants which have from 12 to 19 ſtamens incluſive, fixed to the receptacle. The 12th thoſe that have 20 ſtamens fixed to the inſide of the calyx. In this claſs the place of inſertion is more to be relied on than the number of the ſtamens, for they are ſometimes leſs than 20, often more. The 13th claſs comprehends thoſe that have more than 20 ſtamens attached to the receptacle. See Plate XCIV. fig. 11, 12, 13. For an example of the 12th claſs a roſe may be examined, and for an example of the 13th a poppy, or a ranuncu lus.

The 14th and 15th claſſes depend upon the number and proportion of the ſtamens. When there are four ſtamens in a flower, of which two are longer, it belongs to the 14th claſs. When there are ſix ſtamens, of which four are longer, it belongs to the 15th claſs. For an example of the 14th claſs the flowers of the dead nettle, mint, thyme, or fox-glove, may be examined;

Elements. mined, and for a ſpecimen of the 15th claſs, inſpect the flowers of ſhepherds purſe, or muſtard. See alſo Plate XCIV. fig. 14. and 15.

The 16th, 17th, 18th, and 19th claſſes depend upon the manner in which the ſtamens are connected, whether they be joined by their filaments into one ſet, or two ſets, or more than two; or be united by the anthers into a cylinder.

In the 16th claſs the ſtamens are united by their filaments into one ſet, forming a caſe round the lower part of the piſtils, but ſeparating at the top. A geranium forms a ſpecimen of this claſs. In the 17th the corollas are papilionaceous, like the bloſſom of a bean; the ſtamens are connected by their filaments, but divided into two ſets or parcels, one of which is thicker and forms a caſe round the piſtil; the other is ſmaller and leans towards the piſtil. Specimens of theſe may be found in the flowers of peas and beans. In the 18th claſs, the ſtamens are united by their filaments into more than two ſets, or parcels. See Plate XCIV. fig. 18.

The 19th claſs is difficult to a beginner. It conſiſts of compound flowers, as the common daiſy, dandelion. They are called compound, becauſe each ſingle flower conſiſts of a collection of little flowers or florets, attached to the ſame broad receptacle, and contained within one calyx. Each floret conſiſts of a corollet, or little corolla, five ſtamens united by their anthers into a hollow or tubular cylinder, and a piſtil which paſſes up through the tube of the cylinder. See Plate XCIV. fig. 19. and examine a dandelion, or thiſtle, or common groundſel, or a ſun-flower. See alſo the beginning of the 19th claſs in the ſyſtem, where a fuller account will be given of this claſs.

In the 20th claſs, the ſtamens are attached to the piſtil. An orchis will afford a ſpecimen of this. See alſo Plate XCIV. fig. 20.

In the three next claſſes, the piſtils and ſtamens are ſituated on ſeparate flowers, or diſtinct plants, or on plants which bear flowers with piſtils and ſtamens, others with ſtamens or with piſtils, or flowers of both kinds.

The 21ſt claſs contains thoſe plants which have flowers of different kinds on the ſame plant, ſome bearing piſtils, and others bearing ſtamens only. The flowers with piſtils we ſhall call *piſtillar* or *ſtigmate*, and thoſe with ſtamens *ſtaminal* or *anthered*. The birch affords an example of this claſs. See alſo fig. 21.

The 22d claſs conſiſts of thoſe ſpecies which have ſtamens on one plant and piſtils on another. Inſtances of this may be found in the willow, poplar, and juniper. See fig. 22.

The 23d claſs comprehends thoſe plants which have at leaſt two and ſometimes three kinds of flowers. 1. Some anther-ſtigmate, or with piſtils and ſtamens on the ſame flower. 2. Others having piſtils only, or ſtamens only. 3. Or having flowers with piſtils only, or flowers with ſtamens only. This may be expreſſed more conciſely. Some having flowers anther-ſtigmate, ſome ſtigmate, or ſome anthered, or having both anthered flowers and ſtigmate flowers. The common aſh tree may be examined for a ſpecimen of this claſs. See alſo fig. 23.

The names of the claſſes are formed from Greek words, and expreſs the characteriſtic of each claſs. The firſt ten claſſes are named from the Greek numerals and the word *andria*, which the botaniſt muſt conſider as ſynonymous with ſtamens. Elements.

1. Mon -andria.
2. Di -andria.
3. Tri -andria.
4. Tetr -andria.
5. Pent -andria.
6. Hex -andria.
7. Hept -andria.
8. Oct -andria.
9. Enne -andria.
10. Dec -andria.
11. Dodec-andria, 12 ſtamens.
13. Icos -andria, 20 ſtamens.
14. Di -dynamia, 2 powers.
15. Tetra-dynamia, 4 powers.
16. Mon -adelphia, one brotherhood.
17. Di -adelphia, two brotherhoods.
18. Poly -adelphia, many brotherhoods.
19. Syn -geneſia means origin or production together, ſo called from the ſtamens being united by the anthers.
20. Gyn -andria, piſtils and ſtamens together.
21. Mon-œcia, one houſe.
22. Di -œcia, two houſes.
23. Poly-gamia, many kinds of flowers. The etymology here would throw no light upon the claſs to a beginner; nor does it throw any on the next claſs.
24. Crypto-gamia, therefore, is to be underſtood to mean *inviſible flowers*.

OF THE ORDERS.

The formation of the orders is as ingenious and ſimple as that of the claſſes. In the firſt thirteen claſſes, the names and characters are taken from the number of piſtils or ſtyles; when theſe are wanting, from the number of ſtigmas. Thus:

Mono -gynia, 1 ſtyle.
Dia -gynia, 2 ſtyles.
Tri -gynia. 3 ſtyles.
Tetra -gynia, 4 ſtyles.
Penta -gynia, 5 ſtyles.
Hexa -gynia, 6 ſtyles.
Hepta -gynia, 7 ſtyles.
Deca -gynia, 10 ſtyles.
Dodeca-gynia, 12 ſtyles.
Poly -gynia, many ſtyles.

In the 14th claſs Didynamia there are only two orders, which depend on the preſence or abſence of the pericarp or ſeed-veſſel.

1. Gymnospermia. Four naked ſeeds in the bottom of the calyx; as in mint, dead-nettle, thyme.
2. Angiospermia. Seeds encloſed in a pericarp; as in fox-glove, eye-bright, toad-flax, fig-wort.

In the 15th claſs, tetradynamia, there are alſo two orders, which are taken from the form of the pericarp.

1. Siliculosa. Seeds encloſed in a ſilicle or roundiſh ſeed-veſſel, conſiſting of two pieces called valves, and the ſeeds fixed to both edges or ſutures, as in ſhepherds purſe, ſcurvy-graſs.

Elements. 2. Siliquosa. Seeds encloſed in a ſilique or long ſeed-veſſel; as in muſtard.

In the 16th, 17th, and 18th claſſes, the names and characters of the orders are taken from the number of ſtamens.

In the 19th claſs there are ſix orders, which it is difficult at firſt to diſtinguiſh accurately.

1. Polygamia Æqualis. Florets anther-ſtigmate, or having both ſtamens and piſtils in the ſame floret; as in dandelion, thiſtle, ſow-thiſtle, artichoke.
2. Polygamia Superflua. When the flower is compoſed of two parts, a diſk or central part, and rays projecting outwards; as in corn-marygold, tanſy, daiſy, golden-rod, groundſel, chamomile, milfoil. The florets of the diſk are anther-ſtigmate; thoſe of the ray ſtigmate.
3. Polygamia Frustranea. Florets of the diſk anther-ſtigmate; thoſe of the rays with ſtyles but no ſtigmas; as blue-bottle, knapweed.
4. Polygamia Necessaria. Florets of the diſk anther-ſtyled, without ſtigmas; thoſe of the rays ſtigmate. Garden marygold will afford a ſpecimen.
5. Polygamia Segregata. When each of the florets has a calyx, beſides the common or general calyx of the flower. Specimens of this can only be found in botanic gardens.
6. Monogamia. When the flower is not compound but ſingle, and the anthers united. This order ought to be transferred to the claſs pentandria, as, indeed, has been done in ſome very valuable ſyſtems. Examples of it may be found in the violet.

In the claſſes gynandria, monœcia, and diœcia, the orders are formed from the number of ſtamens, with three of a different kind, monadelphia, ſyngeneſia, and gynandria, in the claſſes monœcia and diœcia.

In the 23d claſs there are three orders.

1. Monoecia. When the flowers are anther-ſtigmate and anthered; or anther-ſtigmate and ſtigmate, on the ſame individual plant.
2. Dioecia. When the flowers are anther-ſtigmate and anthered, or anther-ſtigmate and ſtigmate, on two different individual plants.
3. Trioecia. When the flowers of one individual plant of the ſame ſpecies are anther-ſtigmate; upon a ſecond individual plant, anthered; and upon a third individual plant, ſtigmate.

The orders into which the 24th claſs, cryptogamia, is divided, will be explained in the introduction to that claſs.

OF THE SECTIONS.

The orders are generally ſubdivided into what may be called *ſections*. Theſe may vary in number, according as the ſyſtem is partial or univerſal; but they are almoſt as well eſtabliſhed as the claſſes and orders. Sections are not employed in the 11th, 12th, 16th, 18th, 19th, 20th, 21ſt, 22d, 23d claſſes. The principles on which they are formed are few and very ſimple.

In the firſt ten claſſes they depend upon the following circumſtances; on the flower being ſuperior or inferior or naked, complete or incomplete, calycled, encloſed in a ſpathe or glume, aggregate, umbelled, involucred; on the number of petals, the ſeeds being naked or encloſed; on the number of ſeeds, and the number of cells in the capſule or ſeed veſſel, or number of berries. Elements.

The flower is ſaid to be *ſuperior* when the receptacle of the flower is above the germen, and *inferior* when the receptacle is below the germen. A flower is ſaid to be *naked* when the calyx is abſent; it is called *complete* when it has both a calyx and corolla, and *incomplete* when either of theſe is wanting. It is ſaid to be calycled when the calyx has a ſmall calyx or calyclet at the baſe. An *aggregate* flower, is a flower compoſed of florets ſtanding on footſtalks, attached to a broad receptacle.

An umbelled plant, is one which ſends out towards the top, from the ſame point or centre, a number of branches like the ſpokes of an umbrella, and bearing flowers on the top. All the ſpokes, with their flowers, form a *univerſal* umbel. On the top of each ſpoke ariſes an umbellet, or *partial umbel*. At the baſe of the ſpokes of the umbel, or univerſal umbel, is a ſort of calyx, called an involucre, or univerſal involucre; and at the baſe of the ſpokes of the umbellet is a partial involucre, or an involucret. This will ſuffice for explaining the ſections of the firſt ten claſſes. The ſections of the 13th depend on the number of petals.

In the 14th claſs, didynamia, the ſections depend upon the calyx; which is ſaid to be cleft when it is cut or divided into ſo many parts, and two-lipped when its mouth has a reſemblance to two lips.

In the 15th claſs the ſections depend on the ſilicle and calyx. The ſilicle in one ſection is notched at the point, and in another unnotched or entire. In the firſt ſection of the order *ſiliquoſa*, the calyx is cloſed by its own leaflets. In the ſecond it is not cloſed, and the leaflets are ſeparated at the upper end.

In the 17th claſs, diadelphia, and the order decandria, there are ſix ſections. 1. The firſt comprehends thoſe flowers which have their ſtamens all united as in the claſs monadelphia, and therefore forms an exception to the regularity of the claſs. 2. In the ſecond, the ſtigma is pubeſcent or hairy. The ſtamens not. 3. The ſeed-veſſel or legume, has two cells, without the connected marks of the former ſections. 4. The legume contains only one ſeed, without the marks of the former three ſections. 5. The legume is ſomewhat jointed, without the marks of the former. 6. The legume has only one apartment, but many ſeeds, without the marks already mentioned.

The only remaining claſs, whoſe orders are divided into ſections, is the 19th, ſyngeneſia. 1. In the firſt ſection of the firſt order, the corollets are ligulate, that is, flat towards the exterior or upper end, and tubular only at the baſe. 2. Capitate or headed, when the flowers grow in globular forms; as the thiſtle. 3. Diſcoid, when the corollets are all tubular, not ligulate. In the order polygamia ſuperflua are two ſections. 1. Diſcoid corollets. 2. Rayed or radiate, when all the corollets are ligulate.

We

Elements. We will now preſent a connected view of the Claſſes and Orders in a Table.

I. MONANDRIA, 1 ſtamen.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.

II. DIANDRIA, 2 ſtamens.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.

III. TRIANDRIA, 3 ſtamens.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.

IV. TETRANDRIA, 4 ſtamens. If the two neareſt ſtamens be ſhorter, the plant belongs to claſs 14th.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Tetragynia, 4 ſtyles.

V. PENTANDRIA, 5 ſtamens.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.
4. Tetragynia, 4 ſtyles.
5. Pentagynia, 5 ſtyles.
6. Polygynia, more than 5.

VI. HEXANDRIA, 6 ſtamens. If the two oppoſite ſtamens be ſhorter, the plant is of the 15th claſs.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Tetragynia, 4 ſtyles.
4. Polygynia, more than 4.

VII. HEPTANDRIA, 7 ſtamens.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Tetragynia, 4 ſtyles.
4. Heptagynia, 7 ſtyles.

VIII. OCTANDRIA, 8 ſtamens.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.
4. Tetragynia, 4 ſtyles.

IX. ENNEANDRIA, 9 ſtamens.
1. Monogynia, 1 ſtyle.
2. Trigynia, 3 ſtyles.
3. Hexagynia, 6 ſtyles.

X. DECANDRIA, 10 ſtamens.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.
4. Pentagynia, 5 ſtyles.
5. Decagynia, 10 ſtyles.

XI. DODECANDRIA, 12 to 19 ſtamens, inſerted in the receptacle.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.
4. Pentagynia, 5 ſtyles.
5. Dodecagynia, 12 ſtyles.

XII. ICOSANDRIA, 20 ſtamens or more faſtened to the inſide of the calyx. Elements.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.
4. Pentagynia, 5 ſtyles.
5. Polygynia, more than 5 ſtyles.

XIII. POLYANDRIA, more than 20 ſtamens faſtened to the receptacle.
1. Monogynia, 1 ſtyle.
2. Digynia, 2 ſtyles.
3. Trigynia, 3 ſtyles.
4. Tetragynia, 4 ſtyles.
5. Pentagynia, 5 ſtyles.
6. Hexagynia, 6 ſtyles.
7. Polygynia, more than 6 ſtyles.

XIV. DIDYNAMIA, 4 ſtamens, 2 longer than the reſt.
1. Gymnoſpermia, 4 naked ſeeds in the bottom of the calyx.
2. Angioſpermia, ſeeds encloſed in a ſeed-veſſel.

XV. TETRADYNAMIA, 6 ſtamens, 4 longer than the reſt.
1. Siliculoſa, ſeeds contained in a ſilicle or roundiſh ſeed-veſſel.
2. Siliquoſa, ſeeds contained in a ſilique or long ſeed-veſſel.

XVI. MONADELPHIA, ſtamens united by their filaments into one ſet or body.
1. Triandria, 3 ſtamens.
2. Pentandria, 5 ſtamens.
3. Octandria, 8 ſtamens.
4. Enneandria, 9 ſtamens.
5. Decandria, 10 ſtamens.
6. Endecandria, 11 ſtamens.
7. Dodecandria, 12 ſtamens.
8. Polyandria, more than 12 ſtamens.

XVII. DIADELPHIA, ſtamens united by their filaments into two bodies.
1. Pentandria, 5 ſtamens.
2. Hexandria, 6 ſtamens.
3. Octandria, 8 ſtamens.
4. Decandria, 10 ſtamens.

XVIII. POLYADELPHIA, filaments united and divided into more than two ſets.
1. Pentandria, 5 ſtamens.
2. Icoſandria, 20 ſtamens.
3. Polyandria, more than 20 ſtamens.

XIX. SYNGENESIA, anthers united into a cylinder.
1. Polygamia æqualis, florets all anther-ſtigmate.
2. Polygamia ſuperflua, florets of the diſk anther-ſtigmate; florets of the ray ſtigmate.
3. Polygamia fruſtranea, florets of the diſk anther-ſtigmate; florets of the ray ſtyled, but not ſtigmate.
4. Polygamia neceſſaria, florets of the diſk anther-ſtyled; florets of the ray anther-ſtigmate.
5. Polygamia ſegregata, ſeveral calyclets in one calyx.
6. Monogamia, flowers ſingle, not compound, with anthers united.

Elements.

XX. GYNANDRIA, ſtamens faſtened to the piſtils.
1. Diandria, 2 ſtamens.
2. Triandria, 3 ſtamens.
3. Tetrandria, 4 ſtamens.
4. Pentandria, 5 ſtamens.
5. Hexandria, 6 ſtamens.
6. Decandria 10 ſtamens.
7. Dodecandria, 12 ſtamens.
8. Polyandria, more than 12 ſtamens.

XXI. MONOECIA, ſtamens and piſtils not in the ſame flowers, but in the ſame plant.
1. Monandria, 1 ſtamen.
2. Decandria, 2 ſtamens.
3. Triandria, 3 ſtamens.
4. Tetrandria, 4 ſtamens.
5. Pentandria, 5 ſtamens.
6. Hexandria, 6 ſtamens.
7. Heptandria, 7 ſtamens.
8. Polyandria, more than 7.
9. Monadelphia, filaments united.
10. Syngeneſia, anthers united.
11. Gynandria, ſtamens fixed to piſtils.

XXII. DIOECIA, ſtamens and piſtils on different plants.
1. Monandria, 1 ſtamen.
2. Diandria, 2 ſtamens.
3. Triandria.
4. Tetrandria.
5. Pentandria.
6. Hexandria.
7. Octandria.
8. Enneandria.
9. Decandria.
10. Dodecandria.
11. Polyandria.
12. Monadelphia.
13. Syngeneſia.
14. Gynandria.

XXIII. POLYGAMIA.
1. Monœcia, anther-ſtigmate and ſtigmate, or anthered in the ſame plant.
2. Diœcia, anther-ſtigmate and ſtigmate, or anthered in two plants.
3. Triœcia, anther-ſtigmate in one plant, ſtigmate in a ſecond, and anthered in a third.

XXIV. CRYPTOGAMIA.
1. Filices, or ferns.
2. Moſſes.
3. Algæ, or ſea-weeds.
4. Funguſes.

OF THE GENERA.

HAVING now ſhewn how plants are arranged into claſſes, orders, and ſections, we come to the next diviſion called *genera*. The characteriſtic marks of the genera are derived from the flower and fruit. A genus conſiſts of a certain number of ſpecies, which reſemble one another in ſome parts of the flower or of the fruit, or both. By way of illuſtrating the principles on which the formation and diſtinction of genera are founded, we ſhall run over the Britiſh genera in each claſs.

Elements.

I. In the firſt claſs, Order I. ſect. 1. the calyx is one-leaved or indiſtinct, corolla abſent. Sect. 2. the berry contains many ſeeds, the ſpadix contains many flowers, and the capſule is one-ſeeded. Order II. genus 5. calyx wanting, two petals preſent; ſeeds, four, not encloſed in a ſeed-veſſel.

II. In the 2d claſs, DIANDRIA, Order I. the genera depend upon the figure of the corolla, which is divided, wheel-ſhaped, ringent, furniſhed with a ſpur, or two-petaled; on the calyx being cleft or being two-leaved; on the number of ſeeds which the berry contains; on the ſhape of the capſule, and the number of ſeeds encloſed in it; on the ſtamens being diſtant, or ſtanding on a footſtalk.

In the 2d order, the only genus is a graſs, the calyx and corolla of which are called glumes.

III. In the 3d claſs, TRIANDRIA, Order I. ſect. 1. the diſtinction of the genera depends on the number of diviſions of the calyx and ſingularities of the ſtigma. In ſect. 8. the genera are diſtinguiſhed by the peculiarities of the glumes and ſeeds.

In the 2d order, DIGYNIA, ſect. 1, 2, 3, and 4, the genera are diſtinguiſhed,

1. By the number of valves or pieces of which the glumes or corolla and calyx conſiſt.
2. By the peculiarities of theſe valves.
3. By the number of flowers contained in the calyx.
4. By the peculiarities of the ſtigma and ſeed.
5. By the form of the ſpikelets, and
6. By the peculiarities of the ſpine or thread, or form of the receptacle.

In the 3d order, trigynia, the genera are diſtinguiſhed,

1. By the number of leaves of which the calyx is compoſed.
2. By the number of petals.
3. By the form of the capſule, the number of valves compoſing it, and ſeeds contained in it.

IV. In the 4th claſs, TETRANDRIA, Order I. the genera are determined,

Sect. 1.
1. By the peculiarities of the common and partial calyx, or of the calyx and calyclet.
2. By the corolla being ſuperior.

Sect. 2. and 3.
1. By the form of the corolla.
2. By the peculiarities of the fruit.

Sect. 4.
1. By the number and the peculiarities of the nectaries.
2. By their abſence.
3. By the nature of the ſeed-veſſel; by its ſituation and the number of cells or ſeeds it contains.

Sect. 5.
By the peculiarities of the calyx and ſeed.

Digynia and Trigynia, Order I. and II.
1. By the number of petals, and by their abſence.
2. By the nature of the pericarp, and by the number of its valves and cells, and ſeeds.

V. In the 5th claſs, PENTANDRIA, Order I. the genera are diſtinguiſhed,

Sect.

Elements.

Sect. 1.
1. By the ſhape of the corolla, by the peculiarities of its throat.
2. By the ſhape of the calyx, and the number of its diviſions.
3. By the peculiarities of the ſeeds.

Sect. 2, 3, 4, and 5.
1. By the number of valves and cells of the ſeed-veſſel, and other peculiarities.
2. By the ſhape and diviſions of the corolla.
3. By the ſituation and figure of the ſtamens and peculiarities of the anther.
4. By the diviſions and ſhape of the ſtigma.
5. By the ſhape of the calyx and number of its diviſions.

Sect. 6.
1. By the number of ſeeds and ſituation of the capſule.
2. By the number of diviſions of the calyx, and its relation to the ſtamens.

Digynia, the genera are diſtinguiſhed,

Sect. 1, 2, and 3.
1. By the nature and ſhape of the capſule, and the number of cells and ſeeds it contains.
2. By the ſhape of the corolla and the abſence or preſence of pores.
3. By the ſhape, number, and ſituation of the ſeeds.

Sect. 4. comprehending the umbelled plants, is formed into three ſubdiviſions:
1. Plants that have an involucre and involucret.
2. Thoſe that have only involucrets.
3. Thoſe that have neither, or only a ſmall involucre.

The genera are diſtinguiſhed,
1. By the flowers being formed into heads.
2. By the flowers being tubular, by being radiate or rayed, that is, ſome tubular and ſome flat, by their being fertile or abortive, producing ſeed or not producing it.
3. By the form of the petals.
4. By the calyx being entire or divided, or indiſtinct.
5. By the peculiarities of the involucres or involucrets.
6. By the peculiarities of the ſtigmas and fruit.

The other orders have nothing peculiar.

VI. Hexandria, the genera are diſtinguiſhed,
1. By the number of petals, ſhape, diviſions, and ſituation of the corolla.
2. By the number of leaves, form, and ſituation of the calyx.
3. By the number of cells and ſeeds of the ſeed-veſſel, and ſhape of the ſeed.
4. By the peculiarities of the ſtamens.
5. By the form and number of the ſtigmas.

The next ſeven claſſes form their genera in ſo ſimilar a manner to thoſe already deſcribed, that we omit them.

XIV. In the 14th claſs, Didynamia, Order I. Gymnoſpermia, the genera are determined,
1. By peculiarities of the anthers and filaments.
2. By peculiarities of the lips and throat of the corolla.
3. By peculiarities of the calyx.

Order II. Angioſpermia.

Elements.

1. By the number of cells and directions of the partitions of the capſule or ſeed-veſſel.
2. By the form and number of the ſeeds.
3. And by other marks of the calyx and corolla, which require no explanation.

XV. Tetradynamia.

I. Siliculoſa, the genera are diſtinguiſhed,
1. By the ſilicle or ſhort roundiſh ſeed-veſſel, by the ſhape and poſition of its valves or pieces, by its being entire or notched, and the number of ſeeds it contains.

II. Siliquoſa. The genera are diſtinguiſhed,
1. By the ſhape of the ſilique or long ſeed-veſſel, which is compoſed of two valves or pieces, with the ſeeds faſtened to both ſutures, or joinings of the valves; by the manner in which the ſilique opens.
2. By peculiar glands.
3. By the calyx being open or ſpreading.
4. By the poſition of the petals.
5. By the ſtigma being notched or entire.

XVI. In the 16th claſs, Monadelphia, the genera are diſtinguiſhed,
1. By the number of ſtyles.
2. By the diviſions of the outer calyx.
3. By the poſition of the capſules and number of ſeeds contained in each.
4. By the ſeeds being beaked ſpirally or backwards.

XVII. Diadelphia. Here it is neceſſary to deſcribe the corolla, which is called papilionaceous, or pea-bloſſomed, and uſually conſiſts of four petals. The lower petal, ſhaped like a boat, is called *the keel;* the upper petal, which ſpreads and riſes upwards, is called the ſtandard, and the two ſide petals are called the wings. The ſeed-veſſel is called a *legume*, and conſiſts of two pieces or valves, and the ſeeds are fixed to one of the ſutures or joinings.

In the order Decandria, the genera are diſtinguiſhed,
1. By the form and diviſions of the calyx.
2. By the form and roughneſs of the ſtyle and ſtigma.
3. By the peculiarities of the ſtandard, keel, and wings.
4. By the legume; its form, length, and the number of ſeeds it contains.

XIX. In the 19th claſs, Syngenesia, the genera are diſtinguiſhed,
1. By the nature and form of the receptacle, by its ſmoothneſs or roughneſs, its being dotted, or like a honeycomb.
2. By the nature of the pappus, which is the feathery or flying, or winged crown of the ſeed by which it flies.
3. By the peculiarities of the calyx, its reſembling tiles, being double, accompanied with ſcales, &c.
4. By the number of florets in the ray.

XX. Gynandria, Diandria, the genera are diſtinguiſhed,

By the form of the nectary, which is the lower lip of the corolla.

XXI. In the 21ſt claſs, Monoecia, the genera are diſtinguiſhed,

1. By

Elements.

1. By peculiarities in the male or anthered flower of the calyx and corolla.
2. By ſimilar peculiarities in the female or ſtigmate flowers.
3. By the form of the ament. The ament is a ſpecies of flower conſiſting of a thread form receptacle, to which a number of chaffy ſcales are attached. A ſpecimen of it may be ſeen in the flowers of the fir, birch, hazel, beech, and oak.

XXII. XXIII. In the 22d and 23d claſſes, DIOECIA and POLYGAMIA, the genera are diſtinguiſhed in a manner ſimilar to thoſe already deſcribed. We have only to remark, that what in other ſyſtems is called hermaphrodite flowers, in the claſs Polygamia we call anther-ſtigmate, or piſtil-ſtaminal, that is, flowers having both anthers and ſtigmas, or piſtils and ſtamens.

OF THE SPECIES.

THE ſpecies conſiſt of ſuch groups or collections of plants as have certain reſemblances, which render it convenient to claſs them under one genus. The ſpecies are diſtinguiſhed from one another, either by marking in a few words the moſt ſtriking differences, or by giving a minute deſcription of each ſpecies. In the foreign plants, we have adopted the firſt method for the ſake of brevity. But in the Britiſh, which it is of conſequence we ſhould ſtudy more perfectly, we have adopted the ſecond. The firſt is a tranſlation of Wildenow's *Species Plantarum*, the moſt complete ſyſtem hitherto publiſhed, and the ſecond, or the deſcription of the Britiſh plants, is a tranſlation from Dr Smith's *Flora Britannica*, which we have no heſitation in ſaying is a model of botanical deſcription. For preciſion it is worthy of Linnæus, and is ſo minute that nothing peculiar to any ſpecies ſeems to have eſcaped the author.

The ſpecies when numerous are formed into ſubdiviſions. This we think ſhould always be done, when it can be done with propriety. There are ſome eminent botaniſts who diſapprove of this practice, becauſe, ſay they, it ſeparates ſpecies that have the cloſeſt reſemblance to one another. This however, is of no conſequence; for it is not the object of botanical arrangement to place theſe plants next one another, which are moſt like; but to point out the ſpecies, and moſt certain method of diſcovering the names of ſuch plants as we have occaſion to examine. We cannot help regretting therefore, that Mr Saliſbury in his new arrangement of ERICA, a genus conſiſting of more than 240 ſpecies, ſhould, in order to claſs them according to their affinities, have neglected to form them into ſubdiviſions: the ſubdiviſion of the ſpecies diminiſhes the unneceſſary labours of the botaniſt, and tends to increaſe the preciſion of inquiry. For example, 32 ſpecies of the campanula, have leaves ſmooth poliſhed, and the reſt have leaves rough to the touch. This circumſtance forms a very convenient ſubdiviſion. Again, 44 ſpecies of the ſolanum have neither prickles nor thorns, 39 are prickled, and one is thorny or ſpinous. Thus in examining a ſolanum, we can have no occaſion to run over 84 ſpecies; we are required only to go over 44, or 39, or one. There is as much propriety in forming the numerous ſpecies of a genus into ſubdiviſions, as there is in ſeparating plants that have a cloſe reſemblance into different genera. Who would have ſuppoſed that the botaniſt who has ſeparated the *Erica vulgaris* or common heath, from the genus to which it has hitherto belonged, would have thought it improper to arrange ſo extenſive a genus into ſubdiviſions. We can only account for it by ſuppoſing that an eminent botaniſt may ſometimes forget the principles of the Linnean claſſification, to ſeek after a natural claſſification; a thing which we ſuſpect is like the government of Utopia, that exiſts only in the mind of the inventor. Elements.

OF VARIETIES.

EVERY part of a plant is ſubject to variation from climate, ſoil, cultivation, and diſeaſes, or injuries produced by inſects, winds, &c. The corolla and leaves are moſt liable to change. Variations ariſing from ſuch accidents are not permanent; they may indeed be propagated by ſlips, but vaniſh in thoſe plants which are raiſed from ſeeds. It is by rearing plants from ſeeds that we can determine whether a plant be a variety or a diſtinct ſpecies.

RULES FOR DIRECTING THE YOUNG BOTANIST IN INVESTIGATING A PLANT.

After the young botaniſt underſtands the principles upon which the claſſification is formed, he ought immediately to proceed to the examination of plants.

I. 1. The botaniſt ought to ſelect flowers in different ſtates, ſome expanded, ſome unopened, and if poſſible, ſome that are ripened into fruit.

2. If the flower contain both ſtamens and piſtils, it belongs to ſome one of the firſt 20 claſſes. If either the piſtils or ſtamens be wanting, it belongs to the 21ſt, 22d, or 23d. To this rule there are a few exceptions, which if the young botaniſt cannot overcome, he may paſs them over till he has made ſome progreſs in the art of inveſtigation.

3. He muſt next examine whether the ſtamens be connected or ſeparate, and whether two of them be uniformly ſhorter than the reſt. If the ſtamens be not connected, and two of them be not uniformly ſhorter, the plant belongs to one of the 13 firſt claſſes. If the ſtamens do not amount to 12, the number of the ſtamens and number of the claſs is the ſame. If the ſtamens be 12 or more, then, beſides counting them, it is neceſſary to obſerve whether they be fixed at the lower end to the calyx or receptacle. This may be beſt known by tearing off the calyx; if the ſtamens do not come away with the calyx, the plant belongs to the claſs dodecandria. If the ſtamens be about 20, leſs or more, and fixed to the calyx, the plant belongs to icoſandria. If 20 or more, and attached to the calyx, the claſs is polyandria.

In all theſe claſſes the orders may be known by ing the piſtils.

4. If the ſtamens be four or ſix, and two ſhorter than the reſt, the plant belongs to didynamia or tetradynamia. The corolla in didynamious plants is one petal divided into two lips; and the corolla of tetradynamious plants conſiſts always of four petals, placed ſomewhat in the form of a croſs: hence called *cruciform*.

The orders of the claſs didynamia may be known by obſerving whether the ſeeds be incloſed in a ſeed-veſſel,

Elements. veſſel, be four in number, and naked in the bottom of the calyx.

In tetradynamia, the orders are diſtinguiſhed by the form of the ſeed-veſſel. If long, the order is ſiliquoſa; if roundiſh it is ſiliculoſa.

5. If the ſtamens be connected by the filaments into one ſet round the piſtil, but ſeparated at the top, and the petals five, the claſs is monadelphia. If the ſtamens be formed into two ſets, and the corolla like the bloſſom of a pea or bean, the claſs is diadelphia, and if formed into more than two ſets, the claſs is polyadelphia. The orders depend upon the number of the ſtamens.

6. If the flower be compound, that is, if one calyx contain a great many corollets, each of which has five ſtamens united to a cylinder at the anthers, the flower belongs to the claſs ſyngeneſia.

The orders are to be determined by examining the florets, that is, the corollets of the diſk and ray, in order to know whether they both contain piſtils and ſtamens, or anthers and ſtigmas, or otherwiſe. 1. If all the florets contain ſtamens and a piſtil, the order is polygamia æqualis. 2. If the diſk or central part have florets with a piſtil and ſtamens, but the rays contain only a piſtil, the order is polygamia ſuperflua. 3. If the florets of the diſk have ſtamens, and piſtils, or be anther-ſtigmate, but thoſe of the rays have only a ſtyle, the order is polygamia fruſtranea. 4. If the florets of the diſk have ſtamens and ſtyles, but no ſtigmas, and thoſe of the rays a piſtil only, the order is polygamia neceſſaria. 5. When each of the florets has a ſmall calyx, the order is the polygamia ſegregata. 6. And when the flower is not compound, but ſingle with anthers united, the order is monogamia. But ſuch plants are commonly now added to the claſs pentandria.

7. If the ſtamens be fixed to the piſtil, the claſs is gynandria. The flower has ſomething of a monſtrous or irregular appearance. The petals are five, the ſtyle grows from the inner petal of the lower lip of the corolla, ſo as ſcarcely to be diſtinguiſhable.

The orders are determined by the number of the ſtamens.

8. When the flowers are imperfect, that is, when ſome in the ſame individual plant have only piſtils and ſome only ſtamens, the plant belongs to the claſs monœcia. When the piſtils are in one plant, and the ſtamens on another, the claſs is dicœcia; and when perfect and imperfect flowers occur on the ſame plant, or on two or three different plants, the claſs is polygamia.

The orders of monœcia and dicœcia, are known by the number of ſtamens; and in polygamia, if imperfect and perfect flowers, that is, anther-ſtigmate and ſtigmate or anthered, be found on the ſame plant, the order is monœcia; if on two plants, the order is dicœcia; and if anther-ſtigmate flowers be on one plant, ſtigmate on another, and anthered on a third, the order is tricœcia.

9. Different flowers ſhould be examined, and eſpecially thoſe that are unopened, if the number of ſtamens and piſtils ſhould vary. And if after this examination, different unopened or unexpanded flowers ſhould vary, a preference ſhould be given to the flowers that terminate the ſtalk. We ought always, therefore, to compare different flowers before we inquire after the claſs or orders.

Elements. II. 1. After determining the claſs and order, the botaniſt ought to compare with the flower which he is inveſtigating the different ſections of the order when it is divided into ſections. He may then proceed to examine the genus.

2. In the beginning of each claſs he will find all the genera arranged as they agree and differ in ſome eſſential characters of the flower and fruit. But they are numbered in that order which brings thoſe that have the cloſeſt reſemblance next to one another. After the ſection is determined, then the flower muſt be compared with each of the genera of that ſection, or of the order when it is not divided into ſections.

3. If none of the eſſential characters agree with the flower and fruit of the plant which is examined, then the plants which are named at the end of the orders are to be ſought for and examined.

In this ſyſtem we have firſt given the eſſential marks of all the genera at the beginning of each claſs in Latin, and alſo in Engliſh.

4. After determining the genus, the plant may be compared with the deſcription of the ſpecies. In foreign plants we have in general given only the eſſential character of the ſpecies. But in ſome Britiſh plants we have added alſo, from Dr Smith's Flora Britannica, a minuter and fuller account, as an example of botanical deſcription.

We have not referred to thoſe books which give plates of the ſpecies, becauſe they are acceſſible but to very few, and becauſe we do not think that a man will ever be a botaniſt whoſe knowledge is indebted to plates. It is much better to conſult an experienced botaniſt than a book of plates. Thoſe, however, who wiſh to conſult plates may do ſo from this ſyſtem as well as from any other, after aſcertaining the claſs and order.

As to the language which is employed in the following ſyſtem, we need ſay very little. We have endeavoured to make it as much Engliſh as poſſible. We have always preferred words of Engliſh origin when we thought them ſufficiently accurate; but when we had reaſon to believe that ſuch words were ſo vague that they might lead into error, we thought it better to adopt the Linnean terms, and to give them an Engliſh termination. In a few caſes we have retained the Linnean terms unaltered, as corolla, bractea, ſtipula, becauſe we thought any ſuch change would be unpleaſant to the ear, as corol, bracte, ſtipule. Beſides it would be no diſadvantage to the harmony of our language to have more words ending with vowels.

We once intended to have given Engliſh names to many of the genera, and to all the ſpecies, and had done ſo through the firſt four or five claſſes; but it was objected, that this would increaſe the ſynonymes, which are already too numerous; and conſequently would oftener tend to miſlead than to be uſeful. It would certainly be much better that plants were known in all nations by the ſame name.

Of the Method of forming an Herbarium or Hortus Siccus.

Every man who wiſhes to be a complete botaniſt will find it neceſſary to preſerve and to form into a collection the plants which he has examined.

The

Pages 71—74 to be cancelled, and this and the following leaf inſerted in their place.

Elements. The beſt method of preſerving them is by drying them: ſpecimens ought to be collected when dry, and carried home in a tin box. Plants may be dried by preſſing, in a box of ſand, or with a hot ſmoothing-iron. Each of theſe has its advantages.

1. If preſſure be employed, a botanical preſs may be procured. The preſs is made of two ſmooth boards of hard wood, 18 inches long, 12 broad, and two thick. Screws muſt be fixed to each corner with nuts. If a preſs cannot eaſily be had, books may be employed.

Next, ſome quires of unſized bloſſom blotting paper muſt be provided. The ſpecimens when taken out of the tin box muſt be carefully ſpread on a piece of paſteboard covered with a ſingle ſheet of the bloſſom paper quite dry; then place three or four ſheets of the ſame paper above the plant, to imbibe the moiſture as it is preſſed out; it is then to be put into the preſs. As many plants as the preſs will hold may be piled up in this manner. At firſt they ought to be preſſed gently.

After being preſſed for twenty-four hours or ſo, the plants ought to be examined, that any leaves or petals which have been folded may be ſpread out, and dry ſheets of paper laid over them. They may now be replaced in the preſs, and a greater degree of preſſure applied. The preſs ought to ſtand near a fire, or in the ſunſhine. After remaining two days in this ſituation, they ſhould be again examined, and dry ſheets of paper be laid over them. The preſſure then ought to be conſiderably increaſed. After remaining three days longer in the preſs, the plants may be taken out, and ſuch as are ſufficiently dry may be put in a dry ſheet of writing paper. Thoſe plants which are ſucculent may require more preſſure, and the bloſſom paper again renewed.

Plants which dry very quickly, ought to be preſſed with conſiderable force when firſt put into the preſs; and if delicate, the bloſſom paper ſhould be changed every day. When the ſtem is woody it may be thinned with a knife, and if the flower be thick or globular as the thiſtle, one ſide of it may be cut away; as all that is neceſſary, in a ſpecimen, is to preſerve the character of the claſs, order, genus and ſpecies.

2. Plants may be dried in a box of ſand in a more expeditious manner, and this method preſerves the colour of ſome plants better. The ſpecimens after being preſſed for ten or twelve hours, muſt be laid within a ſheet of bloſſom paper. The box muſt contain an inch deep of fine dry ſand, on which the ſheet is to be placed, and then covered with ſand an inch thick; another ſheet may then be depoſited in the ſame manner, and ſo on, till the box be full. The box muſt be placed near a fire for two or three days. Then the ſand muſt be carefully removed, and the plants examined. If not ſufficiently dried, they may again be replaced in the ſame manner for a day or two.

3. In drying plants with a hot ſmoothing iron, they muſt be placed within ſeveral ſheets of blotting paper, and ironed till they become ſufficiently dry. This method anſwers beſt for drying ſucculent and mucilaginous plants.

4. When properly dried, the ſpecimens ſhould be placed in ſheets of writing paper, and may be ſlightly faſtened by making the top and bottom of the ſtalk paſs through a ſlip of the paper, cut neatly for the purpoſe. Then the name of the genus and ſpecies ſhould be written down, the place where it was found, nature of the ſoil, and the ſeaſon of the year. Theſe ſpecimens may be collected into genera, orders, and claſſes, and titled and preſerved in a portfolio or cabinet. The method of preſerving many of the cryptogamous plants is more difficult, on account of the greater quantity of moiſture which they contain, and the greater delicacy of their texture. Elements.

We will now conclude this introduction with particular references to the plates.

EXPLANATION of the PLATES.

Plate XCIV. exhibits the 24 CLASSES; fig. 1. repreſenting the firſt claſs, or Monandria; fig. 2. the ſecond claſs, or Diandria; fig. 3. the third claſs, or Triandria; and ſo on, according to the enumeration in the table.

Plate XCV. repreſents the parts of a plant upon which the inveſtigation of the GENUS depends.

Parts of the Flower.—Fig. 1. Spathe. Fig. 2. Spadix. Fig. 3. *Gluma*, or glume; b b, *ariſta*, or awn. Fig. 4. *Umbella* and *involucrum*: a, *Umbella univerſalis*, or univerſal umbel; b, *partialis*, or partial umbel: c, *Involucrum univerſale*, univerſal involucre; d, *partiale*, or partial involucre. Fig. 5. *Calyptra*, calyptre, or veil; a, *capitulum*; b, *operculum*; parts of moſſes. Fig. 6. Amentum. Fig. 7. *Strobilus*, ſtrobile. Fig. 8. a, *Pileus*, cap; b, *volva*; c, *ſtipes*; parts of fungi or muſhrooms. Fig. 9, a, *Receptaculum commune nudum*, the common receptacle, or baſe of the flower when the ſtamina, piſtillum, capſule, &c. are taken off. Fig. 10. *Receptaculum commune paleis imbricatum*, or common receptacle imbricated with paleæ or membranaceous lamellæ. Fig. 11. *a* the tube, *b* the edge or margin, of a one-petaled corolla. Fig. 12. is a flower laid in a proper poſition for ſhowing its different parts. a, *Germen*, which includes the ſeeds and capſule in which they are encloſed; b, *ſtyle*, a continuation of the germen; c, *ſtigma*, or top of the ſtylus; d d d d d d, *filaments*, or threads; e e e e e, *anthers*; f f f f f, *petals*. Fig. 13. a, the *claws*, b, the *laminæ* or plates, of a many-petaled corolla. Fig. 14. a, Bell-ſhaped nectary of the narciſſus. Fig. 15. Horned nectaries of monkſhood. Fig. 16. Horned nectary in the calyx of the tropœolum. Fig. 17. a a a a, The nectaries of the parnaſſia graſs, five in number, each of which has 13 ſtyles, with round buttons on their tops.

Parts of Fructification.—Fig. 18. a, *Perianth*; b, *germen*; c, *ſtyle*; d, *ſtigma*; e e, *filaments*; f f, *anthers*, ſome ſhedding the pollen or duſt; g, the appearance of the anther before it ſheds the pollen. Fig. 19. *a*, the *filament*, and *b*, the *anther*, ſeparated from the flower. Fig. 20. *a*, one grain of the *pollen* magnified by a microſcope; *b*, an elaſtic aura ſuppoſed to be neceſſary for impregnating the ſeeds. Fig. 21. a, *Germen*; b, *ſtyle*; c c, *ſtigma*. Fig. 22. *Follicle*: The ſeeds not adhering to the future, are encloſed in a particular receptacle, *a*. Fig. 23. *Legume*, or a double-valved pericarp, having the ſeeds fixed only to one of the ſutures *a a*. Fig. 24. *Silique*, or a double-valved pericarp, with the ſeeds fixed to both ſutures or margins, *a b*. Fig. 25. *Pome*, or a fleſhy pericarp, containing

Fig. 1.

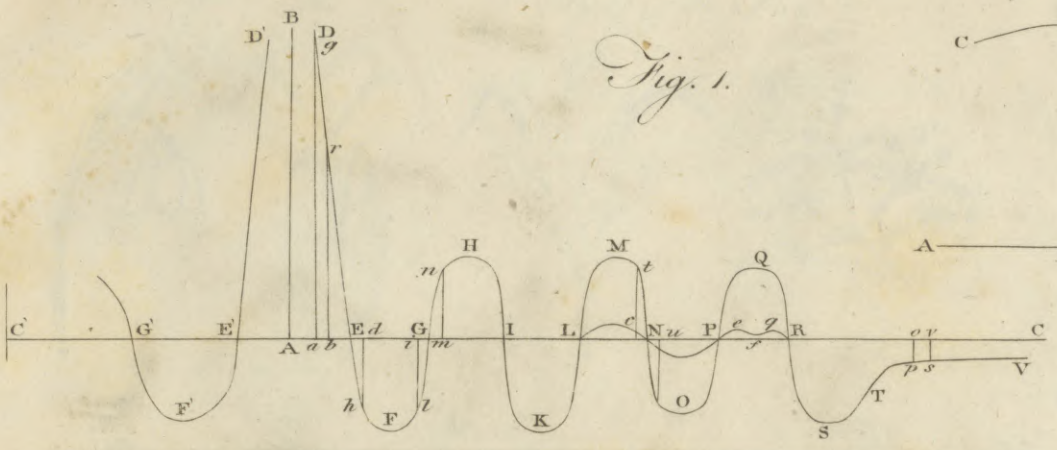
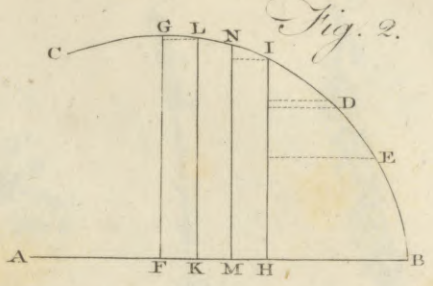


Fig. 2.



BOTANY.

Claſſes.

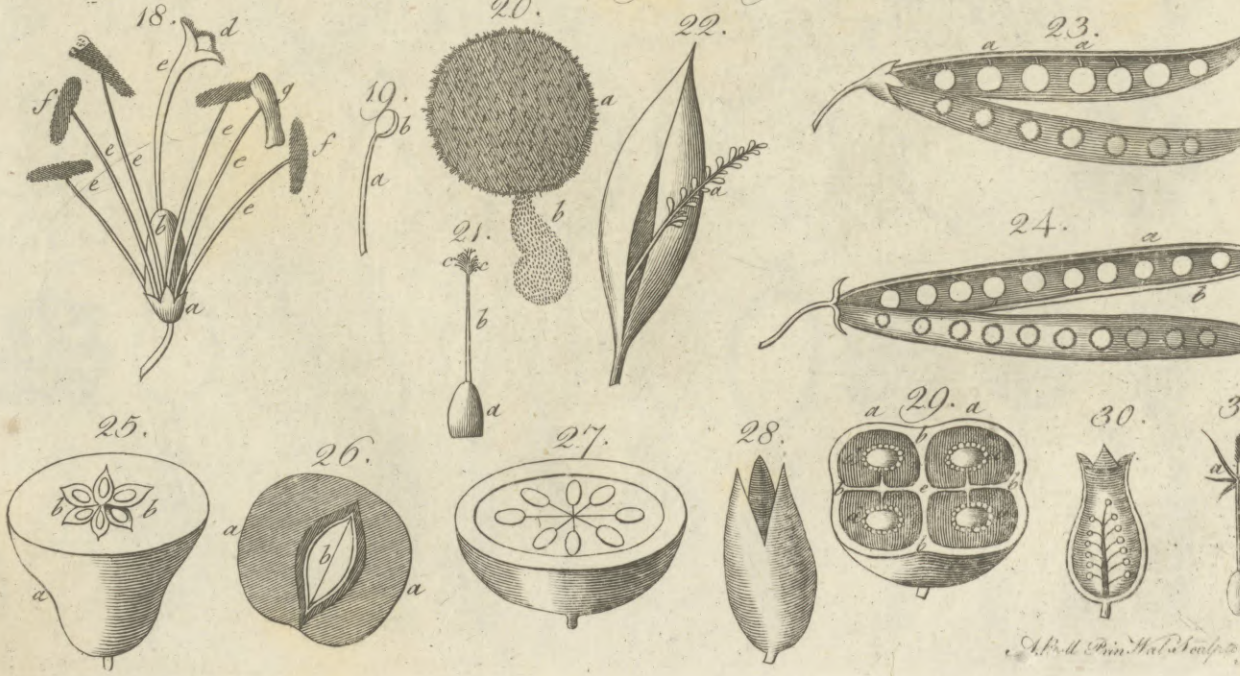
Fig. 1.

A. Bell Prin. Mal. Sculptor, Fecit.

Fig. 1.

Parts of the Flower.

Parts of Fructification.



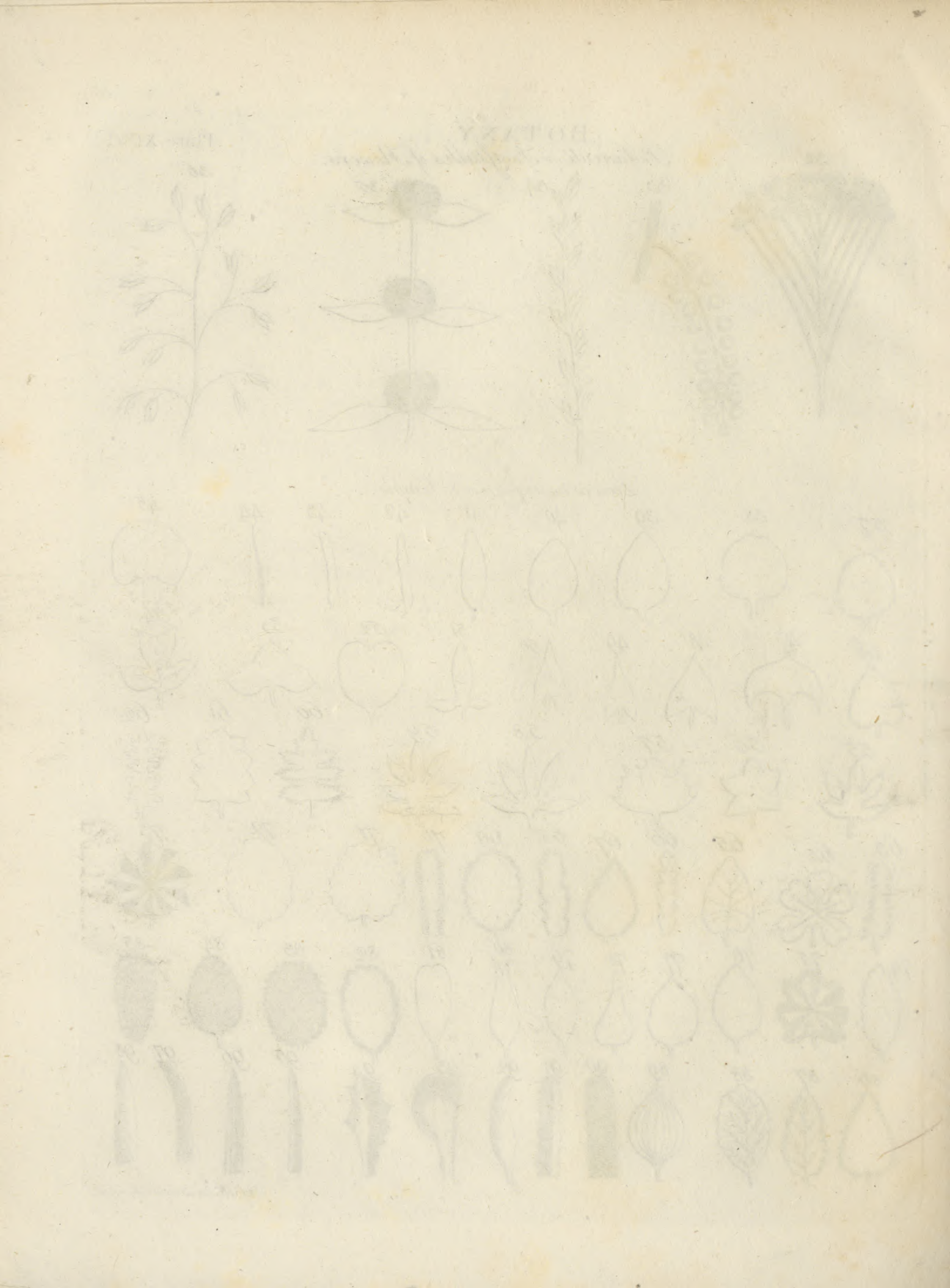
BOTANY.

Plate XCVI.

Pedunculi or Footstalks of Flowers.

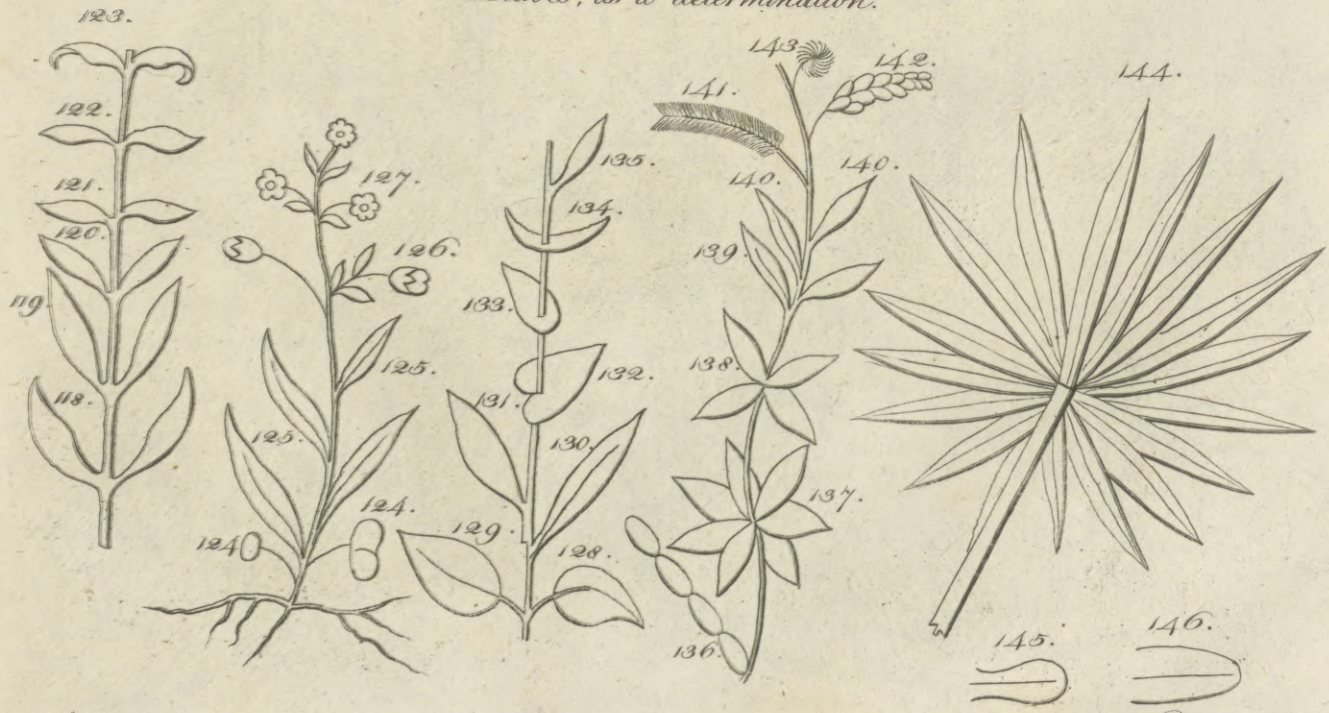
Leaves as to figure 1. Simple.

A. Bell Print. Wals. Sculptor fecit.



B *Leaves Compound.*

Leaves, as to determination.



A Bell Prin. Wal. Sculptor fecit.


Caules or Stems
147
148
148
148
149
150
151
152
153
Tulcra, or Supports.
155
a
156
a
156
a
b
b
a
157
b
a
151
b
c
158
a
b
159
b
Roots
160
a
163
161
162
166
164
165
167
A Bell Sculp.

Elements. ing a capſule in which the ſeeds are encloſed, as in the apple, &c.; *a*, the *pericarp*; *b*, the *capſule* or ſeed-caſe. Fig. 26. a, *Drupe*, or pericarp containing a nut or ſtone, and having no valve. b, The *nucleus*, or ſtone. Fig. 27. *Bacca* or berry, a pericarp containing naked ſeeds diſperſed through the pulpy part. Fig. 28. A capſule opening at the top to allow the ſeeds to fall out. Fig. 29. Four capſules included in a common pericarp. *a a*, The valves; *b b*, the diſſepiment, or partition which ſeparates the different ſeed-capſules from one another; c, *columella*, or central column, by which the capſules are connected. Fig. 30. A capſule cut open longitudinally, to ſhow the receptacle of the ſeeds. Fig. 31. *Pappus*, or down; a, long-haired; b, feathered; c, ſeed; d, *ſtipe*.

Pedunculi or *Footſtalks* of FLOWERS.—Fig. 32. Corymb. 33. Raceme. 34. Spike. 35. Verticil. 36. Panicle.

PLATES XCVI. XCVII. XCVIII. contain delineations relative to the SPECIES of plants.

1. LEAVES as to figure. A, *Simple*.—Fig. 37. Orbicular, of a circular figure. Fig. 38. Subrotundum, roundiſh or nearly circular. Fig. 39. Ovate. Fig. 40. Oval or elliptical. Fig. 41. Oblong. Fig. 42. Lanceolate. Fig. 43. Linear. Fig. 44. Subulate, or awl-ſhaped. Fig. 45. Reniform, or kidney-ſhaped. Fig. 46. Cordate, or heart-ſhaped Fig. 47. Lunulated, or creſcent form. Fig. 48. Triangular. Fig. 49. Sagittate. Fig. 50. Cordato-ſagittate, heart-ſhaped behind, and ſharp like the point of an arrow before. Fig. 51. Haſtate, or halbert-ſhaped. Fig. 52. Cleft. Fig. 53. Three-lobed, or having three (55) lobes. Fig. 54. Præmorſe, fore-bitten. Fig. 55. Lobed. Fig. 56. Quinquangular, or five-angled. Fig. 57. Eroded. Fig. 58. Palmate. Fig. 59. Pinnated. Fig. 60. Laciniate. Fig. 61. Sinuate. Fig. 62. Dent-ſinuate. Fig. 63. Sinuate backwards. Fig. 64. Partite or parted. Fig. 65. Repand, or ſcolloped. Fig. 66. Dentated, or dented. Fig. 67. Serrated or ſawed. Fig. 68. Doubly ſerrated. Fig. 69. Doubly notched. Fig. 70. Cartilaginous. Fig. 71. Acutely notched. Fig. 72. Obtuſely notched. Fig. 73. Plaited. Fig. 74. Crenate, notched. Fig. 75. Curled. Fig. 76. Blunt or obtuſe. Fig. 77. Acute. Fig. 78. Acuminate, or awl-pointed. Fig. 79. Obtuſe with an acumen, blunt with a ſharp point ſuperadded. Fig. 80. Acutely emarginated. Fig. 81. Cuneiform emarginate, wedgeform and notched at the end. Fig. 82. Retuſe. Fig. 83. Long-haired. Fig. 84. Tomentoſe, or cottony. Fig. 85. Hiſpid, or briſtle-haired. Fig. 86. Ciliated. Fig. 87. Rugoſe or wrinkly. Fig. 88. Veined. Fig. 89. Nerved. Fig. 90. Papillous. Fig. 91. Linguiform or tongue-ſhaped. Fig. 92. Scimitar-ſhaped. Fig. 93. Hatchet-ſhaped. Fig. 94. Deltoid. Fig. 95. Three-ſided or triquetrous. Fig. 96. Channelled. Fig. 97. Furrowed. Fig. 98. Cylindrical. B. *Compound* Leaves. Fig. 99. Three-lobed. Fig. 100. Binate. Fig. 101. Ternate. Fig. 102. Digitate, or fingered. Fig. 103. Pedate. Fig. 104. Pinnated with an odd leaflet. Fig. 105. Abruptly pinnated. Fig. 106. Pinnated alternately. Fig. 107. Abruptly pinnated. Fig. 108. pinnated with a cirrhus. Fig. 109. Pinnated with only two leaflets. Fig. 110. Pinnated decurſively. Fig. 111. Pinnated jointedly. Fig. 112. Lyre-ſhaped. Fig. 113. Biternate, or duplico-ternate, biternate, (100), or doubly ternate, or having three ternate (100) leaves upon one petiole. Fig. 114. Bipinnate or doubly pinnate, i. e. having the primary pinnæ pinnated again a ſecond time. Fig. 115. Triternate, or triple ternate, or conſiſting of three biternate (113) leaves. Fig. 116. Triple pinnated without an odd leaflet, or having the ſecondary *pinnæ* pinnated again, and theſe laſt *pinnæ* not terminated by an odd leaflet. Fig. 117. Triple-pinnated with an odd leaflet. Elements.

2. LEAVES, as to determination.—Fig. 118. Incurvated. Fig 119. Erect. Fig. 120. Patent or ſpreading. Fig. 121. Horizontal. Fig. 122. Reclined or reflex. Fig. 123. Revolute or rolled back. Fig. 124. Seminal leaves, or ſeed-leaves. Fig. 125. Cauline or ſtem-leaf. Fig. 126. A branch-leaf. Fig. 127. Floral; leaf next the flower; alſo termed a *bractea*. Fig. 128. Peltate, or target-ſhaped. Fig. 129. On a leaf-ſtalk. Fig. 130. Seſſile. Fig. 131. Decurrent. Fig. 132. Stem-claſping. Fig. 133. Perfoliate. Fig. 134. Connate, or united at the baſe. Fig. 135. Sheathing. Fig. 136. Articulated or jointed. Fig. 137. Stellate, or verticilled. Fig. 138. *Quaterna*, *quina*, *ſena*, &c. denote different ſpecies of ſtellated or verticilled leaves, when there are four, five, or ſix, &c. leaves in one verticil or whirl. Fig. 139. Oppoſite. Fig. 140. Alternate. Fig. 141. Linear and perſiſting. Fig. 142. Imbricated, or tiled. Fig. 143 Faſcicled. Fig. 144. *Frond*; a ſpecies of ſtalk or trunk, conſiſting of branches and leaves, and ſometimes the fructification, all united together; peculiar to the Filices or Ferns, and the Palmæ. Fig. 145. (Sauv.) Spatulate, or roundiſh above, with a long linear baſe. Fig. 146. Parabolical; having its longitudinal diameter longer than the tranſverſe, and growing narrower from the baſe till it terminate ſomewhat like an oval.

3. CAULES, or STEMS.—Fig. 147. A ſcaly culm or ſtalk. Fig. 148. *Caulis repens*, a repent or creeping ſtalk or ſtem; appropriated to herbaceous plants. Fig. 149. Scape. Fig. 150. A jointed culm (147) or ſtalk. Fig. 151. A twining ſtem. Fig. 152. A dichotomous or two-forked ſtem. Fig. 153. Brachiated.

4 FULCRA, or SUPPORTS.—Fig. 154. a A claſper or tendril; b, *Stipulas*, the little ſcales at the baſe of the foot-ſtalk of the leaf, or at the baſe of the flower-ſtalk; c, ſmall hollow glands for the ſecretion of ſome particular fluid. Fig. 155. a, Small glands. Fig. 156. a, *Bractea*; on footſtalk, or differing from the other leaves of the plant. Fig. 157. a, A ſimple or one-pointed ſpine. b, A triple or three pointed ſpine. Fig. 158. A triple or three-pointed prick. Fig. 160. Oppoſite leaves; *a*, the *axil*, or angle betwixt the leaf and the ſtalk.

5. ROOTS.—Fig. 161. A ſcaly bulb. Fig. 162. A ſolid bulb. Fig. 163. A tunicated or coated bulb. Fig. 164. A tuberous root. Fig. 165. Fuſiform or ſpindle-ſhaped. Fig. 166. A branchy root. Fig. 167. a repent or creeping root.

EXPLANATION OF SIGNS.

Duration. ☉ Annual. ♂ Biennial. ♃ Perennial.
Magnitude. ♄ Tree or ſhrub.
Time of flowering. I. II. III. January, February, March, &c.

CLASSIFICATION.

CLASSIS I.

MONANDRIA.

Ordo I. MONOGYNIA.

Sect. I. Scitamineæ, *Fructu infero uni vel triloculari.*

12. Kæmpferia. Cal. obſoletus. Cor. 6-partita: laciniis 3 majoribus patulis, unica bipartita. Stigma bilamellatum.

3. Renealmia. Cal. 1-phyllus rumpens. Cor. 3-fida inæqualis. Nectar. oblongum baſi utrinque unidentatum. Bacca.

2. Hellenia. Cal. ſpathiformis. Cor. limbus duplex: exterior ſubtrifidus. Nect. diphyllum ſ. bifidum.

6. Hedychium. Cal. 1-phyllus rumpens. Cor. tubus longiſſimus; limbus duplex 3-partitus. Nect. 2-phyllum.

11. Curcuma. Cal. 2-fidus. Cor. 4-partita. Nect. 3-lobum. Anth. baſi bicalcarata.

5. Hornstedtia. Cal. 2-fidus. Cor. tubus longus filiformis; limbus duplex, exterior tripartitus. Nect. tubuloſum.

8. Alpinia. Cal. 3-dentatus æqualis tubuloſus. Cor. 3-partita æqualis. Nect. 2-labiatum: labio inferiore patente.

4. Amomum. Cal. 3-fidus inæqualis cylindricus. Cor. 3-partita inæqualis patens. Nect. 2-labiatum erectiuſculum.

7. Costus. Cal. 3-fidus gibbus. Cor. 3-partita ringens. Nect. 2-labiatum, labio inferiore maximo trilobo.

10. Maranta. Cal. 3-phyllus. Cor. 3-fida. Nect. 3-partitum: lacinia tertia ſuperiore latere antherifera.

1. Canna. Cal. 3-phyllus. Cor. 6-partita. Nect. 2-partitum. Capſ. 3-locularis.

14. Phrynium. Cal. 3-phyllus. Cor. 3-petala tubo nectarii adnata. Nect. tubo filiformi, limbo 4-partito. Capſ. 3-locul. Nuces 3.

13. Thalia. Cal. 3-phyllus. Cor. 5-petala: duo interiora minora. Nect. lanceolatum concavum. Drupa nuce unilocul.

9. Myrosma. Cal. duplex: exterior 3-phyllus: interior 3-partitus. Cor. 5-partita irregularis.

Sect. II. *Fructu infero quadriloculari.*

18. Lopezia. Cal. 4-phyll. Cor. 5-petala inæqualis. Capſ. 4-locul. 4-valvis polyſperma.

Sect. III. *Fructu ſupero.*

15. Phylidrum. Spatha 1-flora. Cal. 0. Cor. 4-petala irregularis. Capſ. 3-locul. polyſperma.

CLASS I.

MONANDRIA.

Order I. MONOGYNIA.

Sect. I. Scitamineæ *or Spicy Plants. The Germen Inferior, and* 1 *or* 3*-celled.*

12. Kæmpferia. Cal. indiſtinct. Cor. 6-parted, the three greater ſegments open in two-parted ſtigmas, bilamellated.

3. Renealmia. Cal. 1-leaved, burſting. Cor. 3-cleft, unequal. Nect. oblong, one tooth on each ſide of the baſe. A berry.

2. Hellenia. Cal. ſpathiform. Cor. limb double, exterior one ſubtrifid. Nect. two-leaved, or bifid.

6. Hedychium. Cal. 1-leaved, burſting. Cor. tube very long, limb double, 3-parted. Nect. diphyllous.

11. Curcuma. Cal. 2-cleft. Cor. 4-parted. Anth. two horns at the baſe. Nect. 3-lobed.

5. Hornstedtia. Cal. 2-cleft. Cor. long, filiform; limb double, the exterior one 3-parted. Nect. tubulous.

8. Alpinia. Cal. 3-dented, equal. Cor. 3-parted, equal. Nect. 2-lipped, inferior lip ſpreading.

4. Amomum. Cal. 3-cleft, unequal. Cor. 3-parted, unequal. Nect. 2-lipped, ſomewhat erect.

7. Costus. Cal. 3-cleft, gibbous. Cor. 3-parted, ringent. Nect. 2-lipped, inferior lip greateſt, and 3-lobed.

10. Maranta. Cal. 3-leaved. Cor. 3-cleft. Nect. 3-parted, third ſegment on the higher ſide anther-bearing.

1. Canna. Cal. 3-leaved. Cor. 6-parted. Nect. 2-parted. Capſ. 3-celled.

14. Phrynium. Cal. 3-leaved. Cor. 3-petaled. Nect. tube filiform. Limb 4-parted. Capſ. 3-celled. Nuts 3.

13. Thalia. Cal. 3-leaved. Cor. 5-petaled, two interior pet. leſs. Nect. lanceolate, concave. Drupe 1 cell.

9. Myrosma. Cal. double; exterior one 3-leaved, interior 3-parted. Cor. 5-parted, iregular.

Sect. II. *Germen inferior, and four-celled.*

18. Lopezia. Cal. 4-leaved. Cor. 5-petals, unequal. Capſ. 4 cells, 4 valves, many ſeeds.

Sect. III. *Germen ſuperior.*

15. Phylidrum. Spathe one flower. Cal. none. Cor. 4 petals irregular. Capſ. 3 cells, many ſeeds.

16. Cucullaria. Cal. 4-partitus. Cor. 4-petala inæqualis calcarata. Fil. petaliforme. Anth. loculis diſcretis!

17. Qualea. Cal. 4-partitus. Cor. dipetala *Bacca?*

19. Usteria. Cal. 4-dentatus, lacinia unica reliquis multo majore! Cor. infundibuliformis 4-dentata. Capſ. 1-locul. 2-ſperma.

† *Mangifera Indica. Tradeſcantia monandra.*

Sect. IV. Monospermæ.

20. Boerhaavia. Cal. ſuperus margo integerrimus. Cor. 1-petala campanulata.

* 23. Hippuris. Cal. ſuperus margo bilobus. Cor. 0.

22. Salicornia. Cal. 1-phyllus ventricoſus. Cor. 0.

21. Pollichia. Cal. 1-phyllus 5-dentatus. Cor. 0. Sem. 1 receptaculi ſquamis 2 baccatis tectum.

24. Mithridatea. Recep. multiflorum 4-fidum. Cal. 0. Cor. 0. Sem. ſolitaria recept. carnoſo immerſa.

* Chara. Cal. 0. Cor. 0. Anth. ſeſſilis. Styl. 0. Stigma 5-fidum. Sem. plura.

* Zostera. Spadix linearis, altera latere fructifero. Cal. 0. Cor. 0. Stam. alterna. Sem. ſolitar. alterna.

† *Valeriana rubra, anguſtifolia, Calcitrapa. Scirpi et Cyperi nonnullæ ſpecies. Alchemilla Aphanes, monandra. Polycnemum monandrum.*

Ordo II. DIGYNIA.

Sect. I. Plantæ.

25. Lacistema. Cal. amenti ſquama. Cor. 4-partita. Fil. 2-fid. Bac. pedicellata monoſperma.

26. Corispermum. Cal. 0. Cor. 2-petala. Sem. 1.

* 27. Callitriche. Cal. 0. Cor. 2-petala. Capſ. 2-locularis.

28. Blitum. Cal. 3-fidus baccatus. Cor. 0. Sem. 1.

29. Mniarum. Cal. 4-partitus ſuperus. Cor. 0. Sem. 1.

Sect. II. Gramineæ.

30 Cinna. Cal. gluma 1-flora. Cor. gluma. 2-valvis.

† *Leerſia Monandra.*

16. Cucullaria. Cal. 4-parted. Cor. 4 petals unequal, ſpur-ſhaped. Fil. petal ſhaped.

17. Qualea. Cal. 4 parted. Cor. 2 petals. A berry.

19. Usteria. Cal. 4-dented, one ſegment greater than the reſt. Cor. funnel-ſhaped, 4-dentate. Capſ. 1 cell, 1 ſeed.

† *Mangifera Indica. Tradeſcantia Monandra.*

Sect. IV. Monospermæ, *or having one Seed.*

20. Boerhaavia. Cal. ſuperior, margin very entire. Cor. 1. petal, campanulated or bell-ſhaped.

* 23. Hippuris. Cal. ſuperior, margin two lobed, Cor. none.

22. Salicornia. Cal. 1-phyllous, ventricoſe. Cor. 0.

21. Pollichia. Cal. 1-phyllous, 5-dented. Cor. 0. Seed 1. fleſhy, ſcaly, incloſing the germen.

24. Mithridatea. Cal. none. Cor. none. Recep. fleſhy, having many flowers.

* Chara. Cal. 0. Cor. 0. Anth. ſeſſile. 0. Style 0. Berry many ſeeds.

* Zostera. Spadix linear ſheathed by the leaves, fruit-bearing. Cal. 0. Cor. 0. Seeds ſolitary alternate.

† *Valeriana rubra, anguſtifolia. Calcitrapa. Several ſpecies of Scirpus and Cyperus, Alchemilla Aphanes, monandra. Polycnemum monandrum.*

Order. II. DIGYNIA.

Sect. I. Plants.

25. Lacistema. Cal. ſcale of an ament. Cor. 4-parted. Fil. 2-cleft, berry on a footſtalk, 1 ſeed.

26. Corispermum. Cal. none. Cor. 2 petals, ſeed 1.

* 27. Callitriche. Cal. none. Cor. 2 petals. Capſ. 2 cells.

28. Blitum. Cal. 3-cleft, encloſing a berry. Cor. none, ſeed 1.

29. Mniarum. Cal. 4-parted, ſuperior. Cor. none. ſeed 1.

Sect. II. Grasses.

30. Cinna. Cal. glume, 1-flowered. Cor. glume, 2-valved.

† *Leerſia Monandra.*

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1. Canna, *Flowering Reed.*

Cor. 6-parted, erect. Nect. 2-parted, rolled back. Style lanceolate, adhering to the corolla. Cal. 3-leaved.

indica. 1. Can. leaves ovate, acuminate ribbed.

rubra. α *Can.* whole flower reddiſh, leaves ellipſe-ovate.

lutea. β *Can.* interior petals erect and yellow, the ſegments of the nectary rolled back and ſprinkled with reddiſh lines; leaves ovate elliptical.

coccinea. γ *Can.* interior petals erect, ſcarlet, the ſegments of the nectary rolled back, yellow ſprinkled with red lines, leaves ovate elliptical.

patens. δ *Can.* interior petals reflected, ſcarlet leaves lanceolate oblong. Between the tropics.

2. Can. leaves lanceolate on footſtalks, ribbed. *Small anguſtifolia. Flowering reed.* America.

3. Can. leaves lanceol. petiol. glaucous beneath, without ribs. Carolina. *glauca.*

4. Can. leaves linear, ribbed. *Ruſhy flowering reed. juncea.* China.

2. Hellenia.

Limb of the cor. double, the outer one commonly 3-cleft. Nect. 2-leaved or 2-cleft. Capſ. 3-celled, coriaceous, inflated, ſubgloboſe. Cal. ſpathiform, campanulated, 2-cleft.

1. Hel. Nect. 2-leaved. Capſ. ſubſpongious, leaves entire. Ceylon. *alughas.*

alba. 2. Hel. Nect. diphyllous. Capf. ſtriated, leaves entire. China.

chinenſis. 3. Hel. Nect. 2-leaved, leaves ciliated. China.

aquatica. 4. Hel. Nect. 1-leaved, 2-cleft, leaves denticulated. India.

3. Renealmia.

Cor. trifid. Nect. oblong. Cal. 1-leaved, having two or three irregular dents. Anth. ſeſſile, oppoſite to the nectary. Berry fleſhy.

exaltata. 1. Ren. *High* or *tall renealmia.* It is a tree which grows 20 feet high; the leaves are lanceolated, and 5 or 6 feet long. Surinam.

4. Amomum, *Ginger.*

Cal. 3-cleft, unequal, cylindrical. Cor. 5-parted, unequal, ſpreading. Nect. bilabiate, almoſt erect.

zingiber. 1. Am. Scape naked, ſpike and ſcales ovate, leaves lanceolate, ciliated on the margin near the apex. 4. Eaſt Indies, and Jamaica. This plant grows to the height only of two or three feet. It is valued chiefly on account of its root which is tuberous, of the thickneſs of a finger, white or reddiſh within and pale or yellow without. Ginger is reckoned a good ſtomachic. It is much uſed by the Indians by way of ſeaſoning. It grows in Malabar, Ceylon, Amboina, and China, and is cultivated in the Weſt Indies. As it is very plentiful on the mountains of Gingi, ſome ſuppoſe that from this circumſtance the name Gingiber or Zingiber was derived.

zerum'et. 2. Am. Scape naked; ſpike oblong, obtuſe; ſcales roundiſh; leaves ovate, ſmooth on the margin. 4. Eaſt Indies.

zedoaria. 3. Am. ſcape naked; ſpike looſe, cylindrical, truncated; leaves ovate acuminate. 4. India.

ſylveſtre. 4. Am. ſcape naked, ſpike elongated, bracteas oblong ventricoſe, leaves broad-lanceolate. 4. Jamaica.

mioga. 5. Am. ſcape very ſhort, capſule ovate, leaves ſword-form and acute. 4. Japan.

anguſtifolium. 6. Am. ſcape naked very ſhort, ſpike headed, leaves linear-lanceolate. 4. Madagaſcar.

cardamomum. 7. Am. ſpike radical ſeſſile obovate, leaves obovate-elliptical and cuſpidate. 4. India.

villoſum. 8. Am. ſcape ſheathed very ſhort, ſpike roundiſh; bracteas lanceolate, longer than the flower. 4. India.

echinatum 9. Am. ſpike radical, ſomewhat globular, capſules furrowed, echinate and globular. 4. India.

repens. 10. Am. ſcape branchy, decumbent; leaves lanceolate. 4. Malabar.

granum paradiſi. 11. Am. ſcape branched looſe, leaves ovate. 4. Madagaſcar, Guinea and Ceylon. The freſh leaves of this plant, which grows to the height of 10 or 12 feet, have a ſtrong aromatic taſte, but ſomewhat bitter. Its grains have the ſame qualities in a higher degree. The Indians mix them with betel, in order to promote digeſtion. Their taſte is very agreeable; when ſqueezed in the mouth, they produce a pleaſant coolneſs. They are an object of commerce on the Malabar coaſt.

5. Hornstedtia.

Cal. bifid. Tube of the corolla long filiform; border double, outer one three-parted. Nect. tubular; capſule three-celled, oblong.

1. Hor. leaves tomentoſe beneath. 4. Malacca. *ſcyphus.*

2. Hor. leaves ſmooth ciliated. 4. Malacca. *leoninus.*

6. Hedychium.

Cal. 1-leaved, burſting. Cor. with a very long tube; border double, three-parted. Nect. 2-leaved.

1. Hed. 4. India. *coronarium.*

7. Costus.

Cal. trifid, gibbous. Cor. 3-parted, ringent. Nect. 2-lipped, the inferior lip largeſt, 3-lobed.

1. Cos. leaves ſmooth on both ſides, ſpike with few flowers, ſcales leaf-like at the apex, the higheſt ones faſtigiate. 4. America. *arabicus.*

2. Cos. leaves ſmooth on both ſides; ſpike many-flowered, ſomewhat ovate, cloſely imbricated, ſcales ovate ſimple. 4. Braſil and the Caribee iſlands. *ſpicatus.*

3. Cos. leaves covered beneath with a ſilky velvet down. 4. Eaſt Indies. *ſpecioſus.*

8. Alpinia.

Cal. 3-dented, equal, tubular. Cor. 3-parted, equal. Nect. bilabiate, lower lip ſpreading.

1. Alp. the raceme or cluſter terminating ſpiked, flowers alternate, lip of the nectary 3-cleft; leaves oblong acuminate. 4. America. *racemoſa.*

2. Alp. the cluſter terminating looſe with flowers alternate, lip of the nectary emarginated, leaves lanceolate. 4. Eaſt Indies. *galanga.*

3. Alp. ſpike terminating hairy, bracteas longer than the flower, coloured leaves, oblong-ovate pubeſcent. 4. America. *comoſa.*

4. Alp. cluſter radical, compound, erect; nectary emarginate at the apex, capſules 3-celled, leaves lanceolate-ovate and very ſmooth. *Swartz* prod. 11. 4. Jamaica and St Domingo. *occidentalis.*

9. Myrosma.

Cor. 5-parted, irregular. Cal. double, the outer part 3-leaved, the inner 3-parted. Capſ. 3-angled, 3-celled with many ſeeds.

1. Myr. ♄. Surinam. *cannæformis.*

10. Maranta.

Cal. 3-leaved. Cor. 3-cleft. Nect. 3-parted, the third being a ſegment, the ſuperior ſide anther-bearing.

1. Mar. culm-branched and herbaceous, leaves ovate-lanceolate, ſomewhat hairy beneath. 4. America. *arundinacea.*

2. Mar. culm-branched, ſhrub-like, leaves ovate ſmooth. ♄. Cochin-China. *tonchat.*

3. Mar. culm ſimple, leaves oblong, on footſtalks, ſilky, pubeſcent beneath. 4. Malacca. This ſpecies has not yet been accurately examined. *malaccenſis.*

4. Mar. ſtemleſs ſcape; naked, ſpiked, hairy, the leaflets of the hair reflected. 4. Surinam. It is uncertain whether this plant may not belong to an unformed genus; at any rate, it is very different from the other ſpecies of maranta already mentioned. *comoſa.*

11. Curcuma.

Cal. bifid. Cor. quadripartite. Nect. 3-lobed. Anth. with two ſpurs at the baſe.

1. Cur. leaves lanceolate ovate, ribs or nerves lateral, very few. 4. India. *rotunda.*

2. Cur.

longa. 2. Cur. leaves lanceolate, ribs lateral and very numerous. 4. India.

12. Kæmpferia.

Cal. indiſtinct. Cor. 6-parted, the three greater ſegments a little expanded, one two-parted. Stigma bilamellated.

galanga. 1. Kæmp. leaves ovate ſeſſile. *Galangale.* 4. India.
rotunda. 2. Kæmp. leaves lanceolate on footſtalks. 4. India.

13. Thalia.

Cor. 5-petaled; the two inner petals leſs. Nect. lanceolate concave. Nect. one cell. Cal. 3-leaved.

geniculata. 1. Th. Cor. 5-petaled. Nect. lanceolate. 4. South America.
cannæformis. 2. Th. Cor. 6-petaled. Nect. 2-cleft, erect. 4. New Hebrides.

14. Phrynium.

Cal. 3-leaved. Petals three, equal, adhering to the tube of the nectary. Nect. 1-leaved, tube filiform, border four-parted. Capſ. three-celled. Nuts 3.

capitatum. 1. Phr. 4. Malabar, Cochinchina, and China.

15. Phylidrum.

Spathe one flower. Cal. none. Cor. 4-petaled, irregular. Capſ. 3-celled, with many ſeeds.

lanuginoſum. 1. Phyl. 4. Cochinchina, and China.

16. Cucullaria.

Cal. 4-parted. Cor. 4-petaled unequal, with a ſpur. Fil. petaliform.

excelſa. 1. Cuc. Guiana. A lofty tree, with leaves oppoſite, obovate acute veined; racemes terminating, flowers yellow.

17. Qualea.

Cal. 4-parted. Cor. 2-petaled.

roſea. 1. Qua. Guiana.
cærulea. 2. Qua. petals emarginate, leaves acute. Guiana.

18. Lopezia.

Cal. 4-leaved. Cor. 5-petaled unequal. Capſ. 4-celled, 4-valved, many ſeeds.

mexicana. 1. Lop. ⊙. Mexico. The *Lopezia hirſuta* of Jacquin is only a variety.

19. Usteria.

Cal. 4-dented, one dent much larger than the reſt. Cor. funnel-ſhaped, 4-dented. Capſ. one cell, 2 ſeeds. Seeds arilled.

guineenſis. 1. Ust. Guinea. ♄ with oppoſite branches; leaves oppoſite, roundiſh, ovate, entire. Flowers panicled terminating.

20. Boerhaavia.

Cal. margin quite entire. Cor. 1 petal, campanulated, plaited. Seed 1, naked, inferior.

erecta. 1. Boerh. ſtem 4-angled ſmooth, the internodes viſcous, flowers corymbous-panicled. 4. Vera Cruz, and Jamaica. The ſtamens are two in number.

aſcendens. 2. Boerh. leaves oblong-ovate, a little fleſhy, flowers panicled, fruitſtalks, with two flowers, ſtem aſcending or riſing like an arch. Guinea.

diffuſa. 3. Boerh. ſtem tapering pubeſcent, flowers capitate corymbous. 4. South America. The leaves are whitiſh beneath. Flowers purple, with one ſtamen.

hirſuta. 4. Boerh. ſtem a little tapering, hirſute flowers capitate. 4. Jamaica. The ſtem is a foot long, the flowers blood-coloured, the ſtamens two.

plumbaginea. 5. Boerh. leaves nearly heart-ſhaped, orbicular-acute, pubeſcent beneath, flowers umbellated. 4. Spain. The corolla is of a pale roſe hue, the ſtamens three, the fruit top-ſhaped and ſtriated.

ſcandens. 6. Boerh. ſtem erect, flowers umbellated biſtaminal, leaves heart-ſhaped. Weſt Indies. ♄ ſix feet high, erect, ſmooth. The branches alternate, the umbels green, bearing ſix flowers, the involucre 5-leaved.

excelſa. 7. Boerh. ſtem erect, leaves inferior heart-ſhaped ovate, the higheſt leaves ovate, flowers umbellated, 3-ſtamined. ♄. The corolla is purple, the ſtamens three.

repanda. 8. Boerh. ſtem erect, leaves heart-ſhaped repando-ſinuated, flowers umbellated, 3-ſtamined. China.

chærophylloides. 9. Boerh. leaves bipinnatifid, dented, flowers umbellated and 3-ſtamined. *Valeriana Chærophylloides* of Dr Smith. ⊙. Chancay in Peru.

repens. 10. Boerh. ſtem creeping. 4. Nubia.

anguſtifol. 11. Boerh. leaves linear and acute.

tetrandra. 12. Boerh. ſtem creeping, flowers 4-ſtamined. Society iſlands.

Several ſpecies of Boerhaavia reſemble the Valeriana.

21. Pollichia.

Cal. 1-leaved, 5-dented. Cor. none. Seed 1. Recept. including the fruit within its ſcales.

campeſtris. 1. Pol. ♂. Cape of Good Hope.

22. Salicornia, *Samphire.*

Cal. ventricoſe, entire. No petals. Stam. 1 or 2. Seed 1. covered with the calyx.

herbacea. * 1. Sal. Knees compreſſed, emarginate, internodes obconical, ſpikes on footſtalks tapering towards the apex. Europe.

α *Sal. Europæa*; ſmall jointed glaſswort.
β *Sal. erecta*, leaves ſhort; woody-jointed.
γ *Sal. myoſuroides*, procumbent ſhoots very long.
δ More branched, procumbent, leaves ſhort, purpliſh.
Marſh ſamphire, jointed glaſswort, or *ſalt wort.*

Frequent on the ſea ſhores in muddy or ſandy places. ⊙ or ♂. Flowers VIII. and IX.

The root is fibrous, ſmall. Stem commonly erect, ſubdivided at the baſe, branched above. Branches oppoſite, ſimple erect, very ſucculent, without leaves; kneed, knees compreſſed, dilated at the ſummit, emarginated. Spikes oppoſite terminating with a large odd one, on footſtalks, tapering gradually towards the ſummit, ſomewhat pointed, jointed. Flowers oppoſite, three commonly on each ſide.

β Has a more branched ſtem, ſpikes longer and thicker.

Note, The genera and ſpecies of plants found in Britain are marked with an aſteriſk.

thicker. γ A diffuse stem, spikes very long. δ A stem very much branched, spikes small purplish. ε A stem very much branched, firmer, spikes shorter, green.

fruticosa. * 2. Sal. Knees cylindrical, entire, internodes equal, spikes subsessile cylindrical obtuse. *Shrubby samphire* or *jointed glasswort.* Is found in sea marshes. ♃. Flowers in VIII. and IX. The root is woody and perennial, the stem somewhat shrubby, ascending, very much branched, the branches and branchlets opposite. All the internodes commonly cylindrical. The spikes generally sessile, cylindrical obtuse, many-flowered, joints very short.

perennans. 3. Sal. knees compressed emarginate, spikes axillary, three together on fruitstalks, scales acute, root perennial. Siberia.

strobilacea. 4. Sal. stem prostrate shrubby, genicles truncated alternately bearing spikes; spikes naked, very short opposite. ♄. Near the Caspian sea.

virginica. 5. Sal. erect, branches very simple. Virginia.

arabica. 6. Sal. leaves alternate, sheathing, obtuse dehiscent. ♄. Arabia.

foliata. 7. Sal. leaves linear, alternate, stem-clasping decurrent. Siberia. ♄.

amplexicaulis. 8. Sal. leaves heart-shaped, stem clasping. Tunis. ♄.

caspica. 9. Sal. genicles cylindrical, spikes filiform. Shores of the Caspian and Mediterranean. ♄.

23. Hippuris.

Cal. indistinct, entire. Cor. none. Stigma simple. Seed 1. inferior.

vulgaris. * 1. Hip. with leaves verticilled and linear. In ditches and muddy stagnant pools, but not common. Near Hornsey and Lynn: also in the King's park at Edinburgh. ♃. Flowers in V. The root is composed of long verticilled fibres; the stem very simple, erect, often kneed, immersed and leafless to the middle, leafy above. The leaves verticilled, from 8 to 12, spreading, linear, acute, very entire, smooth. Flowers axillary, solitary, sessile.

tetraphyllus. 2. Hip. leaves inferior in fours, higher leaves six together obtuse. Sweden. ♃.

24. Mithridatea.

Recep. has many flowers, and is 4-cleft. Cal. none. Cor. none. Seeds solitary, immersed in a fleshy receptacle.

quadrifida. 1. Mith. ♄. Madagascar, Mauritius, and Bourbon. It has opposite branches, leaves on footstalks opposite, elliptical obtuse, entire, venous; flowers solitary on footstalks, four-cleft, lateral on the older branches. The fruit is fleshy, and of the size of an apple.

Chara.

Cal. none. Cor. none. Anth. sessile. Style none. Berry many seeds.

vulgaris. * 1. Ch. without prickles striated, leaves awl-shaped, jointed. *Common Chara.*

β *Ch. minor*, with stems and leaves very slender. Frequent in muddy waters. β in water more pure. ⊙. Flowers in VII. The whole plant immersed, fetid, brittle, and commonly incrusted with a whitish calcareous gritty substance. The stem is 1 foot long, filiform, branchy, leafy, striated, twisted. The leaves verticilled, about 8-subulate, acute, jointed, striated, channelled above, flower-bearing. The anther naked, sessile, depressed, fleshy, rimose. The germen surrounded with four leaflets, near the anther, ovate, striated spirally, 5-dented at the summit. The berry corticated, and many seeds. No stigma is visible.

hispida. * 2. Ch. furrowed, the leaves subulate and jointed, the leaflets verticilled, the prickles on the stem bristly and deflected.

β *Ch. major*, brittle and somewhat ash-coloured. *Prickly Chara.* Grows in pools and ditches. North of England; in Guillon Loch, East Lothian. ⊙. Flowers in VII. and VIII. The habit of this species the same as the former, but larger, the stem being five times thicker, furrowed rather than striated, very prickly above, the higher prickles all deflected, the lower ones varying in direction. The leaflets verticilled. The flowers resemble those of the *vulgaris.*

Variety β is chiefly distinguished by its stem being prickly only under the higher verticils.

flexilis. * 3. Ch. without prickles, smooth, diaphanous, leaves cylindrical obtuse, a little dagger-pointed. *English Smooth Chara.* Grows in ditches and lakes. ⊙. Flowers in VII. and VIII. Green, pellucid, smooth, not striated. Stem round, branched, equal. Leaves verticilled, cylindrical, filiform, obtuse, mucronulate, often jointed and branched; hence might be called branchlets: the flower-bearing ones are aggregate, terminating shorter.

Zostera, *Grass-wrack.*

Spadix linear sheathed by the leaves, flower-bearing. Cal. none. Cor. none. Anth. sessile opposite to the germen. Stigmas two, linear. Capsl. 1 seed.

marina. * 1. Zost. with sessile pericarps. *English Grass-wrack.* On the sea-shore in salt marshes and ditches. ♃. Flowers in VIII. and IX. The root is fibrous. Stems tapering, smooth geniculated, decumbent at their base, striking root; partly floating, leafy, somewhat branched and a little compressed. The leaves alternate, on leaf-stalks, linear, a little obtuse, entire, smooth, opening a little above the same into a longitudinal chink, and exhibiting a spadix plane and linear flower-bearing on one side. The anther oblong, sessile at the side of the germen. The germen sessile, oblong. Stigmas 2, linear, acute, somewhat spreading. Capsule elliptical, pendulous, one-seeded.

Order II. DIGYNIA.

25. Lacistema.

Cal. scale of an ament. Cor. 4-parted. Fil. 2-cleft. Berry on a fruitstalklet, 1 seed.

myricoides 1. Lac. Jamaica and Surinam. ♄.

26. Corispermum, *Tickseed.*

Cal. none. Petals 2. Seed 1. oval naked.

hyssopifolium. 1. Cor. spikes terminal, leaves linear, ribless, awnless. Russia, Tartary, and South of France. ⊙.

squarrosum. 2. Cor. spikes axillary, squarrose, leaves lanceolate-acuminate, pungent, nerved, or ribbed. Banks of the Wolga and the deserts of the Cossacs. ⊙.

27. Callitriche.

Cal. none. Petals two. Stigmas acute. Seeds 4, compressed,

compreſſed, naked, with a membranous margin on one ſide. Some flowers are monœcious.

aquatica. * 1. Cal. commonly called *verna*.
β *Stellaria minor*, creeping.
γ *Cal. autumnalis.*
Engliſh Water Star-wort. Flowers from IV. to X. The whole plant floats in ſpring, and after the ſeaſon of flowering ſinks a little. Roots fibrous ſimple. Stems filiform, branched, leafy, ſmooth. Leaves oppoſite ſpatulate, obtuſe, entire, triple, nerved, pellucid, ſmooth. Lower leaves linear, with one nerve, emarginate. Flowers axillary, ſolitary, ſeſſile, ſmall, white, hermaphrodite or anther-ſtigmate, the piſtils and ſtamens ſometimes intermingled. Fruit ſmall, ſeſſile, with four keels.
The variety γ which has been called *Cal. Autumnalis*, and conſidered as a diſtinct ſpecies, is entirely immerſed, all the leaves uniform, linear, emarginate; all the flowers anther-ſtigmate. It flowers in the beginning of ſummer.

28. Blitum.

Cal. 3-cleft. Petals none. Seed 1, in a berried calyx.

1. Bl. little heads ſpiked, terminal. South of Europe, eſpecially of the Tyrol, Switzerland. ⊙. *capitatum.*
2. Bl. little heads ſcattered and lateral. *virgatum.*
β. *Bl. chenopodioides*, little heads verticilled and juiceleſs. Tartary, Spain, and France. ⊙.

29. Mniarum.

Cal. 4-parted, ſuperior. Cor. none. Seed 1.

1. Mn. New Zealand and Terra del Fuego. ♃. *biflorum.*
This plant very much reſembles the genus Minuartia in the 3d claſs.

30. Cinna.

Cal. a glume 2-valved, one flower. Cor. a glume 2-valved.

1. Cin. Canada. ♃. This plant ſeems to be a ſpecies of *agroſtis*, though evidently diſtinct from Agroſtis Cinna. *arundinacea.*

In the claſs Monandria are
30 Genera; and 84 ſpecies, 8 of which are Britiſh.

CLASSIS II.

DIANDRIA.

Ordo I. MONOGYNIA.

Sect. I. *Flores inferi, monopetali, regulares.*

36. Olea. Cor. 4-fida: laciniis ſubovatis. Drupa monoſperma.
37. Chionanthus. Cor. 4-fida: laciniis longiſſimis. Drupa monoſperma, nuce ſtriata.
35. Phillyrea. Cor. 4-fida. Bacca monoſperma.
* 34. Ligustrum. Cor. 4-fida. Bacca tetraſperma.

40. Pimelea. Cor. 4-fida. Cal. nullus. Stam. fauci inſerta. Nux corticata unilocularis.
38. Syringa. Cor. 4-fida. Capſ. bilocularis.

41. Eranthemum. Cor. 5-fida: laciniis obovatis planis. Capſula.
31. Nyctanthes. Cor. 4-fida: laciniis truncatis. Capſ. 2-locularis marginata. Sem. ſolitaria.
32. Jasminum. Cor. 5-8-fida. Bacca dicocca. Sem. ſolitaria arillata.
33 Galipea. Cor. 4-5-fida. Stam. 4-duo ſterilia Capſula?

Sect. II. *Flores inferi, monopetali, irregulares. Fructus capſularis.*

45. Pæderota. Cor. 4-fida, fauce glabra. Cal. 5-partitus. Capſ. 2-locul.
46 Wulfenia. Cor. 4-fida, fauce barbata. Cal. 5-partitus. Capſ. 2-locul.
* 44 Veronica. Cor. 4-fida, limbo planiuſculo: lacinia inferiore anguſtiore. Capſ. 2-locul.

CLASS II.

DIANDRIA.

Order I. MONOGYNIA.

Sect. I. *Flowers inferior.*

36. Olea. Cor. 4-cleft, ſegments ſubovate. Drupe 1 ſeed.
37. Chionanthus. Cor. 4-cleft, ſegments very long. Drupe 1 ſeed. Nut ſtriated.
35. Phillyrea. Cor. 4-cleft. Berry 1 ſeed.
* 34. Ligustrum. Cor. 4-cleft. Berry with 4 ſeeds.
40. Pimelea. Cor. 4-cleft. Cal. 0. Stam. inſerted into the throat. Nut.
38. Syringa. Cor. 4-cleft. Capſule corticated 1-celled.
41. Eranthemum. Cor. 5-cleft, ſegments obovate, plane.
31. Nyctanthes. Cor. 4-cleft, ſegments truncated. Capſ. 2-celled, marginate. Seeds ſolitary.
32. Jasminum. Cor. 5-8-cleft. Berry 2-grained. Seeds ſolitary, arillate.
23. Galipea. Cor. 4-5-cleft. Stamens 4, 2 barren.

Sect. II. *Flowers inferior, one-petaled, irregular. Fruit capſular.*

45. Pæderota. Cor. 4-cleft, throat bare. Cal. 5-parted. Capſ. 2-celled.
46. Wulfenia. Cor. 4-cleft, throat bearded. Cal. 5-parted. Capſ. 2-celled.
* 44. Veronica. Cor. limb 4-parted, lower ſegment narroweſt.

49. Gratiola. Cor. 4-fida bilabiata reſupinata. Stamina 4 : duo ſterilia. Capſ. 2-locul.

50. Schwenkia. Cor. ſubæqualis: ore plicato-ſtellato glanduloſo. Stam. 5 : 3 ſterilia. Capſ. 2-locul.

48. Justicia. Cor. irregularis. Capſ. 2-locul. ungue elaſtico diſſiliens : Diſſepimentum contrarium adnatum.

47. Cyrtandra. Cor. irregularis. Stam. 4: 2 ſterilia. Bacca 2-locularis.

* 53. Pinguicula. Cor. ringens: calcarata. Cal. 5-fidus. Capſ. 1-locul.

51. Calceolaria. Cor. ringens inflata. Cal. 4-fidus. Capſ. 2-locul. 4-valvis.

52. Baea. Cor. ringens. Cal. 5-partitus. Capſ. 2-locul. 4-valvis.

*. 54. Utricularia. Cor. ringens calcarata. Cal. 2-phyllus. Capſ. 1-locularis.

55. Ghinia. Cor. ringens. Cal. 5-ariſtatus. Nux carnoſa 4-locul.

66. Sciuris. Cor. ringens. Stam. 5 : 3 ſterilia. Capſ. 5 coalitæ.

† *Hemimeris ſabuloſa, diffuſa, montana. Bignonia Catalpa, longiſſima.*

Sect. III. *Flores inferi monopetali, irregulares. Fructus gymnoſpermi.*

* 56. Verbena. Cor. ſubæqualis. Cal. lacinia ſuprema breviore.

* 57. Lycopus. Cor. 4-fida ſubæqualis ; lacinia unica emarginata. Stam. diſtantia.

58. Amethystea. Cor. 5-fida ſubæqualis; lacinia infima concava. Stam. approximata.

60. Ziziphora. Cor. ringens: galea reflexa. Cal. filiformis.

61. Monarda. Cor. ringens: galea lineari obvolvente genitalia.

62. Rosmarinus. Cor. ringens : galea fornicata bifida. Stam. curva cum dente.

* 63. Salvia. Cor. ringens. Fil. tranſverſe pedicellata.

59. Cunila. Cor. ringens galea plana. Stam. 4 : 2 ſterilia.

64. Collinsonia. Cor. ſubringens: labio capillari multifido.

Sect. IV. *Flores inferi polypetali.*

42. Fontanesia. Cor. 2-petala. Cal. 4-partitus. Capſ. 2-locul. non dehiſcens.

68. Lithophila. Cor. 3-petala. Cal. 3-phyllus. Peric. 2-locul.

69. Linociera. Cor. 4-petala. Cal. 4-dentatus. Bacca 2-locul.

39. Dialium. Cor. 5- petala. Cal. nullus.

† *Polycnemum ſcleroſpermum.*

Sect. V. *Flores ſuperi.*

65. Morina. Cal. fructus dentato-ariſtatus: floris bifidus.

49. Gratiola. Cor. 4-cleft, bilabiate, reſupinate. Stam. 4, 2 barren. Capſ. 2-celled.

50. Schwenkia. Cor. ſubequal, mouth plaited-ſtellate glandular. Stam. 5, 3 barren. Capſ. 2-celled.

48. Justicia. Cor. irregular. Capſ. 2-celled, burſting, with an elaſtic claw.

47. Cyrtandra. Cor. irregular. 4 ſtamens, 2 barren. Berry.

* 53. Pinguicula. Cor. ringent, ſpurred. Cal. 5-cleft, 1-celled.

51. Calceolaria. Cor. ringent, inflated. Cal. 4-cleft. Capſ. 2-celled, 4-valved.

52. Baea. Cor. ringent. Cal. 5-parted. Capſ. 2-celled, 4-valved.

* 54. Utricularia. Cor. ringent, ſpurred. Cal. 2-leaved. Capſ. 1-celled.

55. Ghinia. Cor. ringent. Cal. 5-awned. Nut fleſhy, 4-celled.

66. Sciuris. Cor. ringent. 5. Stam. 3, barren. Capſ. 5, united.

Plants apt to be confounded with thoſe are,

Hemimeris ſabuloſa, diffuſa montana. Bignonia catalpa, longiſſima.

Sect. III. *Flowers inferior, one-petaled, irregular. Seeds naked.*

* 56. Verbena. Cor. ſebequal. Cal. higheſt ſegment ſhorter.

* 57. Lycopus. Cor. ſubequal. Stamens diſtant.

58. Amethystea. Cor. 4-cleft ſubequal, longeſt ſegment concave cleft. Stamens near.

60. Ziziphora. Cor. ringent, helmet reflected. Cal. filiform.

61. Monarda. Cor. ringent, helmet linear covering the piſtils and ſtamens.

62. Rosmarinus. Cor. ringent, helmet arched, 2-cleft. Stam. crooked.

* 63. Salvia. Cor. ringent. Fil. on a tranſverſe footſtalk, with a dent.

59. Cunila. Cor. ringent, helmet plane. 4 Stam. 2 barren.

64. Collinsonia. Cor. ſubringent, lip capillary many cleft.

Sect. IV. *Flowers inferior, many-petaled.*

42. Fontanesia. Cor. 2-petaled. Cal. 4-parted. Capſ. 2-celled, not dehiſcent.

68. Lithophila. Cor. 3-petaled. Cal. 3-leaved. Peric. 2 cells.

69. Linociera. Cor. 4-petaled. Cal. 4-dented. Berry 2 cells.

39. Dialium. Cor. 5-petaled. Cal. none.

Flower ſometimes Diandrous.

Polycnemum ſcleroſpermum.

Sect. V. *Flowers Superior.*

65. Morina. Cal. double, that of the fruit dented, that of the flower 2-cleft.

* 43. Circæa. Cal. 2-phyllus. Cor. 2-petala obcordata.

67. Globba. Cal. 3-fidus. Cor. 3-fida. Capſ. 3-locularis.

Flowers ſometimes Diandrous, reſembling thoſe of Sect. V.

† *Valeriana Cornucopiæ. Boerhaavia erecta, hirſuta ſcandens.*

Sect. VI. *Flores apetali.*

70. Ancistrum. Cal. 4-phyllus. Drupa exſucca hiſpida 1-locul.

71. Aruna. Cal. 5-partitus. Bacca 1-locularis.

Ordo II. DIGYNIA.

* 72. Anthoxanthum. Cal. gluma 2-valvis 1-flora. Cor. gluma 2-valvis acuminata ariſtata.

73. Crypsis. Cal. gluma 2-valvis 1-flora. Cor. gluma 2-valvis mutica.

Flower reſembling theſe.

Saccharum cylindricum, Thunbergii.

Ordo III. TRIGYNIA.

74. Piper. Cal. o. Cor. o. Bacca 1-ſperma.

43. Circæa. Cal. 2-leaved. Cor. 2-petaled.

67. Globba. Cal. 3-cleft. Cor. 3-cleft. Capſ. 3-celled.

Sect. VI. *Flowers without Petals.*

70. Ancistrum. Cal. 4-leaved. Drupe juiceleſs, hiſpid 1-celled.

71. Aruna. Cal. 5-parted, Berry 1-cell.

Order II. DIGYNIA.

72. Anthoxanthum. Cal. a 2-valved glume, 1 flower. Cor. a 2-valved glume, acuminate awned.

73. Crypsis. Cal. a 2-valved glume, 1 flower. Cor. a 2-valved glume, awnleſs.

Order III. TRIGYNIA.

74. Piper. Cal. none. Cor. none. Berry 1 ſeed.

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31. Nyctanthes.

Cor. ſalver-ſhaped, the ſegments truncated. Capſ. 2-celled marginate. Seeds ſolitary.

arbor triſtis. 1. Nyct. with a ſtem four-cornered, leaves ovate ſharp-pointed, ſeed-veſſels membranaceous and flattened. ♄. Eaſt Indies.

32. Jasminum, *Jaſmine.*

Cor. ſalver-ſhaped from five to eight-cleft. Berry 2-grained. Seeds ſolitary in a ſeed-coat.

Subdiv. I. *Leaves ſimple.*

ſambac. 1. Jas. with leaves ſimple, oppoſite elliptical ovate, membranaceous and opake, the branchlets and footſtalks pubeſcent, the ſegments of the calyx awl-ſhaped. India. ♄.

α With a ſimple flower.

β With a multiplied flower, ſegments oblong acute, ſhorter than the tube.

γ With full flowers, ſegments roundiſh, longer than the tube.

2. Jas. with leaves ovate, ſharp-pointed a little waved, the branches columnar. Malabar. ♄.

hirſutum. 3. Jas. with leafſtalks and fruitſtalks villous. India. ♄.

anguſtifolium. 4. Jas. with leaves blunt, lanceolate and ovate. India. ♄.

viminеum. 5. Jas. with leaves oppoſite, ovate dagger-pointed, fruitſtalks axillary, one flowered, thoſe terminating three flowered. ♄. Java and Malabar. Has a great affinity to the preceding.

pubeſcens. 6. Jas. with leaves oppoſite ovate, heart-ſhaped pubeſcent on both ſides. ♄. Calcutta.

ſcandens. 7. Jas. with leaves oppoſite, ſimple, ovate-oblong, tapering; panicles right-angled; ſegments of the calyx briſtle-ſhaped bent back. Bengal.

elongatum. 8. Jas. with leaves heart-ſhaped, lanceolate, acute, and long; branches columnar. *Nyctanthes elongata* of Linn. Suppl. Eaſt Indies.

glaucum. 9. Jas. with leaves oppoſite, ſimple, lanceolate, gloſſy, the ſegments of the calyx awl-ſhaped. *Nyctanthes glauca* of Linn. Suppl. ♄. Cape of Good Hope.

trinerve. 10. Jas. with leaves oppoſite, ſimple, ovate, tapering, three-nerved; footſtalks axillary and commonly one-flowered. Java.

ſimplicifolium. 11. Jas. with leaves oppoſite ovate-lanceolate ſimple. Friendly Iſlands.

Subdiv. II. *Leaves ternate.*

angulare. 12. Jas. with leaves ternate oppoſite, leaflets ovate, blunt; branchlets angular and leafſtalks villous, fruitſtalks axillary, three flowered. *Jaſminum capenſe* of Thunberg. Cape of Good Hope.

auriculatum. 13. Jas. with leaves oppoſite ternate, leaves of the flower bearing branchlets ſimple; the calyxes angled, the branches columnar and pubeſcent. Malabar.

flexile. 14. Jas. ſmooth with leaves ternate and oppoſite, ſtem climbing, branches columnar. Eaſt Indies.

didymum. 15. Jas. ſmooth with leaves ternate, oppoſite, leaflets ovate-lanceolate, branches axillary. Society Iſlands.

azoricum. 16. Jas. with leaves ternate, oppoſite, leaflets ovate and a little heart-ſhaped waved, branches ſmooth, columnar, the ſegments of the calyx equal to the tube. Azores.

fruticans. 17. Jas. with leaves ternate and alternate, leaflets obovate, wedge-ſhaped and blunt, branches angled, ſegments of the calyx awl-ſhaped. South of Europe, and the Levant.

humile. 18. Jas. with leaves ternate, alternate acute pinnated, branches angled, the ſegments of the calyx very ſhort. *Obſ.* Pinnated leaves are ſeldom found in this ſpecies.

odoratiſſimum. 19. Jas. with leaves ternate, alternate bluntiſh and pinnated, branches columnar, ſegments of the calyx very ſhort. Madeira.

Subdiv. III. *Leaves pinnated.*

officinale. 20. Jas. with leaves oppoſite and pinnated, leaflets ſharp-pointed, the buds a little erect. India and Switzerland.

grandiflorum. 21. Jas. with leaves oppoſite and pinnated, leaflets bluntiſh, buds horizontal. Eaſt Indies.

33. Galipea.

Cal. four or five-cornered four or five-toothed. Cor. ſalver-ſhaped four or five parted. Stamens four, two barren.

trifoliata. 1. Gal. Guiana. ♄ 6 feet high with leaves alternate on footſtalks ternate, leaflets ſeſſile, lanceolate ſharp-pointed entire. The flowers ſmall, grow in a cyme.

34. Ligustrum, *Privet.*

Cor. 4-cleft, berry ſuperior, 2-celled, with four ſeeds.

vulgare. * 1. Lig. leaves ellipſe-lanceolate obtuſe mucronulated. *Privet*, *Print* or *Prim-print.* Grows in woods, thickets, and hedges, eſpecially in a gravelly moiſt ſoil. Europe. ♄. Flowers in V. and VI. The branches are wand-like. The leaves oppoſite ſubſeſſile, dark green, ſmooth, lanceolate, ſometimes elliptical, entire, pointed like a dagger, but not very ſharp, ſometimes continuing through the winter; panicles terminating and crowded with flowers. Flowers milky, ſtrong ſmelled. Berries black, very bitter, as are alſo the leaves and bark. This plant is not injurred by the ſmoke of towns.

japonicum. 2. Lig. with leaves ovate, ſharp-pointed; panicle obtuſe-angled. Japan.

35. Phillyrea.

Cor. 4-cleft. Berry one ſeed.

media. 1. Phil. with leaves oblong-lanceolate, ſerrated.

α *Phil. liguſtrifolia* with leaves oblong-lanceolate.

β *Phil. virgata*, with leaves lanceolate, branches erect and wand-like.

γ *Phil. pendula*, with leaves lanceolate, branches obtuſe-angled, hanging.

δ *Phil. oleæfolia*, with leaves oblong-lanceolate, branches nearly erect.

ε *Phil. buxifolia*, with leaves oval-oblong and bluntiſh. South of Europe.

anguſtifolia. 2. Phil. with leaves linear-lanceolate and very entire.

α *Phil. lanceolata*, with lanceolate leaves, and ſtraight branches.

β *Phil. roſmarinifolia*, with leaves lanceolate awl-ſhaped, long, branches ſtraight.

γ *Phil. brachiata*, with leaves oblong-lanceolate ſhorter, branches obtuſe-angled. South of Europe.

latifolia. 3. Phil. with leaves ovate-heartſhaped, ſerrated.

α *Phil. lævis*, with leaves ovate, plane, indiſtinctly ſerrated.

β *Phil. ſpinoſa*, with leaves ovate-oblong acute, ſharply ſerrated and plane.

γ *Phil. obliqua*, with leaves lanceolate-oblong, acute, ſerrated, bending obliquely. South of Europe.

36. Olea, *Olive.*

Cor. 4-cleft, ſegments nearly ovate. Drupe one ſeed.

europea. 1. Ol. with leaves lanceolate very entire, racemes axillary and condenſed.

α *Ol. communis*, with leaves lanceolate plane, hoary beneath.

β *Ol. verrucoſa*, with leaves lanceolate, plane, whitiſh beneath, branches warted.

γ. *Ol longifolia*, with leaves linear-lanceolate, plane, ſilvery beneath.

δ *Ol. latifolia*, leaves oblong plane, hoary beneath.

ε *Ol. ferruginea*, leaves lanceolate, ruſty beneath.

ζ *Ol. obliqua*, leaves oblong bending obliquely, pale beneath.

η *Ol. buxifolia*, leaves oblong-oval. *Common olive.* ♄. South of Europe, and north of Africa. β Cape of Good Hope.

capenſis. 2. Ol. with leaves ovate very entire, branches panicled obtuſe-angled.

α *Ol. coriacea*, leaves ovate-oblong ſtiff plane, with red leafſtalks.

β *Ol. undulata*, leaves elliptical waved, leafſtalks green. *Cape olive.* ♄. Cape of Good Hope.

americana. 3. Ol. with leaves lanceolate-elliptical very entire, racemes narrow, all the bracteas permanent, connate and ſmall. Carolina and Florida.

cernua. 4. Ol. with leaves oblong lanceolate very blunt; racemes axillary, ſimple; flowers drooping. Madagaſcar. ♄.

apetala. 5. Ol. with leaves elliptical, flowers racemous without petals. New Zealand.

excelſa. 6. Ol. with leaves elliptical acute, bracteas perfoliate; the loweſt cup-ſhaped permanent; the higher leafy, large, deciduous. Madeira.

fragrans. 7. Ol. with leaves lanceolate and ſerrated, leafſtalks lateral, aggregate, bearing one flower. Cochinchina, China, and Japan.

37. Chionanthus, *Fringe-tree.*

Cor. 4-cleft, ſegments very long. The kernel of the drupe ſtriated.

virginica. 1. Chio. with a panicle terminating 3-cleft, fruitſtalks bearing three flowers, the leaves acute. North America.

α *Chio. latifolia*, with leaves ovate-elliptical.

β *Chio. anguſtifolia*, with leaves lanceolate. *Obſ.* The corolla varies with 4, 5 or 6 ſegments, and 4 ſtamens.

cotinifolia. 2. Chio. with a panicle terminating trichotomous, footſtalks bearing three flowers, leaves blunt. Ceylon.

3. Chio.

compacta. 3. CHIO. with panicles trichotomous, the laſt flowers almoſt head-ſhaped, the calyxes villous, the leaves lanceolate oblong, the anthers ſharp-pointed. Caribees.

zeylanica. 4. CHIO. the branches of the axillary panicle oppoſite, flowers almoſt ſeſſile. ♄. Ceylon.

incraſſata. 5. CHIO. with panicles axillary trichotomous, all the flowers ſeparate, the anthers blunt. Guiana and Jamaica.

38. SYRINGA, *Lilac.*

Cor. 4-cleft. Capſ. 2-celled.

vulgaris. 1. SYR. with leaves ovate heart-ſhaped. *Common lilac.* ♄. Perſia.
- α *SYR. cærulea*, with blue flowers. *Blue lilac.*
- β *SYR. violacea*, with violet flowers. *Violet lilac.*
- γ *SYR. alba*, with white flowers. *White lilac.*

chinenſis. 2. SYR. with leaves ovate lanceolate. ♄. China.

perſica. 3. SYR. with leaves lanceolate. Perſia.
- α with leaves lanceolate entire.
- β *SYR. laciniata*, leaves pinnatifid.
- γ *SYR. cærulea*, with leaves ſimple, flowers blue.
- δ *SYR. alba;* leaves ſimple, flowers white.

ſuſſienſa. 4. SYR. with leaves ovate ſerrated and ternate. Japan.

39. DIALIUM.

Cor. 5-petaled. Cal. 0. Stam. on the higher ſide.

indicum. 1. DIAL. with a panicle ſimple and nodding. ♄. India.

guineenſis. 2. DIAL. with a panicle, more than doubly compound, and erect. Guinea.

40. PIMELEA.

Cal. none. Cor. 4-cleft. Stam. inſerted into the throat. The nut corticated and 1-celled.

linifolia. 1. PIM. with leaves linear-lanceolate, heads terminating involucred; corolla villous on the outſide. New Holland.

gnidia. 2. PIM. with leaves oblong-lanceolate acute, very ſmooth, corolla villous on the outſide. New Zealand. *Bankſia gnidia* of Forſter. *Paſſerina gnidia* of Lin. Suppl.

piloſa. 3. PIM. hairy, with leaves linear blunt. New Zealand. *Bankſia tomentoſa* of Forſter. *Bankſia piloſa, Paſſerina piloſa* of Lin. Suppl.

proſtrata. 4. PIM. hairy, leaves ovate ſeſſile fleſhy. New Zealand. *Bankſia proſtrata* of Forſter. *Paſſerina proſtrata* of Lin. Suppl.

41. ERANTHEMUM.

Cor. 5-cleft, tube thread-ſhaped. Anth. without the the tube. Stigma ſimple.

capenſe. 1. ER. with leaves lanceolate-ovate on footſtalks. Ethiopia.

anguſtifolium. 2. ER. with leaves linear remote acute-angled to the ſtem. Ethiopia.

parvifolium. 3. ER. with leaves ovate-linear imbricated. Cape of Good Hope.

ſalſoloides. 4. ER. ſhrubby, leaves fleſhy ſomewhat tapering linear very ſmooth, racemes axillary and the calyxes pubeſcent, tube bowed downwards.

42. FONTANESIA.

Cor. 2-petaled. Cal. 4-parted inferior. Capſ. membranaceous, not opening, 2-celled; cells contain one ſeed.

1. FONT. Syria. *phillyræoides.*

43. FRAXINUS, *the Aſh.*

Cal. none or 4-parted. Cor. none or 4-parted. Capſ. ſuperior, 2-celled, leafy above, compreſſed. Seeds ſolitary, pendulous. Some of the flowers have piſtils only.

* FRAX. with leaflets ſerrated, flowers deſtitute of calyx and corolla. *Common Aſh Tree.* There is a variety with pendulous branches, called *weeping aſh.* ♄. Flowers in IV. and V. and thrives beſt in calcareous ſoils on mountains. It is a very lofty and beautiful tree, its bark is of the colour of wood-aſhes, its buds are large and black. The flowers grow in looſe panicles piſtoſtaminal, intermixed with piſtils ſometimes very numerous. The anthers are large, dark-purple. When theſe fall off, the leaves unfold themſelves. This is the lateſt of all our native trees of coming into leaf. The leaves are pinnate terminated by an odd one, ſerrated, ſometimes ſimple, very eaſily injured by froſt in autumn. The capſules ſoon fall. The ſeeds are flat. *excelſior.*

44. CIRCÆA, *Enchanter's nightſhade.*

Cor. 2-petaled. Cal. 2-leaved, ſuperior. Capſ. 2-celled. Seeds ſingle.

* 1. CIRC. with ſtem upright, leaves egg-ſhaped, edged with ſmall teeth, opaque, pubeſcent. *Common enchanter's nightſhade.* Grows in ſhady moiſt places. Europe and North America. ♃. Flowers in VI. and VII. The root creeps, and can ſcarcely be eradicated. The ſtem is erect, not much branched, having commonly but one raceme, which is terminal. The leaves when full grown are egg-ſhaped, faintly green, pubeſcent, opaque, ſomewhat repand, edged with ſmall teeth not ſerrated. The calyx not membranaceous. *lutetiana.*

* 2. CIRC. with a ſtem aſcending, leaves heart-ſhaped, ſerrated, and gloſſy, the calyx membranaceous. *Mountain enchanter's nightſhade.* Grows in ſhady moiſt places in mountains and rocks; in Lancaſhire, Weſtmorland, and Cumberland, at the foot of the mountains; about Loch Broom, Roſsſhire, and in Hamilton Wood, Scotland; and in the cold countries of Europe. ♃. Flowers in VII. and VIII. The root creeps, and the whole plant is leſs pubeſcent than the former. The ſtalk is ſhort, ſpreading at the baſe; the knee-joints red, the leaves tender, pale-green, gloſſy, heart-ſhaped, tooth-ſerrated, the leaf-ſtalks edged with a membrane. *alpina.*

45. VERONICA, *Speedwell.*

Cor. 4-cleft, wheel-ſhaped, the loweſt ſegment leaſt. Capſ. ſuperior, 2 celled.

Subdiv. 1. *Spiked.* BRITISH SPECIES.

* 1. VER. with a terminating ſpike the leaves oppoſite, bluntiſh, notched-ſerrulated, very entire at the extremity; the ſtalk aſcending, very ſimple. *Spiked ſpeedwell.* Grows in meadows and calcareous ſoils. On Newmarket heath and Gogmagog hills; on Cavenham heath near Bury; and near Penny-bridge, Lancaſhire. Flowers in VII. and often continues in flower till IX. The ſtalks are ſeven inches high, aſcending, ſimple, *ſpicata.*

round, leafy, ſomewhat woody, pubeſcent. The leaves oppoſite, commonly blunt, ſometimes a little ſharp-pointed, crenate-ſerrulated, entire at the extremity, hairy. Spike erect, many flowered. The flowers are of a deep blue, the throat of the corolla bearded. This ſpecies varies, with leaves linear and almoſt entire.

hybrida. * 2. VER. with ſpikes terminating, leaves oppoſite, elliptical, blunt, unequally crenate-ſerrated, the ſtalk ſomewhat erect. *Welſh ſpeedwell.* Grows on the ſides of mountains, but is very rare. It is found on Craig Wreidhin, Montgomeryſhire, and at Cartmel Wells, Lancaſhire. ♃. Flowers in VII. Nearly allied to the preceding, but twice as large in every part; the ſpikes generally numerous; the ſtalk and leaves more rugged above, and more deeply ſerrated: the leaf-ſtalk in the former is oftener found winged.

officinalis. * 3. VER. with lateral ſpikes on footſtalks, leaves oppoſite, ſcabrous, ſtalk procumbent. Europe. *Male* or *common ſpeedwell.* Grows commonly in barren ſandy paſtures. Flowers in V. and VI. The ſtalk has wide ſpreading branches; the leaves pale, a little ſtiff and roughiſh; the ſpikes axillary, ſolitary, on footſtalks, many-flowered, hairy, longer than the ſtalk; the flowers of a faint blue, with deeper veins.

Subdiv. 2. *Corymb racemous.*

ſaxatilis. * 4. VER. with a corymb terminating and bearing few flowers, the leaves elliptical, ſtalks ſpreading, capſule egg-ſhaped, 4-valved. *Blue rock ſpeedwell.* Grows on Ben Lawers, Perthſhire; and on the Alps. ♃. Flowers in VII. The ſtalks decumbent at the baſe, ſomewhat ſhrubby branched, the branches aſcending, ſimple, leafy; the leaves oppoſite, ſmall, elliptical, or elliptical-lanceolate, blunt, very entire, ſometimes but ſeldom ſerrated on the middle, light green, ſomewhat fleſhy, ſmooth, crowded at the baſe of the branches, more diſtant above; the flowers three or five in a terminating corymb, on footſtalks which are three or four times longer than the floral leaf or bractea, large, beautiful, of a blue-violet hue, the throat red. The calyx 4-cleft, almoſt equal, blunt, pubeſcent; the capſule pubeſcent, egg-ſhaped, 4-valved. It differs from the *fruticuloſa* in having generally broader leaves, ſtalks more ſpreading, in having a larger corolla, which is blue and not fleſh-coloured; and is ſtill more diſtinguiſhed by having longer footſtalks, fewer, and in being corymbous, not ſpiked.

fruticuloſa. * 5. VER. with a corymb terminating many-flowered, ſpiked, leaves elliptico-lanceolate, ſtalks erect, capſule egg-ſhaped, 4-valved. *Fleſh-coloured ſhrubby ſpeedwell.* Grows in Cruachan, Argyleſhire, and Ben Lawers, Perthſhire. Alſo on the Alps Pyrenees. ♃. Flowers in VII. The ſtalks are branched at the baſe, twiſted, lying upon the ground, a little ſhrubby, afterwards becoming erect, ſtiff, and ſtraight, ſeven inches long, ſimple leafy, round, a little pubeſcent. The leaves are oppoſite, elliptico-lanceolate, moſt commonly entire, ſometimes ſerrated, pale green, hollowiſh, and a little ſhaggy on the edge. The corymb is terminating, pubeſcent, a little ſpiked, and afterwards extended into a long leafy raceme. The flower-bearing footſtalks are of the ſame length with the bracteas, and thoſe which bear the fruit half as long again. The calyx is four-cleft, almoſt equal, blunt, ſhaggy. The corolla of a pale fleſh colour, with purple lines leſs than the preceding. The capſule egg-ſhaped, ſhaggy, four-valved.

alpina. * 6. VER. with a corymb terminating, a little ſpiked, leaves oval, ſmooth, ſlightly ſerrated, the calyx ciliate, ſtem aſcending and ſimple. *Alpine ſpeedwell.* Grows on wet ſpongy places, on mountains about Garway-moor, on Ben Nevis, and on the mountains of Badenoch, and on the Alps. ♃. Flowers in VII. and VIII. The ſtalks are a finger long, aſcending, ſimple, leafy, rooting at the baſe. The leaves oppoſite, elliptic-oval, thin, ſlightly ſhaggy, often entire, ſometimes notched, commonly three-nerved, pale-green, ſhining. The flowers are ſmall, blue, on a ſmall corymb, which afterwards extends into a ſhort raceme. The fruitſtalks are of the ſame proportion as in the preceding. The calyx is nearly equal, bluntiſh, ciliate, and often ſhaggy. The hairs jointed like the pubeſcence of the leaves. The capſule elliptical, emarginate, two-valved, pubeſcent, terminated with a ſhort perſiſting ſtyle.

ſerpyllifolia. * 7. VER. with a raceme terminating approaching to a ſpike; the leaves oval, a little notched, three-nerved, ſmooth; the capſule obcordate, ſhorter than the ſtyle. Europe and N. America.

β VER. *Humifuſa. Smooth Speedwell*, or *Paul's Betony.*

The firſt variety grows in meadows and paſtures; the ſecond on the higheſt mountains in Scotland, under wet ſhady rocks. ♃. Flowers in V. and VI. The plant is ſhining, ſomewhat fleſhy; in moiſt places ſmooth, in mountains rough-haired. The ſtalks decumbent and taking root, leafy; the branches commonly erect. The leaves on footſtalks oval or roundiſh, more or leſs crenated, three-nerved. The raceme terminating, long, looſe, many-flowered, oftener pubeſcent. The bracteas elliptical. The ſegments of the calyx are obovate-elliptical, ſmoothiſh, equal. The corolla of a blue or fleſh-coloured whitiſh colour, with violet ſtreaks. The capſule obcordate, double, of the length of the ſtyle or a little ſhorter.

The variety called *humifuſa*, has a procumbent ſtem with a ſhorter raceme.

beccabunga. * 8. VER. with racemes lateral, leaves elliptical and plane, and ſtalk creeping. *Brooklime.* Europe. Grows frequently in rivulets and ditches containing clear water. ♃. Flowers in VI. and VII. The plant is very ſmooth and gloſſy. The ſtalks decumbent or ſwimming, columnate. The leaves on ſhort footſtalks, elliptical, broad pointed, indiſtinctly ſerrated, of a beautiful green, ſomewhat fleſhy. The racemes axillary, oppoſite, on footſtalks many-flowered. The bracteas linear lanceolate, ſhorter than the fruitſtalks. The ſegments of the calyx ſharp-pointed. The corolla blue. The capſule almoſt double.

anagallis. * 9. VER. with racemes lateral and oppoſite, leaves lanceolate and ſerrated, ſtalk erect. *Water ſpeedwell*, or *long-leaved brooklime.* Europe and the Levant. Grows in ditches and marſhes.. ♃. Flowers in VII. It is diſtinguiſhed from the former by leaves lanceolate, longer, a little ovate or elliptical, and by an erect ſtalk. The racemes are longer and more pointed.

ſcutellata. * 10. VER. with racemes lateral and alternate, fruit-ſtalklets divaricate, leaves linear and denticulate. *Narrow-leaved marſh ſpeedwell.* Europe. Grows in marſhes and places that have been overflowed with water

water in a ſandy ſoil. ♃. Flowers in VII. and VIII. The ſtalks are feeble and have ſpreading branches. The leaves are linear lanceolate, ſeldom very entire, often dentletted, ſometimes ſerrated. The racemes are axillary, ſolitary, alternate, never oppoſite, looſe, divaricate, varying in length. The flowers are ſmall, of a blue fleſh colour, ſtreaked. The capſule approaching to double. Sometimes its ſtalk and leaves are pubeſcent.

montana. * 11. VER. with racemes lateral, long, thread-ſhaped, few-flowered; leaves ovate, ſerrated, on footſtalks, the ſtalk hairy on all ſides. *Mountain ſpeedwell*, or *mountain madwort.* Italy, Switzerland, and Germany. Grows in woods, in moiſt ſhady places, and beſide hedges in a calcareous ſoil. It is found in Charlton wood, Kent; in the Devil's ditch, Newmarket heath; at Linton, in Gamlingay park and Kingſton wood, near Worceſter, near Virginia water, about Kirkſtal abbey near Leeds, at Shortwood, Pucklechurch, Glouceſterſhire; and is very common in Yorkſhire. Alſo in the woods at Dunglaſs, near the river, Berwickſhire, and on the banks of the Eſk near Roſlin, Midlothian. ♃. Flowers in V. and VI. The root is fibrous. The ſtalks decumbent, feeble, hairy on all ſides, leafy. The leaves grow on footſtalks ovate, ſerrated with teeth of unequal ſize, ſlender, gloſſy, ſomewhat hairy. The racemes axillary, alternate, flaccid, few-flowered. The flowers light blue, diverſified with purple. The capſule circular, double, flat, acutely edged, ciliated.

chamædrys. * 12. VER. with lateral racemes, leaves ovate, ſeſſile, wrinkled, inciſed, ſerrated; the ſtalk hairy on two ſides. Europe. *Germander ſpeedwell*, or *wild germander.* Grows in meadows and paſtures, and under hedges, and is very common. ♃. Flowers in V. The ſtalks form an acute angle with the branches, are decumbent, and have a longitudinal line of hair on each ſide. The leaves are ſeſſile, ovate, ſerrated with unequal teeth, the edge, very hairy. The racemes are axillary, oppoſite, many-flowered, longer than the ſtalk. The flowers are large, beautiful, of a fine blue colour in the inſide, and fleſh-coloured on the outſide. The capſule is obcordate and ſmall.

Subdiv. 3. *Flowers Solitary.*

agreſtis. * 13. VER. with flowers ſolitary, leaves ovate, inciſed, ſerrated, ſhorter than the flower-ſtalk, ſtalk procumbent, ſeeds pitcher-ſhaped. *Procumbent ſpeedwell*, or *germander chickweed.* Grows in cultivated grounds, and among rubbiſh. ⊙. Flowers from IV. to IX. The ſtalks are ſeveral, procumbent, ſimple towards the top. The leaves ſcattered, almoſt ſeſſile, heartſhaped-ovate, widely ſerrated. Footſtalks axillary, ſolitary, one-flowered, of the length of the leaves or longer; the fruitſtalks curved downwards. The ſegments of the calyx ovate-lanceolate, broad at the points, ciliated. The corolla ſmall, and of a bright blue colour. The capſule double, ſwelling in the middle, rough-haired. The ſeeds ſixfold on each ſide, dimpled and wrinkled.

arvenſis. * 14. VER. with flowers ſolitary, leaves ovate, inciſed-ſerrated; flowers lanceolate, longer than the leafſtalk, ſtalk erect. Europe. *Wall ſpeedwell*, or *ſpeedwell chickweed.* Grows frequently in dry cultivated grounds, on walls, and among rubbiſh. ⊙. Flowers in V. The ſtalk is often branchy at the baſe, erect, ſeven inches high. The flowers are ſeſſile, iſſuing from the axils of lanceolate bracteas, which are quite diſſimilar to the leaves. For which reaſon, this ſpecies might have been arranged among the *Spiked Veronicas*, were it not for its affinity to the preceding and following ſpecies. The ſegments of the calyx are lanceolate, unequal and acute. The corolla is pale blue. The capſule is ſeſſile, erect, obcordate, flattened. The ſeeds are elliptical, plane and furrowed in the middle.

hederifolia. * 15. VER. with flowers ſolitary, leaves heart-ſhaped, plane five-lobed, the ſegments of the calyx heart-ſhaped, the ſeeds pitcher-ſhaped. Europe. *Ivy-leaved ſpeedwell*, or *ſmall henbit.* Grows in cultivated grounds and among rubbiſh. ⊙. Flowers from IV. to IX. The ſtalks are procumbent and unbranched. The leaves alternate on longer footſtalks, kidney-heart-ſhaped, five-lobed, the central lobe being largeſt. The fruitſtalks are longer than the leaves. The ſegments of the calyx are widely heart-ſhaped, acute, ciliate. The corolla is pale blue. The capſule is double, and ſwelling in the middle. The ſeeds are large, two on each ſide, dimpled, wrinkled.

triphyllos. * 16. VER. with ſolitary flowers, ſuperior leaves divided to the baſe, fruitſtalks longer than the calyx, ſeeds flattened. Europe. *Fingered ſpeedwell*, or *upright chickweed.* Grows in ſandy cultivated grounds, but rare. It is found on the borders of Norfolk and Suffolk, near Bury, and near Roſſington, Yorkſhire. ⊙. Flowers in IV. The ſtalk commonly branchy, flexuoſe. The loweſt leaves entire, ſeldom lobed, the higher almoſt ſeſſile, three-parted, the central lobe largeſt, obovate, the lateral lobes commonly two-parted. The flowers on long footſtalks and erect, as well as the fruit. The ſegments of the calyx are obovate-oblong, blunt, ciliate, unequal. The corolla a deep blue. The capſule circular emarginate, flattened. The ſeeds numerous, obovate-flattened. The plant becomes blackiſh when dried.

verna. * 17. VER. with flowers ſolitary, leaves deeply divided, the fruitſtalks ſhorter than the calyx; the ſtalk ſtiff and ſtraight. Germany, Sweden, and Spain. *Vernal ſpeedwell.* Grows in dry ſandy cultivated fields. Is found near Bury, and at Foulden, Norfolk. ⊙. Flowers in IV. It reſembles the *arvenſis* in its habit, in the figure of its ſeeds and ſituation of its flowers; but is of a pale colour, and never grows blackiſh when dried. It is ſufficiently diſtinguiſhed by leaves deeply divided, by the central lobe being obovate; the floral leaves are three-parted. The ſtalk is ſcarcely a finger length, ſtiff and ſtraight, often branchy. The ſegments of the calyx are lanceolate acute, nearly equal. The capſule obcordate flattened.

Subdiv. 1. *Spiked.* FOREIGN SPECIES.

ſibirica. 18. VER. with ſpikes terminating, leaves in ſevens verticilled, ſtem a little ſhaggy. Dauria. ♃.

virginica. 19. VER. with ſpikes terminating, leaves in fours or fives. Virginia and Japan.

ſpuria. 20. VER. with ſpikes terminating, leaves lanceolate, equally ſerrated. South of Europe, of Siberia, and Thuringia. ♃.

maritima. 21. VER. with ſpikes terminating, leaves nearly heart-lanceolate, unequally ſerrated. Var. with broader leaves. European ſea-coaſts.

22. VER.

longifolia. 22. VER. with ſpikes terminating, leaves lanceolate ſharp-pointed ſerrated. Tartary, Auſtria, and Sweden. 4.

incana. 23. VER. with ſpikes terminating, leaves oppoſite, crenated blunt, ſtem erect, downy. Native of the Ukrain, Samara. 4. *Obſ.* It varies with a white flower.

pinnata. 24. VER. with ſpike terminating, leaves linear, pinnatifid, bunched; ſegments thread-ſhaped, forming an obtuſe angle. Siberia. 4.

laciniata. 25. VER. with a raceme approaching to a ſpike, and terminating, leaves pinnatifid, jagged. Siberia. 4.

inciſa. 26. VER. with ſpikes terminating, leaves lanceolate, cut into irregular ſegments, pinnatifid, ſmooth, Siberia. 4.

catarractæ. 27. VER. with racemes terminating flexuoſe, ſtem ſomewhat ſhrubby, leaves lanceolate, ſerrated. New Zealand. ♄.

elliptica. 28. VER. with racemes lateral, ſtem ſhrubby, leaves elliptical, very entire. New Zealand. ♄.

macrocarpa. 29. VER. with racemes almoſt terminating erect, leaves lanceolate, very entire, ſmooth, plain, ſtem ſhrubby. New Zealand. ♄.

ſalicifolia. 30. VER. with racemes lateral nodding, leaves lanceolate, very entire, ſtem ſhrubby. New Zealand. ♄.

parviflora. 31. VER. with racemes almoſt terminating, leaves linear-lanceolate, very entire, ſmooth, dagger-pointed, ſtem ſhrubby. New Zealand. ♄.

allionii. 32. VER. with ſpikes lateral, on footſtalks, leaves oppoſite, roundiſh, gloſſy, rigid; ſtalk ſmooth, creeping. The Alps. ♄.

decuſſata. 33. VER. with racemes axillary, few-flowered, leaves elliptical, perennial, very entire; ſtem ſhrubby. Falkland iſlands. ♄.

Subdiv. 2. *Corymb-racemous.*

aphylla. 34. VER. with a corymb terminating, and naked ſtem.
α *VER. Kamtchatka*, rough-haired, raceme three-flowered, long, lateral, and without leaves; leaves ovate, oblong, ſerrated, rough-haired, hairs jointed. The Alps and north of Aſia.

bellidoides. 35. VER. with a corymb terminating, ſtem aſcending, two-leaved; leaves obtuſe, crenated; calyx ſhaggy. Pyrenees and Alps of Switzerland. ♄.

gentianoides. 36. VER. with a corymb terminating, ſtem aſcending, leaves lanceolate, cartilaginous on the edge, the lower leaves connate, ſheathing. Cappadocia and Armenia. 4.

ponæ. 37. VER. with a raceme terminating, ſtem very little branched, leaves heart-ovate, dented, ſeſſile. Var. 1. *Pumila*, with unbranched ſtem, terminating with a bunch of flowers; leaves ovate, acute, dented. Native of the Pyrenees, the var. *pumila* on the top of the Piedmonteſe Alps.

integrifolia. 38. VER. with a corymb terminating, leaves oppoſite, elliptical, blunt, very entire, calyxes hairy. The Alps. 4.

tenella. 39. VER. with leaves oblong, crenated, ſtems creeping, calyxes villous. Pyrenees and Piedmonteſe Alps. 4.

teucrium. 40. VER. with racemes lateral, and very long, leaves ovate, wrinkly, dented, bluntiſh ſtalks, procumbent. *Obſ.* This is a doubtful ſpecies.

piloſa. 41. VER. with racemes axillary, leaves ovate, blunt, plaited, deeply dented, ſtalk procumbent, hairy on both ſides. Auſtria. *Obſ.* Dr Smith ſuſpects that this is only a variety of the latifolia.

proſtrata. 42. VER. with racemes lateral, leaves oblong, ovate, and ſerrated, ſtalks procumbent. Germany, Italy, and Switzerland. 4.

pectinata. 43. VER. with racemes lateral, leafy, leaves oblong, comblike-ſerrated, ſtems procumbent. Conſtantinople.

orientalis. 44. VER. with racemes lateral, leaves pinnatifid, ſmooth, acute, tapering at the baſe; the calyxes unequal, the footſtalks capillary, and longer than the bractea. Armenia. 4.

multifida. 45. VER. with racemes lateral, leaves many-parted, ſegments pinnatifid, lobes decurrent, footſtalks ſhort, calyx very ſmooth, ſtalk villous. Siberia. 4.

auſtriaca. 46. VER. with racemes lateral; leaves a little hairy, linear, pinnatifid, loweſt ſegments longer; the calyxes a little hairy, the footſtalks ſhorter than the bractea. Auſtria, Sileſia, and Carniola. 4.

taurica. 47. VER. with racemes lateral, leaves a little hairy, linear, undivided, and pinnatifid, denticulate; footſtalks longer than the bractea, the calyx four-cleft, ſmooth. Tauria. 4.

verticiſolia. 48. VER. with racemes lateral, leaves heart-ſhaped, ſeſſile, ſharply ſerrated, ſharp-pointed, ſtem ſtiff and ſtraight, the leaflets of the calyx in fours. Switzerland, Bithynia, Auſtria, and Bavaria. 4.

latifolia. 49. VER. with racemes lateral, leaves heart-ſhaped, ſeſſile, wrinkled, bluntly ſerrated, ſtem ſtiff and ſtraight, leaflets of the calyx in fives. Auſtria and Switzerland. 4.

paniculata. 50. VER. with racemes lateral and very long, leaves lanceolate, in threes, ſerrated, ſtem aſcending. Tartary and Bohemia. *Veronica dentata* of Schmidt. 4.

Subdiv. 3. *Fruitſtalks bearing one Flower.*

biloba. 51. VER. with flowers ſolitary, leaves heart-lanceolate, dented, the ſegments of the calyx equal, ovate, ſharp pointed, three-nerved. Cappadocia. ⊙.

filiformis. 52. VER. with flowers ſolitary, leaves heart-ſhaped, crenated, ſhorter than the fruitſtalk, ſegments of the calyx lanceolate. Levant. ⊙

digitata. 53. VER. with flowers ſolitary, ſeſſile, all the leaves finger-parted, ſtem ſtiff and ſtraight. Bohemia, Montpelier, and Spain. ⊙

aſinifolia. 54. VER. with flowers on footſtalks ſolitary, leaves ovate, ſmooth, crenated, ſtem erect, a little hairy.
α *VER. romana* of Allionius and Schmidt. Warm climes of Europe. ⊙

peregrina. 55. VER. with flowers ſeſſile and ſolitary; leaves lanceolate-linear, ſmooth, blunt, very entire, ſtem erect. North of Europe. ⊙

bellardi. 56. VER. with flowers ſolitary, on footſtalks, leaves linear, very entire, rough haired, longer than the flower, ſtalk very little branched, erect. Piedmont. ⊙

marilandica. 57. VER. with flowers ſolitary, ſeſſile, leaves linear, ſtems with ſpreading branches. Virginia.

45. PÆDEROTA.

Cor. ringent, four-cleft, the throat naked. Cal. 5-parted. Capſ. 2-celled.

ageria. 1. PÆD. with leaves ſharply pointed, helmet of the corollas two-cleft. *Pœderota lutea* of Lin. Suppl. Carniola and Italy. 4.

bonarata. 2. PÆD. with leaves roundiſh-ovate, the helmet of the corollas entire. Alps. 4. *Pœderota Cærulea* of Linn. Suppl.

3. PÆD.

minimus. 3. Pæd. with leaves oblong, entire, oppoſite, flowers axillary, oppoſite, teeth of the calyx hairy within. India.

46. Wulfenia.

Cor. ringent, upper lip ſhort, entire; the inferior three-parted; throat bearded. Cal. 5-parted. Capſ. 2-celled.

carinthiaca. 1. Wulf. *Pœderota Wulfenii* of Lamarck. *Carinthian Wulfenia.* Higheſt mountains of Carinthia. 4

47. Cyrtandra.

Cor. five-cleft, irregular. Cal. five-dented, almoſt 2-lipped. Stamens four, two of them barren. Berry 2-celled.

liſtora. 1. Cyrt. with fruitſtalks ſomewhat branched, leaves elliptical, almoſt quite entire, ſmooth. Otaheite.

cymoſa. 2. Cyrt. with fruitſtalks nearly cymous, leaves ovate, crenated, oblique at the baſe, pubeſcent beneath. Tanna.

48. Justicia.

Cal. ſimple, ſometimes double. Cor. of one petal, irregular. Capſ. burſting by means of an elaſtic claw, the partition oppoſite, and adhering to the valves.

Subdiv. 1. *Calyx double, one anther.*

faſtuoſa. 1. Ju. with thyrſes terminating, pointing one way, leaves lance-elliptical. Tranquebar. ♄

Forſkælei. 2. Ju. with thyrſes axillary, terminating, leaves ovate, ſharp-pointed. Arabia Felix and India. ♄. *Juſticia paniculata* of Forſkael.

purpurea. 3. Ju. with ſpikes axillary, and terminating, bracteas lanceolate, ſmooth, branches pubeſcent. China.

verticillaris. 4. Ju. villous, with flowers axillary, verticilled, exterior calyxes awnleſs, leaves ovate. Cape of Good Hope.

ariſtata. 5. Ju. villous, with flowers axillary and verticilled, exterior calyxes awned, leaves ovate. Cape of Good Hope.

chinenſis. 6. Ju. with fruitſtalks axillary, verticilled, three-cleft, bracteas ovate, dagger-pointed, coloured at the baſe. China and Arabia Felix.

triflora. 7. Ju. with fruitſtalks axillary, long, three-flowered, bracteas linear-lanceolate. Arabia Felix.

Subdiv. 2. *Calyx double, anthers two.*

ſulcata. 8. Ju. with ſpikes terminating, flowers verticilled, leaves ovate, heart-ſhaped. Arabia Felix.

bicalyculata. 9. Ju. with panicles axillary and dichotomous. *J. ligulata* of Lamarck. *Dianthera Malabarica* of Lin. Suppl. *Dianthera bicalyculata* of Retz. *Dianthera paniculata* of Forſkael. *Juſticia Malabarica* of Aiton. Malabar and Arabia Felix. ☉

bivalvis. 10. Ju. with fruitſtalks axillary, three-cleft, fruitſtalklets lateral, two-flowered, bracteas ovate, awned, nerved. Arabia and India. ♄

falcata. 12. Ju. with flowers axillary, nearly ſeſſile, leaves ovate-lanceolate. Mauritius. ♄

Subdiv. 3. *Calyx ſingle, corollas 2-lipped, lips undivided.*

ſexangularis. 13. Ju. with fruitſtalks bearing three flowers, bracteas wedge-ſhaped, leaves ovate, branches ſix-angled. Vera Cruz, and Jamaica. ☉

ſcorpioides. 14. Ju. with ſpikes axillary, arched downwards. leaves lanceolate-ovate, ſhaggy, ſeſſile. Vera Cruz. ♄

gangetica. 15. Ju. with racemes terminating, axillary and ſimple, flowers alternate, pointing one way, bracteas indiſtinct. India.

aſſurgens. 16. Ju. with ſpikes axillary, terminating, branched, flowers alternate, bracteas linear. Jamaica and Santa Cruz.

Subdiv. 4. *Calyx ſingle, corollas 2-lipped, lips divided. One anther.*

acaulis. 17. Ju. ſtemleſs, leaves crenated, veins villous beneath. Tranquebar 4.

Var. 1. with leaves lyre-pinnatifid, veins ſmooth. *Obſ.* It is doubtful whether the var. 1. be not a diſtinct ſpecies.

hiſpida. 18. Ju. with fruitſtalks terminating, many-flowered, ſegments of the calyx and bracteas linear awl-ſhaped, ciliated, leaves oblong-lanceolate, branches hiſpid-pubeſcent. Sierra Leona. ♄

ecbolium. 19. Ju. with ſpikes terminating, four-cornered, bracteas ovate, imbricated, ciliated, dagger-pointed; the helmet of the corollas linear, and bent back. Arabia, Malabar, and Ceylon. ♄. *Juſticia viridis* of Forſkael.

tetragona. 20. Ju. with ſpikes terminating, four-cornered; bracteas ovate, imbricated, keel-ſhaped, ciliated; leaves crenate and ſmooth. Cayenne. ♄

coccinea. 21. Ju. with ſpikes terminating, leaves and bracteas elliptical, bare on the edge, the helmet of the corollas lanceolate, bent back at the apex. Cayenne. ♄

pulcherrima. 22. Ju. with ſpikes terminating and axillary, bracteas ovate, imbricated, ciliated, and awnleſs, helmet of the corollas lanceolate, erect. South America. ♄

carthagined. 23. Ju. with ſpikes axillary, terminating four-cornered, bracteas oblong, imbricated, ciliated. Carthagena and Martinico.

hirſuta. 24. Ju. with ſpikes axillary, terminating four-cornered, bracteas ovate, imbricated, hirſute, leaves dented. Java.

ſpheroſperma. 25. Ju. with ſpikes axillary, oppoſite, double on each ſide, bracteas linear, lengthened, ſeeds globular, and ſhining. Caribbees.

gendaruſſa. 26. Ju. with ſpikes terminating, leafy, flowers verticilled, leaves lanceolate, lengthened. Ceylon, Java, and Malabar. ♄

procumbens. 27. Ju. with ſpikes axillary, terminating, calyxes of four ſegments, ciliated, bracteas of the length of the calyx, leaves lanceolate. Ceylon. 4

diffuſa. 28. Ju. with ſpikes axillary and terminating, calyxes of four ſegments, ſmooth, bracteas ſhorter than the calyx, leaves elliptical. India. ♄

echioides. 29. Ju. with ſpikes axillary, oppoſite, pointing one waya, ſcending, linear, rough with hair. Malabar and Ceylon. 4.

longifolia. 30. Ju. with ſpikes axillary, double, oppoſite, pointing one way, leaves lanceolate, long. Mahe.

latifolia. 31. Ju. with ſpikes terminating, a little branched, inferior leaves verticilled, leaves ovate, ſharp-pointed. Eaſt Indies. ♄.

picta. 32. Ju. with racemes axillary, and terminating, flowers verticilled, leaves ovate and coloured. Aſia. ♄.

nitida. 33. Ju. with racemes terminating, a little branched, flowers commonly verticilled, leaves lance-elliptical,

cal, tapering. Martinico, Santa Cruz, and Guadaloupe. ♄.

variegata. 34. Ju. with ſpikes terminating, axillary ſimple, flowers oppoſite, calyxes hiſpid, leaves ovate and ſeſſile.

ſtricta. 35. Ju. with racemes axillary, two-parted, flowers pointing one way, leaves lance-elliptical, filaments ſmooth. Malabar.

paniculata. 36. Ju. with panicles axillary, terminating, dichotomous, flowers pointing one way, filaments hirſute, capſules flattened, leaves lanceolate. Eaſt Indies.

nutans. 37. Ju. with racemes terminating, nodding at the apex, flowers reverſed, leaves dented. Java.

naſuta. 38. Ju. with fruitſtalks axillary, and dichotomous, leaves elliptical, and very entire. India. ♄.

ſcandens. 39. Ju. with fruitſtalks axillary, trichotomous, obtuſe angled, leaves ovate, ſharp-pointed, ſomewhat repand, the branches villous. Malabar. ♄.

ciliaris. 40. Ju. with flowers axillary, oppoſite, leaves lanceolate. ☉.

Subdiv. 5. *Calyx ſingle, corollas two-lipped, the lips divided. Anthers two.*

ſecunda. 41. Ju. with racemes terminating, compound racemelets pointing one way, leaves ovate-lanceolate, ſharp-pointed. Trinity iſland.

debilis. 42. Ju. with ſpikes axillary and terminating, bracteas ovate, imbricated, and ciliated. Arabia Felix. ♄.

violaeea. 43. Ju. with ſpikes terminating, bracteas lanceolate, imbricated, ciliated, leaves lanceolate. Arabia Felix. *Dianthera violacea* of Vahl. ♄

bracteolata. 44. Ju. with a raceme terminating, fruitſtalks three-flowered, leaves tapering oblong, ſtem four-cornered, edge ſcabrous. Caraccas. ♄.

rohrii. 45. Ju. with ſpikes terminating, compound, imbricated, pubeſcent, bracteas ovate, leaves elliptical, very entire. Cayenne.

polyſtachia. 46. Ju. with ſpikes axillary, oppoſite, pointing one way, bracteas ovate, hirſute, leaves lanceol-ovate. Cayenne.

retuſa. 47. Ju. with ſpikes terminating, bracteas obovate, commonly retuſe, imbricated, leaves ovate, ſharp-pointed. Santa Cruz.

flava. 48. Ju. with ſpikes terminating, flowers in pairs, bracteas lanceolated, blunt, leaves lanceol-oblong. Arabia Felix. ♄. *Dianthera flava* of Vahl. *D. Americana flava* of Forſkael.

americana. 49. Ju. with ſpikes axillary, flowers crowded, fruitſtalks long, alternate, leaves lanceolate. Virginia and Florida.

punctata. 50. Ju. with ſpikes terminating, flowers diſtant, commonly verticilled, bracteas lanceolate, ſharp-pointed, leaves lanceol-ovate. Arabia Felix. *Dianthera punctata* of Vahl. *D. Americana alba* of Forſkael.

euſtachiana. 51. Ju. with ſpikes axillary and terminating, flowers in pairs below, above ſolitary, bracteas wedge-ſhaped. St Euſtatius. ♄.

caracaſana 52. Ju. with ſpikes axillary and terminating, bracteas ſharp-pointed, ſhorter than the calyx, leaves ovate, ſharp-pointed, waved, pubeſcent. Caraccas. ♄.

pectoralis. 53. Ju. with a panicle terminating, dichotomous. St Domingo and Martinico. ♃.

comata. 54. Ju. with ſpikes terminating, thread-ſhaped, ſpikelet verticilled. Jamaica. ♃ *Dianthera comata.*

undulata. 55. Ju. with fruitſtalks terminating, umbelled, ſimple, three-cleft, leaves lanceolate, undulated. Java and Malabar.

frondoſa. 56. Ju. with umbels axillary, compound, on long footſtalks, bracteas obovate, rhomboid, blunt, ſmooth. Otaheite.

pubeſcens. 57. Ju. with fruitſtalks axillary, oppoſite, four-flowered, on fruitſtalklets, bracteas ovate, roundiſh, dagger-pointed, pubeſcent. Botany iſland. *Dianthera Cærulea* of Forſkael.

lævigata. 58. Ju. with fruitſtalks axillary, oppoſite, bearing three flowers on fruitſtalklets, bracteas oblong, dagger-pointed, pubeſcent. Java. ♄.

cuſpidata. 59. Ju. with fruitſtalks axillary, verticilled, bearing commonly three flowers on fruitſtalklets, bracteas wedge-ſhaped, awned, anthers double. Arabia Felix. *Dianthera Verticillata* of Forſkael.

lithoſperma. 60. Ju. with fruitſtalks axillary, verticilled, bearing one flower, bracteas linear-lanceolate, leaves oblong, ſcabrous. ♃.

mifolia. 61. Ju. with fruitſtalks axillary, two-flowered; leaves ovate, equal, bracteas awl-ſhaped. Eaſt Indies. ♄.

biflora. 62. Ju. with flowers axillary, ſolitary, and ſeſſile, leaves ovate and crenated. St Euſtatius. ♄.

ſeſſilis.

Subdiv. 6. *Calyx ſingle, corollas ringent; one anther.*

63. Ju. with ſpikes axillary, and oppoſite bracteas, ovate, acute, nerved. Ceylon. ♄. *Malabar Nut.*

adhatoda.

64. Ju. with ſpikes terminating, bracteas ovate, ſharp-pointed, vein-netted, coloured. India. ♄.

betonica.

65. Ju. with ſpikes axillary, terminating, and ſmooth, bracteas dorſal, pointing two ways, membranaceous at the edge. ♃. Ceylon.

repens.

66. Ju. with fruitſtalks axillary, ſolitary, bearing one flower, alternate, leaves oblong, ſtalk creeping. Ceylon. *Obſ.* The whole plant is of a blood colour.

ſanguinolenta.

Subdiv. 7. *Calyx ſingle, corollas ringent; two anthers.*

67. Ju. with ſpikes axillary and terminating, leaves ovate and acute. Lima. ♃.

peruviana.

68. Ju. with fruitſtalks axillary, alternate, commonly bearing four flowers on fruitſtalklets, bracteas lanceolate, ciliated. Japan. ☉. *Dianthera Japonica* of Thunberg.

crinita.

69. Ju. with fruitſtalks axillary, uſually bearing three flowers, flowers ſeſſile, leaves oblong, blunt. Arabia Felix. ♄.

triſulca.

70. Ju. with fruitſtalks axillary, generally bearing one flower, leaves lanceolate, blunt. Canaries. ♄. *Jia.*

hyſopifolia.

71. Ju. with flowers axillary, ſolitary, almoſt ſeſſile, leaves ovate, ſharp-pointed. Caraccas. *Obſ.* It is uncertain whether this be a diſtinct ſpecies or a variety of the *peruviana.*

periplocifolia.

72. Ju. with fruitſtalks one-flowered, axillary, leaves lanceolate, rigid, acute. Cape of Good Hope. ♄.

orchioides.

73. Ju. with fruitſtalks axillary one-flowered, leaves oblong and dented. ♄. Madeira.

madurenſis

74. Ju. with flowers axillary, ſolitary, and ſeſſile, leaves obovate emarginate. Cape of Good Hope. ♄.

cuneata.

75. Ju. with flowers axillary, ſolitary, ſeſſile, leaves obovate, branches hoary. Tranquebar. ♄. *Juſticia rienſis. Parvifolia* of Lamarck.

tranquebarica.

76. Ju. with flowers axillary, ſeſſile, oppoſite, leaves roundiſh, branches ſmooth. Arabia Felix. *Dianthera Odora* of Forſkael.

odora.

Subdiv.

Subd. 8. *Calyx ſingle, corollas almoſt equal.*

infundibuliformis. 77. Ju. with ſpikes terminating, leaves lanceol-ovate, in fours. India. ♄.

ſinuata. 78. Ju. with fruitſtalks axillary, trifid, leaves linear, finu-pinnifid. Tanna. ♄. *J. longifolia* of Forſkael.

vineoides. 79. Ju. with fruitſtalks axillary, generally bearing one flower, leaves ovate, ſtalk unarmed. Madagaſcar. ♄.

ſpinoſa. 80. Ju. with fruitſtalks bearing one flower, leaves oblong, ſpikes axillary. South America. ♄.

Subdiv. 9. *Species indeterminate in the calyx and corolla.*

repanda. 81. Ju. ſhrubby, leaves ovate repand, fruitſtalks axillary, trifid. Tanna. ♄.

armata. 82. Ju. ſhrubby, prickly, leaves oblong emarginate, ſtiff like leather, gloſſy. Jamaica. ♄.

aciculariſ. 83. Ju. ſhrubby, branches ſpreading, thorny, thorns briſtle-ſhaped, flowers on footſtalks axillary and ſolitary. Jamaica. ♄.

parviflora. 84. Ju. with branches ſpreading, leaves ovate, entire, ſpikes pointing one way, bracteas lanceolate, anterior, winged. Calcutta. ♃.

remorſa. 85. Ju. with a ſtalk herbaceous, four-cornered, a little erect, leaves ovate-lanceolate, ſpikes ovate. Jamaica and Hiſpaniola. ♃.

japonica. 86. Ju. herbaceous, with leaves ovate and ſerrated, ſpikes terminating, bracteas briſtle-ſhaped, ſtem forming an acute angle. Japan.

lancea. 87. Ju. with flowers verticil-aggregate, leaves entire, lanceolate. Japan. ⊙.

reptans. 88. Ju. two-anthered, ſtalk herbaceous creeping, leaves blunt, ſpike terminating and undivided. St Domingo. ⊙.

humifuſa. 89. Ju. two-anthered, ſtalk herbaceous decumbent, leaves ovate and heart-ſhaped, ſpikes umbelled. Jamaica. ⊙.

49. Gratiola.

Cor. irregular, reverſed. Stam. two, barren. Capſ. two-celled. Calyx of ſeven ſegments, the two outer ſegments ſpreading.

officinalis. 1. Grat. with leaves lanceolate and ſerrated, flowers on footſtalks. South of Europe.
α *Grat. alpina.*

monnieria. 2. Grat. with leaves oblong entire, fruitſtalks bearing one flower, leaves longer, ſtem bending. Antilles. ♃.

repens. 3. Grat. with leaves ovate, ſtalk creeping, calyx five-leaved, ſtyle bifid. Jamaica.

rotundifolia. 4. Grat. with leaves ovate, three-nerved. Malabar.

lucida. 5. Grat. with a ſtalk branched, ſpreading, taking root, leaves heart-ovate, dented; fruitſtalks axillary, longer than the leaves. Malabar, Amboina, and China.

veronicifolia. 6. Grat. with a ſtalk creeping, leaves ovate-lanceolate acutely ſerrated, flowers terminating, oppoſite, calyx 5-leaved. India. ⊙.

hyſſopioides 7. Grat. with leaves lanceolate, ſomewhat ſerrated, ſhorter than the ſtem joint. Tranquebar. ⊙.

lobelioides. 8. Grat. with ſtem almoſt naked, ſtipulated, leaves oblong, very entire, panicle dichotomous, capſules a little globular. India. ⊙.

trifida. 9. Grat. with leaves linear lanceolate, in fours, dented at the apex, trifid, capſules hairy. Malabar. ⊙. *Gratiola chamædrifolia* of Lamarck.

virginica. 10. Grat. with leaves lanceolate, blunt, a little dented. Virginia.

peruviana. 11. Grat. with flowers almoſt ſeſſile. Peru.

grandiflora 12. Grat. with ſtalks decumbent, leaves ovate, ſerrated, fruitſtalks oppoſite, capſules awl-ſhaped. Tranquebar, Madras, Siam, Malacca.

oppoſitifolia. 13. Grat. with ſtem aſcending, leaves lanceolate, ſerrated, fruitſtalks oppoſite to the leaves. Tranquebar.

puſilla. 14. Grat. with ſtem very little branched, leaves ovate, notched, acute, fruitſtalks axillary, bearing one flower, longer than the leaves. India. ⊙.

50. Schwenkia.

Cor. nearly equal, throat plaited, glandular. Stamens three, barren. Capſ. 2-celled, with many ſeeds.

americana. 1. Schwenkia. Berbice. ♂.

51. Calceolaria.

Cor. ringent, inflated. Capſ. 2-celled, 2-valved. Cal. 4-parted, equal.

pinnata. 1. Calc. with leaves pinnated.
Var. with pinnas of the leaves fewer and broader. Peru. ⊙.

integrifolia 2. Calc. with leaves lanceolate, wrinkled, ſerrated, flowers panicled and terminating. Peru.

ovata. 3. Calc. with a branched ſtem, leaves ovate and crenated. Peru. ⊙. *Calceolaria dichotoma of* Lamarck. *C. integrifolia* of Lin. Suppl.

perfoliata. 4. Calc. with ſtem perfoliate, leaves ſagittate, villous on both ſides. New Grenada and Peru.

crenata. 5. Calc. with leaves ſeſſile oblong, acute, crenated; flowers cymous, terminating the ſtalk and branches. Peru.

roſmarinifolia. 6. Calc. with leaves linear, very entire, bent back at the edge, downy below, ſtem ſmooth. Peru.

fothergillii. 7. Calc. with leaves battledore-ſhaped, very entire, fruitſtalks ſcape-like, bearing one flower. Falkland iſlands. ♂.

plantaginea 8. Calc. with ſcapes bearing few flowers, leaves rhombous and ſerrated. *Calceol. biflora of* Lamarck. S. America near the Straits of Magellan. ♃.

nana. 9. Calc. with ſcapes bearing one flower, leaves ovate and very entire. *Calceol. uniflora of* Lamarck. S. America near the Straits of Magellan. ♃.

52. Baea.

Cor. ringent, tube very ſhort, upper lip plane, 3-dented, the lower lip plane and 2-lobed. Cal. 2-celled, 4-valved, contorted. Capſ. 5-parted, and equal.

magellanica 1. Baea. Near the Straits of Magellan. ♃.

53. Pinguicula, *Butterwort.*

Cor. ringent, ſpur-ſhaped. Cal. 2-lipped 5-cleft. Capſ. 1-cell.

luſitanica. * 1. Ping. with a blunt nectary ſhorter than the petal, the ſcape villous, the capſule globular. Synon. *Pinguic. villoſa. Viola paluſtris. Pale Butterwort.* It grows on the ſides of marſhes and bogs. ♃. Flowers in VI. and VII.

vulgaris. * 2. Ping. with a cylindrical nectary, acute, and of the length of the petal, the capſule ovate. *Common*

mon butterwort, or *Yorkſhire ſanicle*. Grows in ſpongy marſhes. Europe. ♃. Flowers in V. and VI.

The inhabitants of Lapland and of the north of Sweden, give to milk the conſiſtence of cream, by pouring it when warm from the cow upon the leaves of this plant. They then ſtrain it, and lay it aſide for two or three days, till it becomes a little acid. In this ſtate they are extremely fond of it.

grandiflora 3. PING. nectary awl-ſhaped, ſtraight, upper lip ſpreading, emarginate. Alps. ♃.

alpina. 4. PING. nectary awl-ſhaped, bent down, ſhorter than the petals. Lapland, Switzerland, and Auſtria. ♃.

villoſa. 5. PING. ſcape ſtiff ſtraight and pubeſcent; nectary very ſhort; leaves nerved. Lapland and Siberia. ♃.

54. UTRICULARIA.

The corolla is ringent and ſpur-ſhaped. The calyx has two equal ſegments. The capſule ſuperior and one-celled.

vulgaris. * 1. UTR. with a conical nectary, and a ſcape with few flowers. *Lentibularia* of Ray. *Common bladderwort*, or *hooded milfoil.* Grows in ſtagnant waters. Europe. ♃. Flowers in VI.

minor. * 2. UTR. with a nectary, keel-ſhaped, very ſhort and blunt. *Lentibularia minor* of Ray. *Leſs-hooded milfoil.* Grows in ditches and marſhes, but rarely. Europe ♃. Flowers in VI.

alpina. 3. UTR. with an awl-ſhaped nectary, leaves ovate and very entire. Martinico.

folioſa. 4. UTR. with a conical nectary, fruits drooping, rootlets without any bottle or bladder. S. America.

obtuſa. 5. UTR. with nectary bent inwards, blunt, ſomewhat emarginate. Jamaica.

ſubulata. 6. UTR. with awl-ſhaped nectary. Virginia. *Obſ.* The leaves are like hairs, the flowers white.

gibba. 7. UTR. with gibbous nectary. Virginia.

bifida. 8. UTR. with a ſcape naked and bifid. China.

capillacea. 9. UTR. ſcape naked, capillary, commonly bearing three nodding flowers, capſule awl-ſhaped. India.

cærulea. 10. UTR. with a naked ſcape, ſcales alternate, ſcattered, awl-ſhaped. Ceylon.

ſtellaris. 11. UTR. *verticillo utriculario bracteārum ciliari* Lin. Suppl. India.

55. GHINIA.

Cal. 5-awned. Cor. ringent, limb 5-cleft. Nut fleſhy, 4-celled. Seeds ſolitary.

ſpinoſa. 1. GHIN. with fruits having 4 ſpines or thorns, leaves ſmooth. *Verbena curaſſavica.* Antigua and the Caribbee iſlands. ⊙.

mutica. 2. GHIN. with fruits awnleſs, leaves downy. Guiana. ⊙.

56. VERBENA, *Vervain.*

Cor. funnel-ſhaped, almoſt equal, curved. Cal. with one dent, truncated. Seeds two or four naked.

Subdiv. 1. *Diandrous, two anthers, and two ſeeds.*

orubica. 1. VERB. with ſpikes very long and leafy. Oruba in North America.

indica. 2. VERB. ſpikes long, fleſhy, naked, leaves lanceolovate, obliquely dented, ſtalk poliſhed. Ceylon. ⊙.

jamaicenſis. 3. VERB. ſpikes fleſhy, naked, leaves battledore-ovate, ſerrated; ſtem rough with hair. Caribbees.

mutabilis. 4. VERB. ſpikes fleſhy, naked; leaves ovate, long at the baſe, dented, downy beneath, ſtalk ſhrubby. South America. ♄.

5. VERB. ſpikes looſe, calyxes alternate, priſmatic, truncated, awned, leaves ovate, blunt. Jamaica. ⊙. *priſmatica.*

6. VERB. ſpikes looſe, calyxes of the fruit turned downwards, rounded and double, hiſpid. Mexico. ♃. *mexicana.*

7. VERB. ſpikes ovate, leaves lanceolate ſerrate-plaited, ſtem ſhrubby. Jamaica. *ſtoechadifolia.*

Subdiv. 2. *Tetrandrous, or ſpecies with four ſtamens.*

8. VERB. ſpikes globular, leaves lanceolate, crenated, wrinkled; ſcabrous, ſtem ſhrubby. South America. ♄. *globiflora.*

9. VERB. ſpikes cylindrical, leaves rhomb-ovate crenated, ſtem erect. Java. *javanica.*

10. VERB. ſpikes capitate-conical, leaves wedge-ſhaped, dented; ſtalk creeping. Naples, Sicily, E. and W. Indies, and Virginia. ♃. *nodiflora.*

11. VERB. ſpikes faſcicled, leaves lanceolate, ſtem-claſping. Buenos Ayres. ♃. *bonarienſis.*

12. VERB. ſpikes long, ſharp-pointed; leaves haſtate. Canada. ♃. *haſtata.*

13. VERB. flowers panicled, leaves in threes, ſtem ſhrubby. Chili. ♄. *triphylla.*

14. VERB. calyxes fruit-bearing, roundiſh, inflated, ſeeds echinated. Caribbee iſlands. *lappulacea.*

15. VERB. the calyxes fruit-bearing, roundiſh, beaked-ſharp-pointed, ſeeds rounded, wrinkly. Arabia Felix. *forſkaelei.*

16. VERB. ſpikes thread-ſhaped, leaves undivided, lanceolate-ſerrated, ſeſſile. North America. ♃. *caroliniana.*

17. VERB. ſpikes panicled, leaves undivided, ovate, ſerrated, on footſtalks. Virginia and Canada. ♃. *urticifolia.*

18. VERB. ſpikes looſe, ſolitary, leaves trifid, inciſed. Virginia. ⊙. *aubletia.*

19. VERB. ſpikes thread-ſhaped, leaves multifid-laciniated, ſtems numerous. Canada and Virginia. *ſpuria.*

20. VERB. ſpikes thread-ſhaped, panicled, leaves multifid-laciniated, ſtem ſolitary. *Common vervain.* Europe. ⊙. *officinalis.*

21. VERB. ſpikes thread-ſhaped, ſolitary, leaves doubly-pinnatifid. *ſupina.*

57. LYCOPUS.

Cor. four-cleft, one ſegment emarginate. Stamens diſtant. Seeds four, retuſe.

* 1. LYC. with ſinuate-ſerrated leaves. *L. paluſtris glaber* of Ray. *Marrubium aquaticum* of Gerhard. *Water horehound*, or *gypſywort.* Banks of rivers and lakes, Europe. ♃. Flowers in VII. and VIII. *europæus.*

2. LYC. leaves pinnatifid-ſerrated at the baſe. Italy. *Obſ.* The ſtem is about the height of a man. *exaltatus.*

3. LYC. with leaves equally but ſlightly ſerrated. Virginia. ♃. *virginicus.*

58. AMETHYSTEA.

Cor. five-cleft, loweſt ſegment more ſpreading. Stamens near. Cal. almoſt bell-ſhaped. Seeds four, gibbous.

AMET. Siberia. ⊙. *cærulea.*

59. CUNILA.

Cor. ringent, upper lip erect, plane. Filaments two, without anthers. Seeds four.

1. CUN. with leaves linear, rolled back, downy beneath, flowers axillary, ſtem ſhrubby. New Holland. *fruticoſa.*

land. ♄. *Obſ.* This ſpecies is not probably well aſcertained.

capitata. 2. Cun. with leaves ovate, flowers terminating, umbel roundiſh. Siberia.

mariana. 3. Cun. with leaves ovate, ſerrated, corymbs terminating and dichotomous. Virginia. ♃.

pulegioides. 4. Cun. with leaves oblong, having two dents, flowers verticilled. Virginia and Canada. ⊙.

thymoides. 5. Cun. with leaves oval, very entire, flowers verticilled, ſtem four-cornered. Montpelier. ⊙.

60. Ziziphora.

Cor. ringent, upper lip bent back, entire. Cal. thread-ſhaped. Seeds four.

capitata. 1. Ziz. with faſcicles terminating, leaves ovate. Syria, Armenia, and Siberia. ⊙.

hiſpanica. 2. Ziz. with leaves ovate, flowers raceme-ſpiked, bracteas obovate, nerved, acute. Spain. ⊙.

tenuior. 3. Ziz. with flowers lateral, and leaves lanceolate. ⊙.

acinoides. 4. Ziz. with flowers lateral, leaves ovate. Siberia. ⊙.

61. Monarda.

Cor. unequal, upper lip linear, wrapping the filaments. Seeds four.

fiſtuloſa. 1. Mon. with leaves oblong-lanceolate, heart-ſhaped, villous, plane. Canada. ♃.

oblongata. 2. Mon. leaves oblong-lanceolate, rounded, and tapering at the baſe, villous, plane. N. America. ♃.

didyma. 3. Mon. with leaves ovate ſmooth, heads verticilled, flowers approaching to the didynamious, the ſtem acute-angled. Pennſylvania and New York. ♃.

rugoſa. 4. Mon. with leaves ovate-lanceolate, heart-ſhaped, ſmooth, wrinkled. North America. ♃.

clinopodia. 5. Mon. with leaves ovate-lanceolate, rounded at the baſe, unequal, ſmooth. Virginia. ♃. *Obſ.* This reſembles the preceding, but it bears leaves like *Clinopodium*. Its ſpike is not red but purple, and its leaves very ſmooth.

punctata. 6. Mon. with flowers verticilled, corollas dotted, bracteas coloured. *Obſ.* The corollas are yellow with purple dots.

ciliata. 7. Mon. with flowers verticilled, corollas longer than the involucre. Virginia.

62. Rosmarinus.

Cor. unequal, upper lip two-parted. Filaments long, curved, ſimple with a dent.

officinalis. 1. Rosm. with ſeſſile leaves. S. of Europe. ♄.

chilenſis. 2. Rosm. with leaves on footſtalks. Chili. ♄. *Obſ.* This plant has not been properly examined.

63. Salvia, *Sage.*

Cor. unequal. Filaments two, very ſhort, ſupporting two others fixed tranſverſely upon them almoſt by the middle. Seeds four, and naked.

pratenſis. * 1. Sal. with leaves heartſhaped oblong and crenated, the higheſt ſtem-claſping. The verticils commonly without leaves, the corollas glutinous in the upper lip. *Meadow Clary.* In dried meadows and under hedges, but rarely. Europe. ♃. Flowers in VII. This is a beautiful ſpecies, with large corollas of a blue violet colour, arched.

* 2. Salv. with leaves ſerrated, ſinuated and ſmoothiſh, the corollas narrower than the calyx. *Wild Engliſh clary.* Grows in meadows and paſtures. Europe. ♃. Flowers from VI. to X. *verbenacea.*

3. Salv. with leaves lanceolate, ſlightly dented, flowers on footſtalks. *Meliſſa perennis* of Forſkael. Egypt and the Canaries. ⊙. *Obſ.* The flowers are often tetrandrous. *ægyptiaca.*

4. Salv. with leaves linear-oblong, dent-pinnatifid, verticils two-flowered, ſegments of the calyx blunt. Cape of Good Hope. ♄. *dentata.*

5. Salv. with leaves linear-lanceolate, flowers with two piſtils, calyxes of two ſegments. Crete. ♄. *Obſ.* This ſeems to be a variety of the *Salvia officinalis*. *cretica.*

6. Salv. with root leaves lyrated, dented, the helmet of the corollas very ſhort. *lyrata.*

Var. 2. *Horminum virginicum*, with leaves wedge-oblong, ſtem with two leaves. N. America. ♃.

7. Salv. with leaves linear-lanceolate, ſlightly crenated, wrinkled, flowers verticil-ſpiked, calyxes downy. Mexico. ♃. *leucantha.*

8. Salv. with leaves linear, very entire, pubeſcent ſeſſile, flowers verticil-ſpiked, bracteas ovate, awl-pointed. Taurea. ♃. This is a beautiful plant. *hablitziana.*

9. Salv. leaves lanceol-ovate, ſlightly crenated, verticils few-flowered, calyx dagger-pointed. S. of Europe. *officinalis.*

10. Salv. with leaves heart-oblong, crenated, verticils many flowered, calyxes acute. ♄. *grandiflora.*

11. Salv. downy, leaves on footſtalks very wrinkly, three-lobed, the middle lobe oblong and extended, the ſide lobes ovate and blunt. Crete and Syria. ♄. *triloba.*

12. Salv. with leaves heart-elliptical, blunt, downy, ſlightly crenate-waved on the margin, verticils crowded, calyxes trifid, blunt. Crete and Syria. ♄. *pomifera.*

13. Salv. with leaves ovate-oblong, doubly ſerrated, calyxes three-dented, higheſt ſegment three-dented. Virginia and Florida. ♃. *Obſ.* The corollas are ſmall, the upper lip ſhort, the piſtil longer than the upper lip. *urticifolia.*

14. Salv. with leaves ovate, ſerrated, ſpikes flexible, bracteas heart-ſhaped, commonly with three flowers. Caribbees. ♃. *occidentalis.*

15. Salv. with leaves heart-ſhaped, wrinkled, crenated, and equally ſerrated, acute, calyxes ſmoothiſh, awned. ♃. *tiliæfolia.*

16. Salv. with leaves heart-ſhaped, ſerrated, ſoft; flowers raceme-ſpiked, corollas ſcarcely longer than the calyx. *ſerotina.*

17. Salv. with leaves heart-ſhaped, ſtalk thread-ſhaped, creeping, ſpikes aſcending. Jamaica. ⊙. *tenella.*

18. Salv. with leaves oblong crenated, helmet of the corollas ſemicircular, calyxes fruit-bearing, turned back. Italy. ⊙. *viridis.*

19. Salv. with leaves blunt, crenated, the higheſt bracteas barren and coloured, and larger. Greece. ⊙. *horminum.*

20. Salv. with leaves oblong, heart-ſhaped, wrinkled, crenated, hairs of the ſtem and calyx glandular at the apex. Armenia. ♃. *virgata.*

21. Salv. leaves heart-ſhaped, wrinkled, twice ſerrated; bracteas coloured, ſhorter than the flower, awl-pointed, hairs of the ſtem and calyx ſimple. Europe. ♃. *ſylveſtris.*

22. Salv. with leaves heart-ſhaped, lanceolate, ſerrated and plane, bracteas coloured, the loweſt lip of the corolla turned back. Auſtria and Tartary. ♃. *nemoroſa.*

23. Salv. with leaves heart-ſhaped and dented, in-

ſyriaca.

ferior leaves repand, bracteas heart-ſhaped, ſhort, acute, calyxes downy. The Levant. ♄.

viſcoſa. 24. Salv. with leaves oblong, obtuſe, eroſe crenated, viſcid, flowers in verticils, bracteas heart-ſhaped, acute. Italy. ♃.

hæmatodes. 25. Salv. with leaves heart-ovate, wrinkled, downy, calyxes hiſpid, root knobby. Italy and Iſtria. ♃.

bicolor. 26. Salv. with leaves ovate eroſe-dented, flowers nodding, the middle ſegment of the lower lip of the corolla hollow. Barbary. ♃.

indica. 27. Salv. with leaves heart-ſhaped, lateral, a little lobed, the higheſt leaves ſeſſile, the verticils almoſt naked and very remote. India. ♃.

dominica. 28. Salv. with leaves heart-ſhaped, blunt, crenated, and ſomewhat downy, the corolla narrower than the calyx. Eaſt Indies. ♃.

ſcabra. 29. Salv. ſcabrous, with leaves lyrated, dented and wrinkled, ſtem panicle-branched. C. of G. Hope. ♄.

runcinata. 30. Salv. ſcabrous, leaves runcina-pinnatifid and dented, flowers ſpiked and verticilled. C. of G. Hope.

clandeſtina. 31. Salv. with leaves ſerrated, pinnatifid, and very much wrinkled, ſpike blunt, the corollas narrower than the calyx. Italy and Africa. ♂.

auſtriaca. 32. Salv. with leaves ovate, heart-ſhaped, eroſe-ſinuated, the root leaves on footſtalks, ſtem almoſt leafleſs, the ſtamens double the corolla in length. Auſtria, Hungary, and Moldavia. ♃.

pyrenaica. 33. Salv. leaves blunt and eroſe, ſtamens twice the corolla in length. Pyrences.

diſermas. 34. Salv. leaves heart-oblong eroſe, the ſtamens equalling the corolla. Syria.

rugoſa. 35. Salv. leaves heart-ſhaped, oblong-lanceolate, eroſe-crenated, wrinkled, a little hairy, the ſtamens ſhorter than the corolla. Cape of Good Hope. ♄.

nubia. 36. Salv. leaves oblong, nearly heart-ſhaped, the ſides unequal, wrinkled, crenated. Africa. ♃.

nilotica. 37. Salv. leaves ſinuate, angled, crenate-dented, the dents of the calyx ſpinous, the angles and edge of the throat ciliated. Egypt. ♃.

mexicana. 38. Salv. leaves ovate, awl-pointed, ſerrated. Mexico. ♄.

amethyſtina. 39. Salv. leaves heart-ſhaped, acute, ſerrated, woolly beneath, verticils naked, calyxes trifid, corollas pubeſcent. New Granada. ♄.

fulgens. 40. Salv. with leaves heart-ſhaped, acute, crenated, wrinkled, downy beneath, verticils naked, calyxes trifid, helmet of the corollas villous. Mexico. ♃.

formoſa. 41. Salv. leaves ſomewhat heart-ſhaped, the helmet of the corollas bearded, the calyxes three-lobed, ſtem becoming ſhrubby. Peru. ♄.

tubiflora. 42. Salv. leaves heart-ſhaped, crenated, ſomewhat hairy, calyxes trifid, corollas very long and tubular, ſtamens protruded. Lima. ♄.

longiflora. 43. Salv. leaves ovate, acute, ſerrated, pubeſcent, calyxes trifid, corollas very long, tubular, pubeſcent, ſtamens of the length of the corolla. Mexico. ♃. *Obſ.* The corolla of this and the preceding is ſcarlet.

coccinea. 44. Salv. leaves heart-ſhaped, acute, downy, and ſerrated; the corollas double the length of the calyx, but narrower. Florida. ♄.

pſeudococcinea. 45. Salv. leaves ovate, acute, ſerrated, unequal at the baſe, ſtem hairy, corollas double the length of the calyx. South America. ♄.

biſpanica. 46. Salv. leaves ovate, leaf-ſtalks dagger-pointed, ſpikes four-cornered, imbricated, calyxes trifid. ☉. Italy.

abyſſinica. 47. Salv. lower leaves lyrated, higheſt heart-ſhaped, flowers verticilled, the calyxes dagger-pointed and ciliated. Africa. ♃.

verticillata. 48. Salv. leaves heart-ſhaped, crenate-dented, verticils almoſt naked, ſtyle of the corolla leaning upon the lower lip. Germany and Switzerland. ♃.

napifolia. 49. Salv. leaves heart-ſhaped, crenate-dented, the lower ones haſtate and lyrated, verticils almoſt naked, upper lip ſhorter. Italy and France.

glutinoſa. 50. Salv. leaves heart-ſagittate, ſerrated, and acute. Europe. ♃. *Obſ.* The calyx is three-lobed, the corolla ſickle-ſhaped, yellow, dotted with brown, the middle lobe of the lower lip crenated.

barrelieri. 51. Salv. leaves unequally dented, awl-pointed, heart-ſhaped, angle-haſtate at the baſe, verticils almoſt naked. Spain. ♃.

canarienſis. 52. Salv. leaves haſtate-triangular, oblong, crenated, blunt. Canaries. ♄.

aurita. 53. Salv. villous, with leaves ovate, dented, ear-ſhaped, flowers verticil-ſpiked. Cape of Good Hope.

africana. 54. Salv. leaves roundiſh, ſerrated, truncated at the baſe and dented. Cape of Good Hope. ♄.

aurea. 55. Salv. leaves roundiſh and very entire, truncated at the baſe and dented. Cape of Good Hope. ♃.

colorata. 56. Salv. leaves elliptical, almoſt quite entire, downy, the limb of the calyx membranaceous and coloured. Cape of Good Hope. ♃.

paniculata. 57. Salv. leaves obovate-wedge-ſhaped, ſlightly dented, and naked, ſtem ſhrubby. Africa. ♄.

acetabuloſa. 58. Salv. leaves obovate and dented, calyxes bell-ſhaped, forming an acute angle, hairy, ſtem ſhrubby. Levant. ♄.

ſpinoſa. 59. Salv. leaves oblong and repand, calyxes thorny; bracteas heart-ſhaped, dagger-pointed, hollow. Egypt. ♃.

tingitana. 60. Salv. leaves heart-ſhaped, eroſe-dented, calyxes thorny, bracteas very entire, heart-ſhaped, dagger-pointed, hollow, ciliated. Africa. ♄. *Obſ.* Smell very fetid.

ſclarea. 61. Salv. leaves wrinkled, heart-ſhaped, oblong, villous, ſerrated; floral bracteas longer than the calyx, hollow, awl-pointed. Syria and Italy. ♂.

involucrata. 62. Salv. leaves ovate-lanceolate, ſerrated, flowers ſpiked, terminating, the largeſt bracteas coloured. Mexico. ♃. *Obſ.* This is a very beautiful plant in the number and magnitude of its flowers.

cerato-phylla. 63. Salv. leaves wrinkled, pinnatifid, woolly, the higheſt verticils barren. Perſia. ♂.

æthiops. 64. Salv. leaves oblong, gnawed, woolly, verticils woolly, bracteas arched downwards, a little thorny.

V. 2. with laciniated leaves. Greece, Africa, and France. ♂. The lower lip coheres on the fore part, and forms a ſack.

phlomoides. 65. Salv. leaves lanceolate, almoſt entire, ſtem woolly-viſcous. Spain.

argentea. 66. Salv. leaves oblong, dent-angled, woolly, higheſt verticils barren, bracteas hollow. Crete. ♃. This ſpecies connects the *ſclarea* and *æthiops*.

vulneraria folia. 67. Salv. leaves pinnated and very entire, the terminating leaflet greateſt. Levant. ♄.

pinnata. 68. Salv. leaves pinnated, pinnas gnawed. Crete and the Levant. ♂.

69. Salv.

incarnata. 69. Salv. leaves pinnated and ſerrated, ſtalks procumbent and hirſute. Levant. ♃. *Obſ.* The ſtem is quadrangular; the inferior leaves are pinnated, the ſuperior ternate.

roſæfolia. 70. Salv. leaves pinnated, hoary, leaflets ſerrated, calyxes ringent. Armenia. ♃

japonica. 71. Salv. leaves twice pinnated and ſmooth. Japan. ☉.

cerato-phylloides. 72. Salv. leaves pinnatifid, wrinkled, villous; ſtem panicled, much branched. Sicily and Egypt. ♂.

forſkaelii. 73. Salv. leaves lyre-earſhaped, ſtem almoſt leafleſs, the helmet of the corolla half bifid. The Eaſt. ♃.

nutans. 74. Salv. leaves heart-ſhaped, indiſtinctly 5-lobed gnawed, ſtem roundiſh, racemes nodding. Ruſſia. ♃.

haſtata. 75. Salv. leaves haſtate-lanceolate, crenated, ſtalk almoſt naked, racemes drooping. Suppoſed a native of Ruſſia.

betonica. 76. Salv. leaves lanceolate crenated, ſtem almoſt naked, racemes drooping. Ruſſia?

64. Collinsonia.

Cor. unequal, the lower lip multifid, hair-like. Seed one, perfect.

canadenſis 1. Col. leaves ovate, and ſtems ſmooth. ♃. North America.

ſcabriuſcula. 2. Col. leaves ovate, and ſomewhat heart-ſhaped, and a little hairy; ſtem a little hairy and ſcabrous. Florida. ♃.

65. Morina.

Cor. uncqual. Cal. of the fruit 1-leaved, dented. Calyx of the flower bifid. Seed one crowned with the calyx of the flower.

perſica. 1. Morina. Perſia. ♃.

66. Sciuris.

Cor. unequal, upper lip trifid, inferior bifid and ſhorter. Stamens are five, but three of them are without anthers. Capſ. five, united into one body, with one cell and one ſeed.

aromatica. 1. Sciuris. Guiana. ♄.

67. Globba.

Cor. equal, trifid. Cal. ſuperior, trifid. Capſ. 3-celled. Seeds many.

marantina. 1. Glob. Eaſt Indies. ♃. The ſtalk is ſimple, herbaceous. The leaves alternate on footſtalks, which are membranaceous ſheathing, the ſheaths truncated at the apex.

nutans. 2. Glob. ſpike terminating and pendulous, leaves ellipſe-lanceolate. Eaſt Indies.

japonica. 3. Glob. raceme terminating and drooping, leaves ſword-ſhaped entire. Japan.

uviformis. 4. Glob. with a lateral ſpike. Eaſt Indies. ♃.

68. Lithophila.

Cal. three ſegments. Cor. 3-petaled. Nectary two ſegments. Seed-veſſel, 2-celled.

muſcoides. 1. Lith. Navaza.

69. Linociera.

Cal. four-dented. Cor. four-petaled. Anth. connecting the two oppoſite petals to the baſe. Berry 2-celled, cells 2-ſeeded.

1. Lin. *Thouinia liguſtrina* of Swartz. *Privet-liguſtrina-like Linociera.* Jamaica and Hiſpaniola. ♄.

70. Ancistrum.

Cal. four ſegments. Cor. none. Stigma many parted. Drupe juiceleſs hiſpid. 1-celled.

1. Anc. ſtems decumbent, leaflets obovate equally dented, ſilky-pubeſcent below, ſpikes globular. New Zealand. ♃. *ſanguiſorbæ.*

2. Anc. ſtalks commonly below water, fruitſtalks ſcapeform, ſpikes ovate; leaflets oblong, very entire, acute, uſually faſcicled. Falkland iſlands. ♃. *lucidum.*

3. Anc. ſtems immerſed, fruitſtalks ſcapeform, ſpikes long, leaflets oblong, cut, villous, fruits armed on all ſides. C of G. Hope. ♃. *Anciſtrum decumbens* of Thunberg. *latebroſum*

71. Aruna.

Cal. 5-parted, ſegments turned back. Cor. none. Berry 1-celled, with one or two ſeeds.

1. Aru. Guiana. ♄. *divaricata.*

Order II. DIGYNIA.

72. Anthoxanthum.

Cal. is a glume of two valves, and contains one flower. Cor. a two-valved awned glume. Seed one.

* 1. Anth. with a ſpike ovate oblong, the florets on little fruitſtalklets longer than the awn. *Sweet-ſcented vernal graſs.* Grows in meadows and paſtures, very common. ♃. Flowers in V. *Obſ.* This graſs gives the fragrance to hay. *odoratum.*

2. Anth. a linear ſpike, florets ſeſſile longer than the awn. India. It approaches neareſt to the genus of anthoxanthum, though very different in appearance; and the number of ſtamens do not agree. *indicum.*

3. Anth. a panicle preſſed together, awns very long. New Zealand. A tall ſmooth graſs, the corolline glume awned. *crinitum.*

4. Anth. ſpike pointing one way, calyxes hairy, florets with a long twiſted awn. Malabar. It has every appearance of an oat ſtalk except the two ſtamens. *avenaceum.*

73. Crypsis.

Cal. a two-valved glume with one flower. Cor. a two-valved awnleſs glume.

1. Cry. *Anthoxanthum aculeatum* of Lin. Suppl. *Phleum ſchœnoides* of Jacquin. *Phalaris vaginiflora* of Forſkael. *Phleum aculeatum.*

V. 2. *Phleum ſchœnoides*, with ſpikes ovate obvolute, leaves very ſhort dagger-pointed, ſtem claſping. Siberia, Spain, Sicily. ☉.

Order III. TRIGYNIA.

74. Piper, *Pepper.*

Cal. none. Cor. none. Berry one ſeed.

1. Pip. leaves ovate, about 7-nerved ſmooth, fruitſtalks very ſimple. India. ♄. *nigrum.*

2. Pip. leaves ovate oblongiſh, awl-pointed, 7-nerved, fruitſtalks 2-dented. India. ♄. *betle.*

3. Pip. leaves obliquely ovate or oblong, veined acute, ſpike ſolitary on footſtalks, oppoſite to the leaves, fruits on fruitſtalks. Java and Guinea ♄. *cubeba.*

4. Pip.

cluſiæfolium. 4. Pip. leaves obovate, blunt veined, ſpike ſingle terminating. Weſt Indies. ♄.

capenſe. 5. Pip. leaves ovate, nerved awl-pointed, nerves villous. Cape of Good Hope.

malamiris. 6. Pip. leaves ovate, ſomewhat ſharp, ſcabrous beneath, 5-nerves raiſed beneath. E. and W. Indies.

diſcolor. 7. Pip. leaves broad-ovate with 5 nerves very ſmooth, of different colours behind, ſpikes flexible, florets remote. Jamaica. ♄.

medium. 8. Pip. with leaves ovate, awl-pointed oblique, a little heart-ſhaped at the baſe, 5-nerved, ſpikes axillary nodding. ♄.

amalago. 9. Pip. leaves lanceol-ovate, 5-nerved, wrinkled. Jamaica and Hiſpaniola. ♄.

ſiriboa. 10. Pip. leaves heart-ſhaped, having about 7-nerves, veined. India. ♄.

excelſum. 11. Pip. leaves circular-heart-ſhaped, having about ſeven nerves, fruitſtalks terminating ſingle, 2-cleft, ſtem woody. New Zealand. ♄.

longum. 12. Pip. leaves heart-ſhaped, on footſtalks ſeſſile. India. ♄.

methyſticum. 13. Pip. leaves heart-ſhaped, awl-pointed many-nerved, ſpikes axillary, ſingle, very ſhort on footſtalks ſpreading very much. S. Sea iſlands. ♄.

latifolium. 14. Pip. leaves circular-heart-ſhaped, nine-nerved; ſpikes axillary, aggregate, on footſtalks. S. Sea iſlands. ♄.

decumanum. 15. Pip. leaves heart-ſhaped, 9-nerved, netted. Martinico and Caraccas. ♄. It ſeems a variety of the *reticulatum.*

reticulatum. 16. Pip. leaves heart-ſhaped, ſeven-nerved, netted. Martinico, Braſil, and Hiſpaniola. ♄.

aduncum. 17. Pip. leaves oblong-ovate, awl-pointed, unequal at the baſe, veined; ſpikes ſingle axillary, hooked at the end. Jamaica. ♄.

macrophyllum. 18. Pip. leaves ellipſe-ovate, awl-pointed, ſmooth, unequal at the baſe, veined, leaf-ſtalks appendiculate, ſpikes axillary and ſingle. Jamaica and Martinico. ♄.

geniculatum. 19. Pip. leaves oblong awl-pointed, oblique, many nerved or veined, ſmooth, ſtem and branches kneed. Jamaica. ♄.

verrucoſum. 20. Pip. firſt herbaceous, then woody; leaves oblong awl-pointed, oblique, many nerved or veined, ſmooth, coriaceous, ſtem and branches warted. *P. tuberculatum* of Jacquin. Jamaica and Guiana. ♄.

hiſpidum. 21. Pip. leaves ovate, awl-pointed, oblique, hirſute wrinkled; nerves (or veins,) alternate, ſpikes erect. Jamaica. ♄.

nitidum. 22. Pip. leaves lanceol-ovate, oblique at the baſe, ſmooth, gloſſy. Jamaica. ♄.

pellucidum 23. Pip. leaves heart-ſhaped, on footſtalks, ſtem herbaceous. S. America.

alpinum. 24. Pip. herbaceous, ſtem erect, and a little ſimple; leaves ovate-roundiſh acute, without veins beneath, ſpikes axillary. Jamaica. ♃.

hiſpidulum. 25. Pip. herbaceous, ſomewhat erect, leaves roundiſh on very ſlender leaf-ſtalks, rough haired above.

tenellum. 26. Pip. herbaceous, ſimple decumbent, leaves 2-ranked, ovate, veinleſs, ciliated on the margin, ſpike aſcending. Jamaica. ☉.

acuminatum. 27. Pip. herbaceous, leaves lanceol-ovate, nerved fleſhy, ſtem a little erect. S. America. ♃.

blandum. 28. Pip. leaves in threes, lanceolate, awl-pointed, 3-nerved, ciliated, dotted below. Caraccas. ♃.

29. Pip. ſub-herbaceous, leaves lanceol-ovate, ſtem-claſping, nerved, fleſhy; ſtem erect, ſimple. Eaſt Indies. ♃. *amplexicaule.*

30. Pip. leaves alternate, obovate, commonly 3-nerved, ſpikes ſingle, uſually terminating. Society iſlands. *pallidum.*

31. Pip. with leaves obovate and nerveleſs. South America. *obtuſifolium.*

32. Pip. leaves obovate and retuſe. Cape of Good Hope. *retuſum.*

33. Pip. herbaceous, with leaves ovate, awl-pointed; ſtem declining, taking root, much branched. Jamaica. *glabellum.*

34. Pip. herbaceous, with leaves ovate, acute; ſtem taking root, ſimple, aſcending. Jamaica. *ſcandens.*

35. Pip. herbaceous, with leaves roundiſh-acute plane, of different colours, ſtem creeping. Jamaica. *ſerpens.*

36. Pip. herbaceous, with leaves inverſely heart-ſhaped, plano-convex, fleſhy; ſtem creeping. Jamaica. *cordifolium.*

37. Pip. herbaceous, with leaves circular, convex-concave; ſtem threadlike, creeping, taking root. Jamaica. *nummularifolium.*

38. Pip. herbaceous, with leaves roundiſh, plane fleſhy, ſtem threadlike and creeping. S. America. *rotundifolium.*

39. Pip. leaves target-ſhaped ovate. St Domingo. *maculoſum*

40. Pip. leaves target-ſhaped, circular heart-ſhaped, blunt repand, ſpikes umbelled. St Domingo. ♃. *peltatum.*

41. Pip. leaves ſomewhat target-ſhaped, circular-heart-ſhaped, awl-pointed, ſpikes umbelled. Amboyna. ♃. *ſubpeltatum.*

42. Pip. leaves ovate, awl-pointed, ſpikes conjugate, ſtem taking root. S. America. ♃. *diſtachyon.*

43. Pip. leaves circular heart-ſhaped, awl-pointed veined, ſpikes umbelled; ſtem erect, furrowed, pubeſcent. Eaſt Indies. ♄. *umbellatum.*

44. Pip. leaves in threes and roundiſh. America. *trifolium.*

45. Pip. leaves verticilled in threes or fours, ellipſe-ovate, three-nerved, ſmooth; ſpike terminating ſingle, ſtem ſpotted. ♃. Venezuela. *pereſkiæfolium.*

46. Pip. leaves verticilled, rhomb-ovate very entire on footſtalks, three-nerved, pubeſcent. Jamaica. ♃. *polyſtachion.*

47. Pip. leaves in fours, wedge-ſhaped, obovate emarginate almoſt ſeſſile, ſtem erect. S. America. *quadrifolium.*

48. Pip. leaves verticilled in fours, elliptical, blunt, 3-nerved. Jamaica. ☉. *verticillatum.*

49. Pip. leaves verticilled, commonly in fours oblong, awl-pointed, 3-nerved. Jamaica. ♃. *Obſ.* This ſpecies differs from the *verticillatum* in having leaves awl-pointed, and ſpikes three times longer. *ſtellatum.*

50. Pip. leaves in fours, rhombous fleſhy, turned back and ſpreading, ſtem creeping. E. Indies. Cape of Good Hope. *Piper tetraphyllum* of Forſter. *reflexum.*

51. Pip. leaves in fours, almoſt ſeſſile oblong, nerveleſs, very entire, ſpikes terminating. Jamaica. ♃. *pulchellum*

52. Pip. herbaceous, with leaves linear blunt, the higheſt verticilled, the ſtem threadlike and creeping. Jamaica. *Obſ.* It is remarkable that of the 52 ſpecies of piper here deſcribed, 21 ſpecies are natives of Jamaica. *filiforme.*

In the claſs Diandria are

39 Genera, which include 299 Species; 29 ſpecies are found in Britain.

CLASSIS III.
TRIANDRIA.

Ordo I. MONOGYNIA.

Sect. I. *Flores ſuperi.*

* 75. Valeriana. Cor. 5-fida baſi gibba. Sem. unicum.

84. Melothria. Cor. 5-fida rotata. Bacca trilocularis.

* 92. Crocus. Cor. 6-partita, erecto-patula. Stig. convoluta colorata.

95. Antholyza. Cor. 6-fida tubuloſa recurvata: laciniis inæqualibus.

94. Gladiolus. Cor. 6-partita tubuloſa: laciniis ſubæqualibus, ſuperioribus convergentibus.

* 97. Iris. Cor. 6-partita; laciniis alternis reflexis. Stig. petaloideum.

93. Ixia. Cor. 6-partita patens. Stig. tria ſimplicia.

96. Aristea. Cor. 6-petala. Styl. declinatus. Stig. infundibuliforme hians.

98. Moræa. Cor. 6-petala; petalis alternis inæqualibus patentibus.

100. Dilatris. Cor. 6-petala hirſuta. Fil. tertium reliquis minus. Stigma ſimplex.

Sect. II. *Flores inferi.*

101. Witsenia. Cor. 6-partita cylindrica. Stig. emarginatum. Cal. o.

99. Marica. Cor. 6-partita: laciniis alternis duplo minoribus. Stigma petaloideum trifidum laciniis indiviſis. Cal. o.

103. Wachendorfia. Cor. 6-petala inæqualis. Cal. o.

Hæmodorum. Cor. 6-petala, tria interiora ſupra medium ſtaminifera. Stigma obtuſum. Capſ. infera trilocularis.

102. Xiphidium. Cor. 6-petala æqualis. Cal. o.

104. Commelina. Cor. 6-petala: Petal. 3 ſ. 4 calyciformibus. Nect. cruciata pedicellata.

76. Oxybaphus. Cor. 5-dentata infundibuliformis. Cal. 5-fid. Nux 5-gona calyce alata!

78. Macrolobium. Cor. 5-petala inæqualis. Cal. duplex: exterior 2-phyll. inter. 5-dentatus. Legumen.

79. Rohria. Cor. 5-petala inæqualis. Cal. 5-partitus. Stig. 3 revoluta. Capſ.

89. Hippocratea. Cor. 5-petala. Cal. 5-partit. Capſ. 3, bivalves.

CLASS III
TRIANDRIA.

Order I. MONOGYNIA.

Sect. I. *The Flowers inſerted above the Germen.*

* 75. Valeriana. Cor. 5-cleft, gibbous at the baſe. Seed 1.

84. Melothria. Cor. 5-cleft, wheel-ſhaped. Berry 3-celled.

* 92. Crocus. Cor. 6-parted equal. Stigma convolute.

95. Antholyza. Cor. 6-cleft tubular, arched downwards; the ſegments unequal.

94. Gladiolus. Cor. 6-parted and tubular; the ſegments nearly equal, the higher ſegments converging.

* 97. Iris. Cor. 6-parted, petals alternate, turned back. Stigma petaliform.

93. Ixia. Cor. 6-parted and ſpreading. The ſtigmas three and ſimple.

96. Aristea. Cor. 6-petaled. Style declining. Stigma funnel-ſhaped and gaping.

93. Moræa. Cor. 6-petaled; the petals alternate, unequal and ſpreading.

100. Dilatris. Cor. 6-petaled and hirſute. The third filament leſs than the reſt. Stigma ſimple.

Plants reſembling theſe belonging to other claſſes.

I. *Boerhaavia excelſa, repanda chærophylloides, plumbaginea.* VI. *Pontederia limoſa.*

Sect. II. *The Flowers inſerted below the Germen.*

101. Witsenia. Cor. 6-parted and cylindrical. Stigma emarginated. Cal. none.

99. Marica. Cor. 6-parted; the alternate ſegments half the ſize of the reſt. Stigma petal-ſhaped, 3-cleft, the ſegments not divided. Cal. none.

103. Wachendorfia. Cor. 6-petaled, unequal. Cal. o.

Hæmodorum. Cor. 6-petaled, the three interior petals ſtaminiferous above the middle. Stigma obtuſe. Capſ. inferior and 3-celled.

102. Xiphidum. Cor. 6-petaled, equal. Cal. o.

104. Commelina. Cor. 6-petaled; petals 3 or 4 calyxform. Nect. cruciform and on a fruitſtalklet.

76. Oxybaphus. Cor. 5-dented, funnel-ſhaped. Cal. 5-cleft. Nut 5-angled, winged at the calyx.

78. Macrolobium. Cor 5-petaled, unequal. Cal. double, the exterior calyx 2-leaved, the interior one 5-dented. A legume.

79. Rohria. Cor. 5-petaled, unequal, Cal. 5-parted. Stigmas three, rolled back.

89. Hippocratea. Cor. 5-petaled. Cal. 5-parted. Capſ. three, 2-valved.

90. Tonsella. Cor. 5-petala. Cal. 5-partit. Nect. urceolatum. Bacca 1-locul. 4-ſperma.
87. Loeflingia. Cor. 5-petala. Cal. 5-phyllus. Capſ. 1-locularis
83. Willichia. Cor. 4-fida. Cal. 4-fidus. Capſ. 2-locularis.
105. Callisia. Cor. 3-petala. Cal. 3-phyllus. Capſ. 2-locularis.
106. Syena. Cor. 3-petala. Cal. 3-phyllus. Capſ. 3-valvis unilocularis.
80. Rumphia. Cor. 3-petala. Cal. 3-fidus. Drupa nuce 3-loculari.
91. Fissilia. Cor. 3-petala cohaerens: petalis 2, bifidis. Cal. urceolatus integer. Stam. 8; quorum 5 ſterilia. Nux 1-ſperma.
81. Cneorum. Cor. 3-petala. Cal. 3-dentatus. Bacca 3-cocca.
107. Xytis. Cor. 3-petala. Cal. 2-valvis. Capſ. 3-locularis.
82. Comocladia. Cor. 4-partita. Cal. 3-partitus. Stylus 0. Drupa.
77. Olax. Cor. 3-fida. Cal. integer. Glans.
85. Rotala. Cor. ⊙. Cal. 3-dentatus. Capſ. 3-locul.
86. Ortegia. Cor 0. Cal. 5-phyll. Capſ. 1-locul.
88. Polycnemum. Cor. 0. Cal. 5-phyll. ſubtus 3-phyll. Sem. 1.

Sect. III. *Flores graminei; valvulis glumæ calycinæ.*

* 111. Schoenus. Cor. 0. Cal. paleis faſciculatis. Sem. ſubrotundum.
* 112. Cyperus. Cor. 0. Cal. paleis diſtichis. Sem. nudum.
* 113. Scirpus. Cor. 0. Cal. paleis imbricatis. Sem. nudum.
* 115. Eriophorum. Cor. 0. Col. paleis imbricatis. Sem. lana cinctum.
110. Mapania. Cor. 0. Cal. 6-valvis. Involucre. triphyllum.
117. Nardus. Cor. bivalvis. Cal. 0. Sem. tectum.
114. Miegia. Cor. 2-valvis. Cal. 2-valvis. Nect. 1-valve germen involvens.
109. Kyllingia. Cor. 2-valvis. Cal. 2-valvis. Ament imbricatum.
119. Cenchrus. Cor. 2-valvis. Cal. 2-valvis. Involucr. 3 ſ. 4-florum laciniatum echinatum.
118. Lygeum. Cor. 3-valvis. Cal. ſpatha. Nux 2-locularis.
116. Pommereulia. Cor. 3 ſ. 4 bivalvis ariſtatæ. Cal. turbinatus bivalvis.
108. Fuirena. Cor. 3-valvis. Cal. 0. Ament imbricat, ſquamis ariſtatis.

Ordo II. DIGYNIA.

127. Panicum. Cal. 3-valvis; tertio dorſali minori.

90. Tonsella. Cor. 5-petaled. Cal. 5-parted. Nect. pitcher-ſhaped. Berry 1-celled, and 4-ſeeded.
87. Loeflingia. Cor. 5-petaled. Cal. 5-leaved. Capſ. 1-celled.
83. Willichia. Cor. 4-cleft. Capſ. 2-celled.

105. Callisia. Cor. 3-petaled. Cal. 3-leaved. Capſ. 2-celled.
106. Syena. Cor. 3-petaled. Cal. 3-leaved. Capſ. 1-celled, 3-valved.
80. Rumphia. Cor. 3-petaled. Cal. 3-cleft. Drupe with nut, 3-celled.
91. Fissilia. Cor. three petals cohering; two petals 2-cleft. Cal. pitcher-ſhaped, entire. Stam. eight, of which 5 are barren; the nut 1-ſeeded.
81. Cneorum. Cor. 3-petaled. Cal. 3-dented. Berry 3-grained.
107. Xyris. Cor. 2-petalled. Cal. 2-valved. Capſ. 3-celled.
82. Comocladia. Cor. 3-parted. Cal. 3-parted. Style none. A drupe.
77. Olax. Cor. 3-cleft. Cal. entire.
85. Rotala. Cor. none. Cal. 3-dented. Capſ. 3-celled.
86. Ortegia. Cor. none. Cal. 5-leaves. Capſ. 1-celled.
88. Polycnemum. Cor. none. Cal. 5-leaved. Seed one.

Plants of other claſſes reſembling theſe are thus claſſed.

† VI. *Tradeſcantia multiflora.* V. *Hirtella triandra.* IV. *Fagara ſpinoſa, acuminata.*

Sect. III. *Graſſes. The glumes of the calyx valved.*

* 111. Schoenus. Clumes chaffy, crowded, the exterior one barren. Seeds roundiſh.
* 112. Cyperus. Glumes chaffy, tiled in two ranks.

* 113. Scirpus. Glumes chaffy, tiled on all ſides.

* 115. Eriophorum. Glumes chaffy, tiled on all ſides, Seed ſurrounded with very long wool.
110. Mapania. Cor. 0. Cal. 6-valved. Involucre 3-leaved.
117. Nardus. Cor. a 2-valved glume. Cor. 0.

114. Miega. Cor. 2-valved. Nect. 1-valved incloſing the germen.
109. Kyllingia. Cor. 2-valved. Cal. 2-valved. Ament imbricated.
119. Cenchrus. Cor. 2-valved. Cal. 2-valved. 3 or 4-flowered, laciniated and echinated.
118. Lygeum. Cor. 2-valved. Cal. a ſpathe. Nut 2-celled.
116. Pommereulia. Cor. 3 or 4 bivalve, awned. Cal. top-ſhaped bivalve.
108. Fuirena. Cor. 3-valve. Cal. 0. Ament. imbricated, the ſcales awned.

Order. II. DIGYNIA.

127. Panicum. Cal. 1-valved, the third valve leaſt.

120. Cornucopiæ. Cal. 2-valvis. Cor. 1-valvis. Involucrum commune 1-phyllum multiflorum.

146. Aristida. Cal. 2-valvis. Cor. 1-valvis, apice ariſtis tribus.

* 129. Alopecurus. Cal. 2-valvis. Cor. 1-valvis apice ſimplici.

* 128. Phleum. Cal. 2-valvis, truncatus, mucronatus, ſeſſilis.

* 125. Phalaris. Cal. 2-valvis: valvis carinatis æqualibus, corollam includentibus.

126. Paspalum. Cal. 2-valvis: valvis ſubrotundis figura corollæ.

* 130. Milium. Cal. 2-valvis: valvis ventricoſis corolla majoribus, ſubæqualibus.

* 131. Agrostis. Cal. 2-valvis: valvis acutis corolla brevioribus.

* 137. Dactylis. Cal. 2-valvis: valva majore longiore compreſſa carinata.

* 141. Stipa. Cal. 2-valvis. Cor. ariſta terminali inarticulata.

143. Lagurus. Cal. 2-valvis villoſus. Cor. ariſtis 2 terminalibus et 1 dorſali.

122. Saccharum. Cal. 2-valvis, lanugine extus veſtitus. Cor. 2-valvis.

121. Muhlenbergia. Cal. 1-valvis. Cor. 2-valvis.

123. Perotis. Cal. 0. Cor. 2-valvis, lanugine extus veſtita.

124. Leersia. Cal. 0. Cor. 2-valvis clauſa.

Sect. II. *Flores biflori, vagi.*

* 132. Aira. Cal. bivalvis. Floſculi abſque rudimento tertii.

* 133. Melica. Cal. 2-valvis. Rudimentum tertii inter floſculos.

Holcus. Cal. 2-valvis. Cor. ariſtata.

Sect. III. *Flowers multiflori, vagi.*

136. Uniola. Cal. multivalvis, carinatus.

* 135. Briza. Cal. 2-valvis. Cor. cordata: valvis ventricoſis.

* 134. Poa. Cal. 2-valvis. Cor. ovata: valvis acutiuſculis.

* 139. Festuca. Cal. 2-valvis. Cor. oblonga: valvis mucronatis.

* 140. Bromus. Cal. 2-valvis. Cor. oblonga: valvis ſub apice ariſtatis.

* 142. Avena. Cal. 2-valvis. Cor. oblonga: valvis dorſo ariſta contorta.

* 144. Arundo. Cal. 2-valvis. Cor. baſi lanata, mutica.

145. Pappophorum. Cal. 2-valvis. Cor. 2-valvis multi-ariſtata.

120. Cornucopiæ. Cal. 2-valved. Cor. 1-valved. Common involucre 1-leaved, many flowered.

146. Aristida. Cal. 2-valved. Cor. 1-valved, 3 awns at the apex.

* 129. Alopecurus. Cal. 2-valved. Cor. 1-valved, the apex ſimple.

* 128. Phleum. Cal. 2-valved, truncated, dagger-pointed and ſeſſile.

* 125. Phalaris. Cal. 2-valved; the valves keeled, equal, encloſing the corolla.

126. Paspalum. Cal. 2-valved; the valves roundiſh, of the figure of the corolla.

* 130. Milium. Cal. 2-valved; the valves ventricoſe, greater than the corolla, nearly equal.

* 131. Agrostis. Cal. 2-valved; valves acute, ſhorter than the corolla. Stigmas feathered.

* 137. Dactylis. Cal. 2-valved, flattened; the greater valve keel-ſhaped.

* 141. Stipa. Cal. 2-valved. Cor. with terminating awn, jointed at the baſe.

143. Lagurus. Cal. 2-valved, awns villous.

122. Saccharum. Cal. 2-valved, covered with down on the outſide. Cor. 2-valved.

121. Muhlenbergia. Cal. 1-valved. Cor. 2-valved.

123. Perotis. Cal. 0. Cor. 2-valved, covered with down on the outſide.

124. Leersia. Cal. 0. Cor. 2-valved, ſhut.

Plants belonging to the third Sect. of this order reſembling theſe.

Arundo epigeios, calamagroſtis, arenaria.

Sect. II. *Flowers ſcattered, 2 in each calyx.*

* 132. Aira. Cal. 2-valved. Florets without the rudiments of a third.

* 133. Melica. Cal. 2-valved commonly 2-flowered, with the rudiment of a third.

Holcus. Cal. 2-valved. Cor. awned.

Plant reſembling theſe.

Tripſacum hermaphroditum.

Sect. III. *Flowers ſcattered, many in each calyx.*

136. Uniola. Cal. many-valved, keeled.

* 135. Briza. Cal. 2-valved. Cor. bellied, valves heart-ſhaped, blunt. Seed adhering to the corolla.

* 134. Poa. Cal. 2-valved. Cor. valves ovate, a little ſharp, awnleſs.

* 139. Festuca. Cal. 2-valved. Spikelet oblong, glumes ſharp-pointed.

* 140. Bromus. Cal. 2-valved. Spikelet oblong, glumes awned under the apex, the inner one ciliated.

* 142. Avena. Cal. 2-valved. Cor. a glume roundiſh awned on the back. Awn contorted.

* 144. Arundo. Cal. 2-valved. Florets ſurrounded by permanent wool. Awnleſs.

145. Pappophorum. Cal. 2-valved. Cor. 2-valved with many awns.

153. Lappago. Cal. ſubtrivalvis. Cor. 2-valvis reſupinata.

Sect. IV. *Spicati, receptaculo ſubulato.*

* 148. Rottboellia. Cal. 1-florus rachi adpreſſus.

* 150. Secale. Cal. biflorus.
* 152. Triticum. Cal. multiflorus.

* 151. Hordeum. Involucr. hexaphyllum triflorum. Flos ſimplex.
* 149. Elymus. Involucr. tetraphyllum biflorum. Flos compoſitus.
* 147. Lolium. Involucr. monophyllum, uniflorum. Flos compoſitus.
* 138. Cynosurus. Involucr. monophyllum, laterale. Flos compoſitus.

Ordo III. TRIGYNIA.

Sect. I. *Flores inferi.*

* 157. Holosteum. Cor. 5-petala. Cal. 5-phyllus. Capſ. apice dehiſcens.
* 159. Polycarpon. Cor. 5-petala. Cal. 5-phyllus. Capſ. 3-valvis.
164. Lechea. Cor. 3-petala. Cal. 5-phyllus. Capſ. 3-cocca.
* 154. Eriocaulon. Cor. 3-petala. Cal. compoſit. Sem. 1, coronatum.
* 155. Montia. Cor. 1-petala. Cal. 2-phyllus. Capſ. 3-valvis, 3-ſperma.
161. Mollugo. Cor. nulla. Cal. 5-phyllus. Capſ. 3-locularis.
162. Minuartia. Cor. nulla. Cal. 5-phyllus. Capſ. 1-locularis, polyſperma.
163. Queria. Cor. nulla. Cal. 5-phyllus. Capſ. 1-celled.
158. Koenigia. Cor. nulla. Cal. 3-phyllus. Sem. 1, ovatum.

Sect. II. *Flores ſuperi.*

160. Donatia. Cor. polypetala. Cal. 3-phyllus.
156. Proserpinaca. Cor. nulla. Cal. 3-partitus. Sem. 1, triloculare.

153. Lappago.

Dactylis glomerata.

Sect. IV. *Flowers ſpiked on an awl-ſhaped receptacle.*

* 148. Rottboellia. Cal. 1-flowered preſſed to the ſpine.
* 150. Secale. Cal. 2-flowered.
* 152. Triticum. Cal. 2-valved, ſolitary, many-flowered. Spine toothed.
* 151. Hordeum. Cal. 2-valved, 3-fold, 1-flowered.

* 149. Elymus. Cal. 2-valved. aggregate many-flowered.
* 147. Lolium. Cal. 1-leaved, fixed, many-flowered.

* 138. Cynosurus. Cal. 2-valved. Partial receptacle on one ſide, leafy.

Order III. TRIGYNIA.

Sect. I. *Flowers inſerted below the germen.*

* 157. Holosteum. Cal. 5-leaved. Petals 5-gnawed. Capſ. almoſt cylindrical, opening.
* 159. Polycarpon. Cal. 5-leaved. Petals 5. Capſ. 3-valved, many-ſeeded.
164. Lechea. Cal. 5-leaved. Cor. of 3 petals. Capſ. 3-celled.
* 154. Eriocaulon. Cor. of 3 equal petals. Stamens above the germen.
* 155. Montia. Cal. 2-leaved. Cor. 1-petaled. Capſ. 3-valved and 3-ſided.
161. Mollugo. Cor. none. Cal. 5-leaved. Capſ. 3-celled.
162. Minuartia. Cor. none. Cal. 5-leaved. Capſ. 1-celled, many-ſeeded.
163. Queria. Cor. none. Cal. 5-leaved. Capſ. 1-celled.
158. Koenigia. Cor. none. Cal. 3-leaved. Seed 1, ovate.

Plant reſembling

Tillæa.

Sect. II. *Flowers inſerted above the germen.*

160. Donatia. Cor. many-petaled. Cal. 3-leaved.
156. Proserpinaca. Cor. none. Cal. 3-parted. Seed 1, 3 celled.

Order I. MONOGYNIA.

15. Valeriana, or *Valerian.*

No calyx. Cor. monopetalous, hence bulging at the baſe. Superior.

rubra. 1. V. with tailed flowers; leaves ſpear-ſhaped, very entire. ♃.

2. V. tailed flowers; leaves very entire ſtrap-ſhaped. S. of Europe. ♃. *angustifolia.*
3. V. monandrous flowers; leaves with winged clefts. Portugal and the Eaſt. ☉. *calcitrapa.*
* 4. V. flowers ſtaminiferous and piſtilliferous on different plants, with very entire winged leaves. ♃. *dioica.*
5. V. triandrous flowers, with leaves winged, and florets oval toothed. C. of G. Hope. *capensis.*

6. V.

officinalis. * 6. V. leaves all winged and toothed. It is this ſpecies which is in ſo much repute as a medicine. The root has a ſtrong, but not an agreeable ſmell. Its taſte is warm, bitteriſh, and ſubacrid. It communicates its properties to wine, water, and ſpirit; but it is beſt in ſubſtance, and may be taken from half a drachm to two drachms for a doſe. There is no doubt of its poſſeſſing antiſpaſmodic virtues in an eminent degree. It is often preſcribed with advantage in hyſterical caſes, and inſtances are not wanting where it appears to have removed ſome obſtinate epilepſies. In habitual coſtiveneſs it is an excellent medicine, and frequently looſens the bowels when other ſtronger purgatives have been tried in vain. Cows eat the leaves. Sheep are not fond of them. Cats are greatly delighted with the roots. Rats are ſaid to be equally fond of them, and that the rat-catchers employ them to draw the rats together.

phu. 7. V. with ſtem leaves winged, thoſe iſſuing from the root undivided. Europe. ♃.

tripteris. 8. V. toothed leaves, thoſe riſing from the root undivided; thoſe of the ſtem in threes, oval-oblong. Alps. ♃.

montana. 9. V. leaves oval-oblong, nearly tooth-ſhaped with an undivided ſtem.

celtica. 10. V. leaves oval-oblong, obtuſe very entire. The Alps. ♃.

tuberoſa. 11. V. root leaves ſpear-ſhaped, very entire; the reſt winged, cleft. S. of Europe. ♃.

ſaxatilis. 12. V. leaves nearly toothed; the root leaves oval; the ſtem leaves ſtrap-ſpear-ſhaped. S. of Europe. ♃.

elongata. 13. V. radical leaves oval; ſtem leaves heart-ſhaped ſitting, ſnipt nearly, halbert-ſhaped. S. of Europe. ♃.

pyrenaica. 14. V. ſtem leaves heart-ſhaped, toothed, having leaf-ſtalks; the higheſt in threes. Pyrenees. ♃.

ſcandens. 15. V. leaves in threes, the ſtem climbing.

mixta. 16. V. ſtem. 4-cleft, the loweſt leaves double-winged cleft, with a feathery down.

ſupina. 17. V. ſmall involucrums 5-leafed, 3-flowered; the leaves entire. Alps. ♃.

villoſa. 18. V. inferior leaves ear-ſhaped, the ſuperior leaves toothed, woolly. Japan.

polyſtachya 19. V. winged leaves, with a compound ſpike in whirls.

ſibirica. 20. V. winged cleft leaves; ſeeds connected with an oval chaff. Siberia. ☉.

ruthenica. 21. V. leaves oval, fleſhy, winged cleft, toothed; ſeeds connected with an oval chaff. Siberia. ♃.

carnoſa. 22. V. oval, toothed, fleſhy, hoary leaves.

cornucopiæ. 23. V. flowers diandrous, leaves oval ſitting. S. of Europe. ☉.

echinata. 24. V. toothed leaves, fruit ſtrap-ſhaped 3-toothed; the outward larger and bent back. S. of Europe. ☉.

olitoria. 25. V. forked ſtem; leaves ſpear-ſhaped, very entire; fruit naked. Europe. ☉.

dentata. 26. V. ſtem forked; leaves ſpear-ſhaped entire; fruit 3-toothed; 2 teeth very ſhort. Europe. ☉.

veſicaria. 27. V. ſtem forked, leaves ſpear-ſhaped, toothed; fruit inflated globular. Crete. ☉.

coronata. 28. V. ſtem forked; leaves ſpear-ſhaped, toothed; fruit 6-toothed. Portugal. ☉.

diſcoidea. 29. V. ſtem forked, leaves ſpear-ſhaped, toothed; fruit 12-toothed with hooked teeth.

radiata. 30. V. ſtem forked, leaves oblong-obtuſe, little heads with involucrums.

pumila. 31. V. forked ſtem, the lower leaves toothed, the higheſt ſtrap-ſhaped, many-cleft.

As we have already given to our readers an example of the mode in which the different ſpecies of plants are diſcriminated by botaniſts, and as ſuch extreme minuteneſs might ſeem inconſiſtent with the nature of our work, we ſhall avoid purſuing it, unleſs where the peculiar nature of any ſpecies may appear to require ſuch a degree of attention, either as an object of ſcientific curioſity, or of general utility. At the commencement of the ſucceeding claſs, however, we ſhall give a further example, taken from the extenſive genus *Protea*, of the manner in which the ſpecies of plants ought to be defined. With this exception, however, we ſhall confine ourſelves to the definition of the more important plants. At the ſame time that our work may be as complete as its nature will permit, we ſhall ſtate the names of all the ſpecies included under every genus, (excepting the almoſt boundleſs claſs of *Cryptogamiæ*) taking care to diſtinguiſh the foreign from the Britiſh plants, by affixing to the latter the uſual mark (*). Thus there will be exhibited to the reader, nearly a complete enumeration of the objects contained under this extenſive and curious branch of ſcience; together with an account of whatever it contains moſt intereſting or uſeful.

76. Oxybaphus

Contains one ſpecies; viz. viſcoſus.

77. Olax.

One ſpecies; viz. zeylanica. Ceylon.

78. Macrolobium.

Three ſpecies; viz. pinnatum, hymenæoides, ſphærocarpum.

79. Rohria.

One ſpecies; viz. petioliflora. Cape, Japan, Weſt Indies.

80. Rumphia.

One ſpecies; viz. amboinenſis. Amboyna.

81. Cneorum, *Widow-wail.*

One ſpecies; viz. tricoccon. S. Europe.

82. Comocladia, or *Maiden-plume.*

Four ſpecies; viz. integrifolia, dentata, ilicifolia, anguloſa. Jamaica, S. America.

83. Willichia.

One ſpecies; viz. repens. Mexico.

84. Melothria, or *ſmall creeping cucumber.*

One ſpecies; viz. pendula. N. America.

85. Rotala.

One ſpecies; viz. verticillaris. E. Indies.

86. Ortegia.

Two ſpecies; viz. hiſpanica, dichotoma. S. Europe.

87. Loeflingia.

Two ſpecies; viz. hiſpanica, indica. India, Spain.

88. Polycnemum.

Five ſpecies; viz. monandrum, ſcleroſpermum, arvenſe, ſalſum, oppoſitifolium. S. Europe.

89. Hippocratea.

Three ſpecies; viz. volubilis, indica, comoſa. S. Am.

90. Tonsella.

Two ſpecies; viz. ſcandens, africana. Guiana.

91. Fissilia.

One ſpecies; viz. pſittacorum. Iſle Bourbon.

92. Crocus, or *Saffron*.

Two ſpecies; viz. *ſativus, *vernus.

ſativus. * C. ſheath one valve riſing from the root; tube of the bloſſom very long.—The ſummits of the piſtils of the Cr. officinalis carefully collected, and moderately dried, are the ſaffron of the ſhops. That collected in England is preferred to all other. It affords a beautiful colour to water, wine, or ſpirit, and gives out the whole of its virtues to them. It has been held in high repute as a cordial; but modern practice pays no great attention to it, ſince it has been found to produce no ſenſible effect, even when given in doſes greatly larger than thoſe generally preſcribed.

93. Ixia.

47 Species; viz. fruticoſa, minuta, roſea, chloroleuca, *bulbocodium, cruciata, fragrans, humilis, piloſa, hirta, ſecunda, villoſa, rubrocyanea, pumicea, purpurea, criſpa, cinnamomea, corymboſa, heterophylla, anemonæflora, cœleſtina, ſpicata, plantaginea, linearis, incarnata, patens, capillaris, flexuoſa, anguſta, radiata, virgata, longiflora, ſcillaris, ariſtata, pendula, bulbifera, leucantha, erecta, maculata, deuſta, crocata, ſqualida, lancea, pentandra, aulica, falcata, exciſa. Alps, Africa, China, Magellan.

94. Gladiolus, or *Corn-flag*.

50 Species; viz. montanus, parviflorus, flexuoſus, recurvus, falcatus, biflorus, tenellus, dichotomus, ſtriatus, criſpus, cuſpidatus, triſtis, albidus, hyalinus, gracilis, carinatus, galeatus, imbricatus, brevifolius, communis, carneus, hirſutus, watſonius, mevanellus, merianus, laccatus, iridifolius, refractus, alatus, bicolor, anceps, feſſifolius, filenoides, roſeus, junceus, ſetifolius, marginatus, auguſtus, undulatus, ſtarus, ſecuriger, tubiflorus, tubatus, floribundus, blandus, plicatus, ſtrictus, mucronatus, ſpathaceus, gramineus. Europe, Africa.

95. Antholyza.

Six ſpecies; viz. lucidior, æthiopica, nervoſa, cunonia, ringens, plicata. Perſia, Africa.

96. Aristea.

One ſpecies; viz. cyanea. Cape of Good Hope.

97. Iris

Contains 54 ſpecies; viz. the following: ciliata, minuta, pumila, luteſcens, criſtata, ſuſiana, florentina, flaviſſima, hiſtora, aphylla, variegata, ſqualens, japonica, ſambucina, lurida, germanica, pallida, compreſſa, dichotoma, tripetala, tricuſpis, * xiphium, xiphioides, * pſeud-acorus, * foetida, virginica, verſicolor, halophilæ, ochroleuca, ſpathacea, ramoſa, ſiſyrinchium, verna, perſica, juncea, auguſta, ſetacea, tenuifolia, ventricoſa, graminea, enſata, ſpuria, orientalis, ſibirica, martinicenſis, pavionia, criſpa, papilionacea, edulis, triſtis, polyſtachya, viſcaria, bituminoſa, tuberoſa. Europe, Barbary, Perſia, N. America. Of theſe the following deſerve notice.

pſeudacorus. I. Every other ſegment of the cor. or bloſſom ſmaller than the ſummit. The juice of the freſh fruit of this ſpecies is very acrid, and has been found to produce plentiful evacuations from the bowels, after other powerful means had failed. It may be given for this purpoſe in doſes of 80 drops every hour or two: but the degree of its acrimony is ſo uncertain that it can hardly ever come into general uſe. In ſome caſes it proves diuretic. The freſh roots have been mixed with the food of ſwine bitten by a mad dog; and they eſcaped the diſeaſe when others bitten by the ſame dog died raving mad. The root loſes moſt of its acrimony by drying. Goats eat the leaves when freſh; but cows, horſes, and ſwine refuſe them: cows will eat them when dry. The roots are uſed in the iſland of Jura to dye black.

fœtida. I. Stem with one angle. The juice of the root, both of this and the preceding ſpecies is ſometimes uſed to excite ſneezing; but it is an unſafe practice. Violent convulſions have ſometimes been the conſequence. Neither horſes, ſheep, nor cows eat it. The ſcarlet ſeeds diſplayed by the opening capſules give the hedge banks in England a gay appearance in autumn. The leaves when bruiſed ſmell like rancid bacon.

98. Moræa.

This genus chiefly inhabits the C. of G. Hope, and has 17 ſpecies; viz. melaleuca, ſpiralis, puſilla, magellanica, gladiata, aphylla, filiformis, ſpathacea, flexuoſa, polyanthos, cærulea, plicata, umbellata, criſpa, iriopetala, iridioides, chinenſis. Africa.

99. Marica

Has one ſpecies; viz. marica paludoſa. Guiana.

100. Dilatris

Has three ſpecies; viz. corymboſa, viſcoſa, paniculata. C. of G. Hope.

101. Witsenia

Has one ſpecies; viz. witſenia maura. C. of G. Hope.

102. Xiphidium

Has two ſpecies; viz. album, cæruleum. Guiana.

103. Wachendorfia

Has five ſpecies; viz. thyrſiflora, paniculata, hirſuta, tenella, graminea. C. of G. Hope.

104. Commelina, or *Day-flower*,

Has 13 ſpecies; viz. communis of America, africana, benghalenſis, erecta, virginica, longicaulis, mollis, tuberoſa, vaginata, nudiflora, cucullata, japonica, ſpirata; chiefly Indian, unleſs otherwiſe denoted by the name.

105. Callisia

Has one ſpecies; viz. calliſia repens. S. America.

106. Syena

Has one ſpecies; viz. ſyena fluviatilis. Guiana.

107. Xyris

Has four ſpecies; viz. indica, pauciflora of Malabar, americana, capenſis.

108. Fuirena

Has one ſpecies; viz. fuirena umbellata. Surinam.

109. Kyllingia

Has eight ſpecies; viz. monocephala, brevifolia, triceps, panicea, filiformis, umbellata, cyperina, incompleta. Surinam, India E. & W.

110. Mapania

Has one ſpecies; viz. mapania ſylvatica. Guiana.

111. Schoenus, or *Baſe Cypreſs*,

Has 39 ſpecies; viz. mariſcus, junceus, mucronatus, piloſus, filiformis, ſtriatus, capitellum, ſcarioſus, nigricans, ferrugineus, fuſcus, triſtachyos, cuſpidatus, ariſtatus, compar, flexuoſus, capillaceus, uſtulatus, ſpicatus, bobartiæ, ſtellatus, bulboſus, inanis, cephalotes, cyperoides, cymoſus, glomeratus, cladium, effuſus, reſtioides, ſurinamenſis, thermalis, lævis, lanceus, albus, gracilis, ſetaceus, puſillus, capillaris. Chiefly tropical.

112. Cyperus, or *Greater Galangale*,

Has 76 ſpecies; viz. minimus, ſetaceus, arenarius, prolifer, effuſus, articulatus, marginatus, complanatus, texilis, compactus, monoſtachyos, diſtachyos, triſlorus, nanus, filiformis, dubius, capitatus, niveus, pannonicus of Auſtria, mucronatus, laevigatus, ſquarroſus, nitens, polyſtachyos, conglomeratus, cruentus, ariſtatus, luzulæ, confertus, viſcoſus, ligularis, glomeratus, imbricatus, maderas-patanus, caſtaneus, elegans, ſurinamenſis, flavidus, flaveſcens, fuſcus, vireſcens, difformis, jemenicus, ſtrigoſus, tenuis, tuberoſus, pumilus, ſtoloniferus, compreſſus, pulcher, vegetus, albidus, rotundus, glaber, odoratus, eſculentus, tenuiſlorus, pangorei, denudatus, lanceus, longus, faſtigiatus, canaliculatus, monti, iria, ſantonici, corymboſus, racemoſus, haſpan, elatus, diſtans, diphyllus, papyrus, flabelliformis, alternifolius, ſpathaccus. Chiefly Arabia, C. of G. Hope, S. of Europe, and tropical.

113. Scirpus, or *Ruſh-graſs*,

Has 70 ſpecies; viz. mutatus, ſpiralis, articulatus, plantagineus, nutans, * paluſtris, geniculatus, caricis, * cæſpitoſus, bæthryon, campeſtris, capitatus, ovatus, aſtropurpureus, polytrichoides, * acicularis, * fluitans, * lacuſtris, glomeratus, arvenſis, truncatus, laciniatus, membranaceus, piloſus, hyſtrix, * holoſchœnus, auſtralis, * romanus, nodoſus, radiatus, * ſctaceus, ſupinus, natans, vaginatus, triſtachyos, uncinatus, ariſtatus, autumnalis, diphyllus, faſtigiatus, globuloſus, globiferus, capillaris, triſpicatus, lateralis, * triqueter, mucronatus, dichotomus, echinatus, retrofractus, ferrugineus, ſpadicens, anomalus, miliaceus, * maritimus, groſſus, luzulæ, * ſylvaticus, corymboſus, æſtivalis, ſquarroſus, dipſæcus, junciformis, micheliamus, ciliaris, hottentotus, antarcticus, argenteus, menander, cephalotes. S. Europe, E. & W. Indies, America. Of theſe *S. Lacuſtris* is worthy of notice. It is thus deſcribed: Straw cylindrical, naked, ſpikes ſeveral, egg-ſhaped on fruit-ſtalks, terminating; calyx fringed, 3-cleft, middle ſegment awl-ſhaped. When fodder is exhauſted, cattle will live upon this ſpecies. Cottages are ſometimes thatched, and pack-ſaddles ſtuffed with it. Bottoms of chairs are very commonly made of this ruſh. If cut at one year old it makes the fine bottoms. Coarſe bottoms are made of it at two years old; and ſuch as are ſtill older, mixed with the leaves of the iris pſeudacorus, make the coarſeſt bottoms of all. Mats are likewiſe made either of the ſcirpus lacuſtris alone, or mixed with the aforeſaid leaves. Goats and ſwine eat it, cows and ſheep refuſe it.

114. Miegia

Has one ſpecies; viz. miegia maritima. Cayenne.

115. Eriophorum, or *Cotton-graſs*,

Has ſix ſpecies; viz. vaginatum, polyſtachyon, anguſtifolium, virginicum, cyparinum, lypinum. European, except the ſpecies called *virginica*.

116. Pommereullia

Has one ſpecies; viz. pommereullia cornucopiæ. India.

117. Nardus, or *Matt-graſs*,

Has four ſpecies; viz. ſtricta, ariſtata, indica, ciliaris. Two firſt, Europe; two laſt, India.

118. Lygeum

Has one ſpecies; viz. lygeum ſpartum. Spain.

119. Cenchrus, or *Hedgehog-graſs*.

Has ten ſpecies, viz. lappaceus, capitatus, echinatus, tribuloides, ciliaris, ſetoſus, geniculatus, hordeiformis, purpureſcens, fruteſcens. Generally hot climates.

Order II. DIGYNIA.

It is highly worthy of being remarked, that under this ſecond order of the claſs of triandria in the Linnæan ſyſtem are included a conſiderable number of the plants that are very valuable in agriculture, eſpecially the graſſes. This branch of botany, therefore, deſerves the attention of thoſe engaged in the culture of artificial graſſes, and even of all perſons in any way engaged in the cultivation of the ſoil. Several advantages reſult from being able to diſcriminate the particular graſſes that naturally riſe upon a field, and the name which they bear. A farmer or other cultivator of lands may thus, in the firſt place, be enabled to derive greater benefit from the peruſal of publications upon the art in which he is engaged. In the next place, it is to be remarked, that ſome graſſes riſing ſpontaneouſly upon a ſoil indicate that it is of bad quality, or that it has been impoveriſhed by ſevere cropping; whereas there are other graſſes, which demonſtrate, by their ſpontaneous growth, that the land is in excellent condition. It is of obvious utility to be able to diſcriminate ſuch plants. It is alſo of importance, when artificial graſſes have ſprung up to be able to diſcern the kinds to which they belong, and conſequently to know whether the proper ſorts of ſeed have been ſown, and which of the ſorts may have failed to ſpring up. For theſe and other reaſons we ſhall give the botanical deſcription in as conciſe terms as poſſible of a conſiderable number of the ſpecies of this order.

120. Cornucopiæ, or *Horn-of-plenty Graſs*,

Includes two ſpecies; * cucullatum, with an awnleſs ſpike, and a ſcolloped cone; and * alopecuroides, with anawned ſpike received in a hemiſpherical cone.

121. Muhlenbergia

Has one ſpecies, viz. diffuſa.

122. Saccharum, or the *Sugar Cane*,

Contains eleven ſpecies, viz. teneriffæ, ſpontaneum, japonicum, officinarum, polyſtachyon, arundinaceum, benghalenſe, repens, ravennæ, cylindricum, thunbergii. Tropical.

123. Perotis

Has two ſpecies; viz. latifolia, and polyſtachyle. Tropical.

124. Leersia.

Four ſpecies; viz. orizoides, virginica, monandra, hexandra. Tropical.

125.

125. PHALARIS, or *Canary-graſs*,

Cal. 2. valves, heeled, equal in length including the corolla.

canarienſis. * 1. P. An awnleſs panicle nearly oval, ſpiked, boat-ſhaped, entire. Cor. 4-valved; the exterior valves ſpear-ſhaped and ſmooth; the interior woolly. Cultivated for its ſeeds, with which canary birds are fed. ⊙.

aquatica. 2. P. panicle awnleſs, cylindrical, ſpike-formed. Chaff boat-ſhiped, ſlightly toothed. Cor. 3; valves, the interior woolly, the exterior ſmall, awl-ſhaped. Egypt and Italy.

capenſis. 3. P. panicle ſpiked, oval, huſks entire; the ſtraw knee-jointed, decumbent. C. of G. Hope. ⊙.

bulboſa. * 4. P. panicle awnleſs, cylindrical, ſpike-formed, huſks boat-ſhaped, toothed. Cor. 2, valves ſmooth; roots bulbous. ♃. Spain.

nodoſa. * 5. P. panicle oblong, leaves rigid.

dentata. 6. P. ſpike panicled, cylindrical, huſks ſerrated, ſtraw knee-jointed. ⊙. C. of G. Hope.

phleoides. * 7. P. panicle awnleſs, cylindrical, ſpike-formed; huſks heeled, entire, rough like a file. Cor. 2, valves ſmoothiſh. ⊙.

arenaria. * 8. P. panicle awnleſs, cylindrical, ſpike-formed, huſks heeled, entire, fringed. Stem branched. ⊙.

aſpera. 9. P. panicle awnleſs, cylindrical, ſpike-formed, huſk heeled, bulging above. Cor. 2, valves ſmooth. ⊙.

utriculata. 10. P. panicle oval, ſpike-formed, huſks boat-ſhaped, the back dilated, the awn longer than the chaff. Italy. ⊙.

paradoxa. 11. P. panicle awnleſs, oblong, ſpike-formed, huſk boat-ſhaped, one-toothed. Cor. 2, valves ſmooth, ſmall flowers as if bitten off below. India. ⊙.

biſpida. 12. P. ſpikes finger-like, chaff rough like a file, leaves oval. Japan.

126. PASPALUM,

Fifteen ſpecies, viz. diſſectum, ſcrobiculatum, villoſum, virgatum, paniculatum, ſtoloniferum, repens, hirſutum, kora, longiflorum, diſtichum, conjugatum, vaginatum, filiforme, decumbens. S. America & E. Indies.

127. PANICUM, or *Panic-graſs*,

Cor. with 3 valves; the third valve very ſmall. It is thus defined by *Withering*. Cal. 2-valved, 2-flowered.

polyſtachyon. 1. P. with tapering ſpikes, ſmall envelopes of one flower, in faſcicules briſtly, the ſtraw erect above, branchy. India. ♂.

ſericeum. 2. P. a tapering ſpike, covering briſtly, hairy, ſingle flowers, leaves plain. W. Indies. ⊙.

verticillatum. * 3. P. ſpike cylindrical, rough when ſtroked downwards, partial involucrums with 2 briſtles, and 1 floret.

helvolum. 4. P. ſpike tapering, ſmall involucrums, ſingle flowers, in briſtly bunches. Seeds fibrous. ⊙.

glaucum. 5. P. ſpike tapering, ſmall involucrums, double flowers, with hairy faſcicules. Seeds with undulated wrinkles. ⊙.

viride. * 6. P. ſpike cylindrical, ſoft to the touch, partial involucrums, with 3 briſtles and 1 floret.

germanicum. 7. P. a compreſſed compound ſpike, ſpicule congregated, ſmall involucrums briſtle-ſhaped, longer than the flower, ſpike-ſtalk ſhaggy. ⊙.

italicum. 8. P. a compound ſpike with an interrupted nodding baſe. Small ſpikes congregated. Small involucrums much longer than the flower. Cottony ſpike-ſtalk. ⊙.

cruſ galli. * 9. P. ſpikes alternate and in pairs; little ſpikes ſubdivided; huſks awned and rough ſtrong hairs. Spike ſtalked, with 5 angles.

ſanguinale. * 10. P. ſpikes finger-like, knotty on the inſide of the baſe, flowers in pairs, without awns; ſheath of the leaves dotted.

dactylon. * 11. P. ſpikes fingered, expanding, ſoft hairs on inſides of the baſe, flowers ſolitary, roots with creeping runners.

To theſe are to be added the following ſpecies; ſetoſum, * lanceolatum, ſtaguinum, cruſ corvi, ſetigerum, colonum, fluitans, flavidum, dimidiatum, burmanni, hirtellum, piloſum, molle, faſciculatum, chartaginenſe, conglomeratum, interruptum, umbroſum, filiforme, ægyptiacum, ciliare, lineare, cimicinum, diſtachyon, ſquarroſum, hiſpidulum, compoſitum, elatius, dichotomum, ramoſum, deuſtum, coloratum, repens, iſchæmoides, remotum, ariſtatum, miliaceum, antidotale, notatum, muricatum, capillare, flexuoſum, groſſarium, acuminatum, rigens, fuſcum, laxum, latifolium, flaveſcens, diffuſum, oryzoides, clandeſtinum, arboreſcens, curvatum, virgatum, patens, trigonum, pallens, lanatus, arundinaceum, polygamum, glutinoſum, brevifolium, radicans, trichoides, and divaricatum. Chiefly hot climates.

128. PHLEUM, or *Cats-tail Graſs.*

Cal. 2-valved, ſitting, ſtrap-ſhaped, lopped, ending in 2 dagger points encloſing the cor.

1. P. ſpike egg-ſhaped, fringed; ſtraw branched. *arenarium.*

2. P. panicle cylindrical, ſpike-like; huſks naked; ſtraw ſometimes branched. *paniculatum.*

3. P. ſpike cylindrical, very long; calyx fringed and awned; ſtraw upright.—This graſs is repreſented by all travellers in America as the great ſupport of cattle, &c. wherever meadows are found. It is there called *timothy-graſs*. It is beſt adapted to clayey ſoils, moiſt loam, and eſpecially peat. The ſeeds are to be had very clean dreſſed, at about one guinea a buſhel. *pratenſe.*

4. P. ſpike cylindrical; ſtraw aſcending; leaves flanting; root bulbous. *nodoſum.*

5. P. ſpike egg cylindrical. *alpinum.*

129. ALOPECURUS, or *Foxtail Graſs.*

Cal. 2-valved. Cor. 1 valve. Nect. none. Some kinds of this graſs are very valuable.

pratenſis. 1. P. ſpiked, ſtraw upright. Cal. hairy. Cor. awned. This graſs (meadow foxtail) has ſcarcely a ſuperior for the uſe of the farmer. It is very early, and abides on the farm, when ſown, for many years. It produces few ſeed-ſtalks. It is difficult to procure the ſeed in any degree of plenty, on account of an inſect that feeds upon it and deſtroys it.

agreſtis * 2. P. ſpiked ſtraw, upright; calyx not hairy; its huſks united at the baſe.

bulboſus. * 3. P. ſtraw upright; ſpike cylindrical; root bulbous.

geniculatus. * 4. P. ſpiked; ſtraw knee-jointed.

monſpolienſis. * 5. P. panicle ſpike-like. Cal. rough. Cor awned.

* 6. P. panicle ſpike-like. Cal. ſet with ſoft hairs. Cor. awned. To theſe may be added the following ſpecies, viz. indicus, capenſis, and echinatus, being all foreign plants. *paniceus.*

130. Milium, or *Millet.*

Cal. 2-valved, 1 flowered; valves nearly equal. Cor. very ſhort: ſummits pencil-ſhaped.

lendigerum. 1. M. panicle ſpike-like; flowers with awns.

effuſum. 2. M. flowers in panicles ſcattered; awnleſs. The foreign ſpecies are, capenſe, punctuatum, compreſſum, digitatum, panicum, confertum, globoſum, paradoxum, villoſum, and ramoſum. Globoſum is found in Japan. The reſt tropical.

131. Agroſtis, or *Bent-graſs.*

Cal. 2-valved, 1 flowered, rather ſmaller than the cor.; outer petal ſmooth; ſummits ſet lengthways, with ſtiffiſh hairs.

It is otherwiſe deſcribed thus: Cal. 1-flowered, 2-valved, ſpear-ſhaped, acute, generally rough on the heel; longer than the cor. Cor. 2-valved; ſummits hairy.

Of the Britiſh ſpecies the following have awns:

ſpicaventi. * 1. A. cal. huſks nearly equal; cor. valves equal; awn twice the length of the cal. fixed juſt beneath its point.

paluſtris. * 2. A. Cal. huſks equal. Cor. outer valve twice the length and breadth of the inner awn ſhorter than the cor. fixed juſt beneath its point.

canina. * 3. A. cal. huſks nearly equal; cor. valves very unequal. Awn twice as long as the cor. fixed juſt beneath its middle.

vinealis. * 4. A. cal. huſks equal; cor. valves nearly equal; awn as long as the cor. fixed juſt beneath its middle.

pallida. * 5. A. cal. huſks unequal; cor. inner valve hair-like, very ſhort; awn rather longer than the cor. fixed beneath its middle.

alpina. * 6. A. cal. huſks unequal; cor. without hairs at the baſe; awn twice the length of the bloſſom fixed near its baſe.

littoralis. * 7. A. panicle ſpike-like; cal. awned.

The following Britiſh plants have no awns:

alba. * 8. A. panicle large ſpreading; cal. both valves ſerrulated on the heel.

nigra. * 9. A. panicle ſcattered, branches bare at the baſe; florets few; cal. inner valve ſmooth.

ſtolonifera. * 10. A. panicle compact; branches ſhort, ſtiff, denſely crowded with florets at the baſe; cal. inner valve ſmooth; outer only ſerrated upwards.—This is a water graſs and a very noxious plant. It grows upon poor wet loams and clays. When it is found in meadows or paſture lands, it is a proof that the ſoil is either naturally poor, or has been rendered ſo by ſcourging crops.

maritima. * 11. A. panicle large, rather ſpreading; longer branches naked at the baſe, ſhorter crowded with florets; cal. inner valve ſmooth, outer ſerrulated upwards.

vulgaris. * 12. A. panicle ſpreading; branches bare at the baſe; florets numerous; cal. inner valve ſmooth, outer ſerrulated upwards; cor. inner valve but half the ſize of the outer; deciduous.

minima. * 13. A. cal. huſks equal, blunt, ſmooth. To thoſe are to be added the ſollowing foreign ſpecies; viz. interrupta, ſpicæformis, and hirſuta, panicea, miliacea, tenuiflora, bromoides, arundinacea, calamagroſtis, ſeratina, rubra, ſtricta, ovata, matrella, rupeſtris, compreſſa, capillaris, hiſpida, ſcabra, anomala, diandra, ſylvatica, pumila, ciliata, capenſis, tremula, virginica, pungens, ſpicata, mexicana, verticillata, coromandelina, tenaciſſima, purpureſcens, indica, procera, linearis, lenta, ſtellata. Chiefly of Japan, India, America, and S. of Europe.

132. Aira, or *Hair-graſs.*

Cal. 2-valved, 2-flowered without any intervening ſubſtance between the florets.

* 1. A. florets awnleſs; panicle expanding, ſmooth, longer than the calyx; leaves flat. *aquatica.*

* 2. A. leaves flat; panicle expanding; petals woolly and awned at the baſe; awn ſtraight, ſhort. *cæſpitoſa.*

* 3. A. leaves like briſtles; ſtraws almoſt naked; panicles diverging; fruitſtalks zigzag. *flexuoſa.*

* 4. A. leaves like briſtles; panicle ſlender and compact; florets hairy and awned at the baſe; awn twiſted and longer. *montana.*

* 5. A. leaves like briſtles; ſheaths rough; flowers in a panicle; awn not longer than the cal. *caneſcens.*

* 6. A. leaves like briſtles; ſheaths ſmooth, angular, with furrows; panicle ſpike-like; awn taller than the cal. *præcox.*

* 7. A. leaves like briſtles; ſheaths ſmoothiſh, furrowed; panicle wide ſpreading when ripe; awns taller than the cal. *caryophyllea.*

To theſe add the ſpecies called arundinacea, minuta, involucrata, pubeſcens, of N. of Europe: ſubſpicata and alpina, of the Alps: antarctica of N. Zealand: chinenſis, of China: ſetacea.

133. Melica or Melic, or *Rope-graſs.*

Cal. 2-valved, 2-flowered, with a little ſubſtance on a pedicle betwixt the florets; nect. 1 leaf; ſtamens dilated at the baſe.

* 1. M. petals not fringed; panicle drooping, undivided. *nutans.*

* 2. M. panicle compact; flowers cylindrical; ſtraw without knots. *cærulea.*

* 3. M. panicle thinly ſet; cal. with 2 florets, 1 hermaphrodite, the other neutral. Add to theſe ciliata, gigantea, geniculata, decumbens, racemoſa, ramoſa, capenſis, minuta, papilionacea, altiſſima. Chiefly of Cape of Good Hope. *uniflora.*

134. Poa, or *Meadow-graſs.*

Cal. 2-valved, many flowered; ſpikets egg-ſhaped; valves ſhining at the edge, rather acute.

* 1. P. panicle ſpreading; ſpikets ſtrap-ſhaped, 6-flowered. *aquatica.*

* 2. P. panicles with ſubdivided branches; ſpikets 5-flowered; florets diſtant, blunt; cal. valve very unequal. *diſtans.*

* 3. P. panicle ſpreading; ſpikets 5-flowered, ſmooth; ſtraw cylindrical; upright ſheath; ſcale ſhort and blunt. This is an excellent graſs, when ſown upon rich loams. *pratenſis.*

* 4. P. panicle ſpreading, very much branched; ſpikets 6-flowered, heart-ſhaped. *alpina.*

* 5. P. panicle ſpreading; ſpikets 4-flowered, pubeſcent; ſtraw cylindrical, upright; root-leaves doubled together, very ſlender; ſheaths ſmooth, ſheath-ſcale ſhort, lopped. *anguſtifolia.*

* 6. P. little ſpikes egg-ſhaped; florets ſmoothiſh, acute; ſtraw upright, bulbous at bottom. *bulboſa.*

* 7. P. panicle ſpreading horizontally; branches in pairs; *annua.*

pairs; ſpikets moſtly 4-flowered; leaves flat; ſheaths ſmooth.

trivialis. * 8. P. panicle ſpeading; ſpikets flowered, woody at the baſe; ſtraw upright, rough; ſheath-ſcale tapering to a point. It is ſaid that Mr Boys of Betſhanger in Kent has been the largeſt cultivator of this ſpecies in the kingdom, and ſold large quantities of the ſeed; but gave it up for want of a demand. It is an excellent graſs on good and ſound and moiſt loams. It is accounted in Lombardy "the queen of meadow plants" (*la regina dell erbe*) whether for dry paſtures or water meadows; multiplying itſelf much by ſeed and little by the root; ſo that if attention be not paid to permit ſome ſeed to fall, its quantity will ſenſibly diminiſh. Excellent for all ſorts of cattle.

criſtata. * 9. P. panicle ſpike-like. Cal. huſks rather hairy, 2 or 3 (rarely) 4-flowered, longer than the little fruit-ſtalk; petals awned, awn-pointed.

nemoralis. * 10. P. panicle ſlender, open when in flower; ſpikets moſtly 2-flowered, pointed, rough; ſtraw feeble.

minima. * 11. P. cal. 1-flowered.

rigida. * 12. P. panicle ſpear-ſhaped, ſomewhat branched; branches alternate, pointing one way; fruit-ſtalk bordered.

rupeſtris. * 13. P. panicle ſpear-ſhaped, branches alternate; cal. ribbed, 3 or 4-flowered; ſtraw knee-jointed.

maritima. * 14. P. panicle compact, branched; branches in pairs; ſpikes oblong; florets blunt; leaves ſharp, edges rolled in; ſtraw cylindrical, ſlanting.

compreſſa. * 15. P. panicle compact; ſtraw ſlanting, compreſſed.

decumbens. * 16. P. panicle cloſe; outer petal hairy at the edge; ſtraw lying down.

glauca. * 17. P. panicle open; ſpikets moſtly 3-flowered; florets tapering to a point; woolly at the baſe; leaves awl-ſhaped.

To theſe add the ſpecies called laxa of Europe; biflora, of India; hirta and ferruginea, of Japan; ciliarenſis, nervata, trinervata, ſudetica, rubens, anceps, flava, barbata, piloſa, paluſtris, glutinoſa, prolifera, amabilis, eragroſtis, badenſis, cynoſuroides, unioloides, racemoſa, cyperoides, verticillata, abyſſinica, capillaris, japonica, malabarica, chinenſis, punctata, nutans, tenella, ſpinoſa, ſarmentoſa, ſtriata, amboynenſis, viſcoſa, contracta, filiformis, diſticha, bifaria, bromoides, ſpicata, divaricata, peruviana, glomerata, ciliaris, ſilumoſa. Chi fly of the warmer climates.

135. Briza, or *Quaking-graſs.*

Cal. 2-valved, many-flowered; ſpiket 2-rowed; valves heart-ſhaped, blunt; the inner minute.

minor. * 1. B. ſpikets triangular; cal. longer than the florets.

media. * 2. B. ſpikets egg-ſhaped, forming a bunch.

Add virens, of S. Europe; geniculata and capenſis, of C. of Good Hope; and eragroſtis, of S. Europe.

136. Uniola, or *Sea-ſide Oats of Carolina,*

Has three ſpecies, viz. paniculata, mucronata, ſpicata, of America or India.

137. Dactylis, or *Cocks-foot Graſs.*

Cal. 2-valved, many-flowered; valves broader on one ſide. Cor. 2-valved, incloſing the ſeed. Nectaries 2.

ſtricta. * 1. D. ſpikes terminating ſometimes in pairs; florets not expanding; ſtraw and leaves ſtiff and ſtraight.

* 2. D. panicle crowded, pointing one way. This graſs is cultivated to advantage on wet loams on a clayey marl bottom, upon which the finer graſſes are apt to give way to the indigenous produce. If ſuffered to riſe high, it is very coarſe; but, when fed cloſe, is a very valuable ſheep-paſture. Women and children are ſaid to make good earnings in gathering the ſeed at 4s. a buſhel. Upon an Engliſh acre two buſhels may be ſown, with ten pounds of common red clover. When the clover wears out, the graſs covers the land, and abides well in it. It grows well in winter. *glomerata.*

Add the ſpecies cynoſuroides, ceſpitoſa, littoralis, lævis, villoſa, ſerrata, ciliaris, hiſpida, geniculata, brevifolia, lagopoides, pungens, of America, India, and Africa.

138. Cynosurus, or *Dogs-tail Graſs.*

Cal. 2-valved, many flowered, equal; cor. 2-valved; 1 valve concave, longer. Nect. 2-leaved.

* 1. C. floral leaves, with winged clefts. The creſted dogs-tail is highly ſpoken of in the Milaneſe. The Rev. Arthur Young ſpeaks thus of it: "To judge from the appearance of the bents of this graſs, in poor upland but moiſt paſtures, a man would think it a very unpromiſing plant; but the rich marſhes of Bridgewater and Boſton; the famous paſturages of Paniton in Devonſhire, and thoſe cloſe to Mr Buller's caſtle near Leſkeard in Cornwall; Mr Thorne's bullock ground, on Dunſtone bottom, near Taviſtock; Mrs William's at Little Malvern in Worceſterſhire, (which are among the richeſt paſtures in the kingdom) all abound very greatly in this graſs; in ſome of them it is the predominant herbage. Mr Marſhal places it as the moſt prevailing plant in the beſt graſs meadows of the vale of Pickering; ſome of which will feed a large cow from Mayday to Michaelmas. Very fortunately it abounds much with ſeed; ſo that I have had many buſhels gethered in a ſeaſon by poor women and children, at 1s. a pound, and laid down many acres of it ſucceſsfully. Attention ſhould be paid to its being ripe; for I once ordered eight buſhels to be ſown on eight acres, and it failed from deficiency in ripeneſs." *criſtatus.* *Communication to the B. of Agriculture.* vol. iii.

2. C. floral leaves winged, ſegments awned. *echinatus.*

3. C. floral leaves entire; ſpike nearly egg-ſhaped. *cæruleus.*

The remaining ſpecies are the following, calcatus, of C. of Good Hope; crucæformis, of Europe; paniculatus, of C. of G. Hope; lima, of Spain; olurus, of Europe; retroflexus, ſphærocephalus, uniolæ, filiformis, monoſtachyos, coracanus, floccifolius, penicillatus, paſpaloides, ægyptius, indicus, virgatus, aureus.

139. Festuca, or *Feſcue-graſs.*

Cal. 2. valved; ſpikes oblong, roundiſh; huſks tapering to a point, or terminating in an awn.

* 1. H. ſpikes upright, ſmooth. Cal. valves, one entire, the other tapering to an awn-like point. *bromoides.*

* 2. H. panicle ſpike-like, drooping. Cal. ſmaller, valve very minute; florets rough, awns very long. *myurus.*

* 3. H. panicle compact, awned; ſtraw four cornered, almoſt naked; leaves briſtle-ſhaped. It flouriſhes beſt in a dry ſandy ſoil: cows, horſes, and goats will eat it; but it is the favourite food of ſheep; they prefer it before all other graſs, and are ſaid ſooneſt to grow fat upon it; for, though ſmall, it is ſucculent. The Tartars, who lead a wandering life, tending their flocks *rubra.*

flocks and herds, always chooſe thoſe ſpots where this graſs abounds. Such may be its juſt character in the uncultivated wilds of nature; and, as it prefers a dry ſoil, its growth is an indubitable indication of the ſalubrity of ſuch places for flocks of ſheep: but in a more rich and cultivated country, it is ſaid to be of little value as a paſture graſs, being extremely diminutive; nor will it remain long in the ground if ſown, but will ſoon give place to more luxuriant graſſes.

rubra. * 4. F. panicle rough; ſpikets 6-flowered, awned; floret at the end awnleſs; ſtraw ſemi-cylindrical.

duriuſcula. * 5. F. panicle oblong; ſpikes oblong, ſmooth; leaves briſtle-ſhaped. A very excellent graſs for the agriculturiſt, as ſpringing very early, being productive, and grateful to all kinds of cattle, and is found in moſt good meadows and paſtures.

dimidorum. * 6. F. panicle ſpike-like, pubeſcent; leaves thread-ſhaped.

glabra. * 7. F. panicle branched, upright, compact; ſpikets awl-ſhaped, 3-flowered, awned, ſmooth.

cambrica. * 8. F. panicle oblong, upright, branched; ſpikets awned, ſmooth; leaves flat, naked.

tenuifolia. * 9. F. leaves like briſtles, rather long, upright; ſtraw naked, ſpikets rough.

elatior. * 10. F. panicle upright; ſpikets ſcarcely awned, the outer ones cylindrical. It makes an exellent paſture, but requires a rich ſoil. Horſes, cows, ſheep, and goats eat it.

fluitans. * 11. F. panicle branched, upright; ſpikets nearly ſitting, cylindrical, awnleſs. The ſeeds are ſmall, but very ſweet and nouriſhing. They are collected in ſeveral parts of Germany and Poland under the name of *manna ſeeds;* and are eſteemed a delicacy in ſoups and gruels, on account of their nutritious quality and excellent flavour. When ground to meal, they make bread very little inferior to that in common uſe from wheat. The bran, ſeparated in preparing the meal, is given to horſes that have the worms; but they muſt be kept from water for ſome hours afterwards. Geeſe are very fond of the ſeeds, and well know where to look for them. The plant affords nouriſhment to the *phalæna feſtucæ*. Horſes and ſwine will run riſks to get at it.

loliacea. * 12. F. ſpiked; ſpikets alternate, ſitting, compreſſed, awnleſs.

decumbens. * 13. F. panicle upright: ſpikets nearly egg-ſhaped, awnleſs; cal. larger than the florets; ſtraw lying down.

pinnata. * 14. F. ſpikets ſitting; ſtraw undivided; awn ſhorter than the bloſſoms.

ſylvatica. 15. F. ſpikets ſitting, ſtraw undivided, awn as long as the bloſſom. To theſe add the following ſpecies; viz. tenella, pumila, amethyſtina, reptatrix, heterophylla, ſciuroides, mioglumis, ſpadicea, ſcabra, fuſca, pauciflora, criſtata, miſera, indica, calycina, pungens. Mild climates.

140. BROMUS, or *Brome-graſs.*

Cal. 2. valved: ſpikets oblong, cylindrical, 2 rowed; awn beneath the point. This genus includes 33 ſpecies; viz. ſecalinus, multiflorus, mollis, pectinatus, lanceolatus, alopecurus, ſquarroſus, japonicus, bifidus, purgans, catharticus, inermis, aſper, littoreus, ciliatus, ſterilis, arvenſis, geniculatus, tectorum, giganteus, rubens, ſcoparius, rigens, racemoſus, triflorus, madritenſis, rigidus, ramoſus, gracilis, pinnatus, criſtatus, diſtachyos, ſtipoides. Chiefly European. The following are thus deſcribed.

* B. panicle expanding; ſpikets egg-ſhaped; awn ſtraight. Its merit or demerit in an agricultural view does not ſeem ſufficiently aſcertained. It is ſaid to be diſliked by farmers, as being in corn fields a troubleſome weed, and in paſtures and mowing grounds of little value, ſince it has generally ſhed its ſeed by the time of mowing, and produces very few root-leaves. *polymorphus.*

* B. panicle drooping; ſpikets egg-ſhaped; awns ſtraddling; panicle imbranched. *ſquarroſus*

* B. panicle upright, ending abruptly; ſpikets oblong, hairy, awned, about 5 florets in each; ſtraws upright; leaves hard. A coarſe graſs diſliked by cattle, as are all the bromes. Properly a feſcue, but has the habit of a brome. *erectus.*

* B. panicle diffuſe, upright but open; ſpikets ſtrap-ſhaped, the middlemoſt in pairs; pedicles thickeſt at the top. *madritenſis.*

* B. panicle drooping, rough; ſpikets hairy, awned; leaves rough. *aſper.*

* B. panicle ſpreading; ſpikets oblong; florets two-rowed; cal. taper-pointed. Awns very long. *ſterilis.*

* P. panicle drooping; ſpikets egg-oblong. *arvenſis.*

* B. panicle drooping; ſpikets four-flowered, ſhorter than the awns. *giganteus.*

* B. ſtraw undivided; ſpikets alternate, nearly ſitting; cylindrical, ſomewhat awned. *pinnatus.*

141. STIPA, or *Feather-graſs.*

Cal. 2-valved, 1-flowered. Cor. outer valve ending in an awn: awn jointed at the baſe. This genus includes 11 ſpecies; viz. pennata, juncea, capillata, ariſtella, paleacea, tenaciſſima, capenſis, ſpicata, bicolor, avenacea, membranacea. Europe, and Cape of Good Hope. The following is thus deſcribed.

* S. awns woolly. *pennata.*

142. AVENA, or *Oats.*

Cal. 2-valved, many flowered. Awn from the back of the cor. twiſted. This genus includes 34 ſpecies; viz. ſibirica, elatior, ſtipiformis, ariſtidoides, triſtata, pallida, penſylvanica, loeflingiana, brevis, alba, ſtrigoſa, orientalis, ſativa, forſkaeli, nuda, fatua, elephantina, ſequitertia, lutea, tenuis, pubeſcens, ſterilis, flaveſcens, lupulina, purpurea, antarcta, fragilis, hiſpida, pratenſis, verſicolor, diſtichophylla, ſiliformis, ſpica, bromoides, chiefly Cape of Good Hope and mild climates. The following are thus deſcribed.

* A. panicled: cal. 3-flowered; male floret awned; hermaphrodite floret ſometimes awnleſs. Cows, ſheep, and goats eat it. The roots are ſometimes very troubleſome to the farmers in arable lands, producing a kind of ſquitch. It produces a large crop, but is unpalatable to cattle, eſpecially to horſes, as are the *avenæ* in general. *elatior.*

* A. panicled: cal. 3-flowered, ſhorter than the receptacle; petals awned upon the back; the third floret awnleſs. This is nearly as good as the cultivated oat; it will make gruel or oat cake, and feed cattle, as well as that. Ray ſays it ſells in Cornwall at the price of wheat. *nuda.*

* A. panicled: cal. 3-flowered, all the florets awned and hairy at the baſe. Horſes, ſheep and goats eat it. The awns are uſed for hygrometers. Sometimes ſo prevalent amongſt barley as almoſt entirely to choke it. It may be extirpated by repeated fallowing, or laying down the land in graſs. *fatua.*

pubeſcens. * A. panicle ſpike-like; cal. 3-flowered; cor. bearded at the baſe; leaves flat, downy.

flaveſcens. * A. panicle looſe; cal. 3-flowered, ſhort all the florets awned.

pratenſis. * A. panicle ſpike-like; cal. 5-flowered.

ſtrigoſa. * A. panicle oblong, compact, pointing one way; florets in pairs, with 2 awns at the end, and a jointed awn on the back.

143. LAGURUS, or *Hares-tail Graſs.*

Cal. 2-valved, awn woolly. Cor. entire, petal with 2 awns at the end, and a twiſted awn at the back. This genus includes one ſpecies; viz.

ovatus. * L. ſpike egg-ſhaped, awned.

144. ARUNDO, or *Reed.*

Cal. 2-valved, Cor. awn-leſs, ſurrounded with down at the baſe. This genus includes 11 ſpecies; viz. donax, phragmites, bifaria, benghalenſis, tenax, karka, conſpicua, epigejos, calamagroſtis, colorata, arenaria. Chiefly of warm climates, except the following, which are thus deſcribed.

phragmites * A. cal. 5-flowered; panicle ſpreading. The panicles are ſaid to be uſed by the country people in Sweden to dye woollen green. The reeds are much more durable than ſtraw for thatching: Screens to keep off the cold winds in gardens are made of them; and they are laid acroſs the frame of wood-work as the foundation for plaiſter floors.

epigejos. * A. cal. 1-flowered; panicle upright; leaves ſmooth underneath.

calamagroſtis. * A. cal. 1-flowered, ſmooth; bloſſoms woolly; ſtraw branched.

arenaria. * A. cal. 1-flowered; leaves rolled in at the edges, ſharp pointed.

145. PAPPAPHORUM

Has one ſpecies; viz. alopecuroideum.

146. ARISTIDA, or *Oat-graſs,*

Includes ten ſpecies; viz. adſcenſionis, americana, gigantea, hyſtrix, veſtita, plumoſa, capenſis, ſetacea, depreſſa, arundinacea. Cape, and milder climates.

147. LOLIUM, or *Darnel* or *Rye-graſs,*

Cal. 1. leaf, fixed, many-flowered; ſpikets alternate. This genus includes five ſpecies; viz. perenne, tenue, temulentum, maſimum, diſtachyon. The following are thus deſcribed:

perenne. L. ſpike awnleſs; ſpikets compreſſed, many-flowered, longer than the cal. It makes an excellent hay upon dry chalky or ſandy ſoils. It is cultivated with advantage along with clover, and ſprings earlier than the other graſſes, thereby ſupplying food for cattle at a ſeaſon when it is moſt difficult to be obtained. Cows, horſes, and ſheep eat it. Goats are not fond of it. Though it ſucceeds beſt upon light ſoils, it will flouriſh on any land except ſtiff clay, and will grow even on that; but upon rich ſands and loams it becomes not only a good ſpring graſs, but if properly managed by due mixtures, turns out well as permanent paſture land; always, however, moſt valuable by being ſheep-fed, for which it is ſingularly adapted. It is worthy of remark, however, that there is reaſon to think that the common cultivated rye-graſs has degenerated from its natural qualities; and that it is inferior in many reſpects, particularly in its duration, to the rye-graſs which grows naturally in the beſt Britiſh meadows and paſtures.

temulentum. * L. ſpikes awned, compreſſed, many-flowered; not longer than the cal.; ſtraw rough. The ſeeds mixed with bread corn produce but little effect, unleſs the bread be eaten hot; but, if malted with barley, the ale ſoon occaſions drunkenneſs.

arvenſe. * L. ſpikets awnleſs, rather ſhorter than the calyx; cal. 2-valved; ſtraw ſmooth. It is very injurious to a wheat crop, but may readily be avoided as it is ſown along with the ſeed.

bromoides. * L. panicle undivided, pointing one way; ſpikets awned.

148. ROTTBOELLIA, or *Sea hard-graſs.*

Cal. of 1 or 2 valves, egg-ſpearſhaped, flat. Florets alternate, on a zigzag ſpike-ſtalk. Cor. 2-valved, awnleſs. This genus includes 16 ſpecies; viz. incurvata, filiformis, cylindrica, thomaca, repens, lævis, piloſa, compreſſa, hirſuta, cymbachne, cœlorachis, dimidiata, exaltata, corymboſa, muricata, ſanguinea. Chiefly of Europe and India. The following is thus deſcribed.

incurvata. * R. ſpike cylindrical, awl-ſhaped; cal. huſk awl-ſhaped, contiguous, divided into two.

149. ELYMUS, or *Lime-graſs.*

Cal. lateral, 2-valved, ſeveral together, many-flowered. This genus contains 12 ſpecies; viz. arenarius, giganteus, fibiricus, tener, philadelphicus, canadenſis, caninus, virginicus, ſtriatus, europæus, caput medusæ, hyſtrix. Chiefly of Europe and America. The following are thus deſcribed.

arenarius. * E. ſpike upright, compact; cal. woolly, longer than the floret. It reſiſts the ſpreading of the looſe ſand on the ſea ſhore. It is not capable of being formed into ropes as the ſtipa tenaciſſima is in Spain. Cows, horſes, and goats eat it; ſheep refuſe it.

caninus. * E. ſpike compact, leaning; ſpikets upright without an involucrum, the lowermoſt in pairs.

europeus. * E. ſpike upright; ſpikets 2-florets in each, as long as the cal.

150. SECALE, or *Rye,*

Contains four ſpecies, viz. cereale, villoſum, orientale, creticum.

151. HORDEUM, or *Barley.*

Cal. lateral, 2-valved, 1-flowered; three together. This genus includes ten ſpecies; viz. vulgare, hexaſtichon, diſtichon, zeocriton, bulboſum, nodoſum, murinum, ſecalinum, maritimum, jubatum. The following are thus deſcribed.

murinum. * H. lateral florets male, awned, ſmooth on the heel; involucrum of the intermediate florets fringed. Sheep and horſes eat it. It feeds the brown moth (*phalæna granella*), and the barley fly (*muſca frit*).

pratenſe. * H. lateral florets male, awnleſs; involucrum briſtle-ſhaped, rough. In moiſt meadows it produces a conſiderable quantity of hay, but is not to be recommended as one of the beſt graſſes for the farmer.

maritimum. * H. lateral florets male, awnleſs; middle floret hermaphrodite, with a long awn.

ſylvaticum * H. all the florets hermaphrodite, awned; cal. growing together at the baſe, ſhorter than the awns.

152. TRITICUM, or *Wheat.*

Cal. 2-valved, ſolitary, moſtly 3-flowered; floret bluntiſh.

bluntiſh. This genus includes 18 ſpecies; viz. æſtivum, hybernum, compoſitum, turgidum, polonicum, ſpelta, monococcum, hiſpanicum, proſtratum, pumilum, junceum, diſtichum, repens, maritimum, tenellum, unioloides, loliaceum, unilaterale. Of mild climates. The following are thus deſcribed.

junceum. * T. cal. 5-flowered, lopped; leaves edges rolled in.

repens. * T. cal. 4-flowered, awl-ſhaped, tapering to a point; leaves flat. It is a moſt troubleſome weed in arable lands, and can only be deſtroyed by fallowing in a dry ſummer. At Naples the roots are collected in large quantities and ſold in the market to feed horſes: they have a ſweet taſte, ſomething approaching to that of liquorice: when dried, and ground to meal, they have been made into bread in years of ſcarcity. The juice of them drank liberally is recommended by Boerhaave in obſtructions of the viſcera; particularly in caſes of ſcirrhous liver and jaundice. Cattle are frequently found to have ſcirrhous livers in the winter, and they ſoon get cured when turned out to graſs in the ſpring. Dogs eat the leaves to excite vomiting; horſes eat them when young, but leave them when fully grown; cows, ſheep, and goats eat them.

caninum. * T. cal. pointed, moſtly 4-flowered; awns longer than the cor.; ſpikets upright.

loliaceum. * T. ſpike ſimple, compreſſed; ſpikets egg-ſhaped, but pointed; cal. many-flowered.

153. LAPPAGO
Has one ſpecies, called racemoſa. Europe, India, and Arabia.

ORDER III. TRIGYNIA.

154. ERIOCAULON, or *Net-work*,
Has eight ſpecies; viz. triangulare, quinquangulare, ſexangulare, ſetaceum, decangulare, repens, faſciculatum, umbellatum. India, and S. America.

155 MONTIA, or *Small Water Chick-weed*,
Cal. 2 leaves. Cor. 1 petal, irregular. Capſ. 1-celled, 2-valved. It has only one ſpecies, called * fontana.

156. PROSERPINACA,
One ſpecies, called paluſtris. Virginia.

157. HOLOSTEUM
Has five ſpecies; viz. cordatum, diandrum, ſucculentum, hirſutum, * umbellatum. Chiefly hot climates.

158. KOENIGIA.
One ſpecies, called iſlandica. Iceland.

159. POLYCARPON.
One ſpecies, called tetraphyllum. Europe.

160. DONATIA.
One ſpecies, called faſcicularis. Ter. del Fuego.

161. MOLLUGO, or *African Chick-weed*,
Has five ſpecies; viz. oppoſitifolia, ſtricta, hirta, pentaphylla, verticillata. Hot climates.

162. MINUARTIA
Has three ſpecies; viz. dichotoma, campeſtris, montana. Spain.

163. QUERIA
Has three ſpecies, viz. hiſpanica, canadenſis, trichotoma. The laſt of Japan.

164. LECHEA
Has three ſpecies; viz. minor and major, of Candia; verticillata of E. Indies.

In the claſs Triandria are
90 Genera, including 920 Species, of which 147 are found in Britain.

CLASSIS IV.
TETRANDRIA.

ORDO I. MONOGYNIA.

Sect. I. *Flores monopetali, monoſpermi, inferi.*

169. GLOBULARIA. Cor. 1-petalæ, irregulares. Sem. pappo nudis.

Sect. II. *Flores monopetali, monoſpermi, ſuperi, aggregatæ.*

* 171. DIPSACUS. Cal. communis foliaceus. Recept. conicum, paleaceum. Sem. columnaria.
* 172. SCABIOSA. Cal. communis. Recept. elevatum, ſubpaleaceum. Sem. coronata, involuta.

173. KNAUTIA. Cal. communis oblongus. Recept. planum, nudum. Sem. apice villoſa.

CLASS IV.
TETRANDRIA.

ORDER I. MONOGYNIA.

Sect. I. *Flowers with one petal, 1-ſeeded, inferior.*

G. or *Blue Daiſy*. Cor. 1-petal, irregular; ſeed without down.

Sect. II. *Flowers monopetalous, 1-ſeeded, incorporated.*

* D. or *Teazel*. Cal. common, leafy. Receptacle conical, chaffy. The ſeeds columnar.
* S. or *Scabious*. The cal. common. The receptacle elevated, ſomewhat chaffy. The ſeed crowned, rolled inwards.
K. Cal. common, oblong. Receptacle flat, naked. Seed with a woolly top.

174. Allionia. Cal. comm. triphyllus, 3-florus, proprius ſuperus o. Sem. nuda.

A. Cal. common, 3-leafed, 3-flowered; the proper ſuperior wanting. Seed naked.

† *Valeriana Sibirica. Boerhaavia tetrandra.*

Sect. III. *Flores monopetali, tetraſpermi.*

Sect. III. *Flowers monopetalous, 4-ſeeded.*

188. Mattuschkea. Cor. 4-fida hypocrateriformis. Cal. 4-partitus.

M. Cor. 4-cleft, ſalver-ſhaped. Cal. quadripartite.

Sect. IV. *Flores monopetali, monocarpi, inferi.*

Sect. IV. *Flowers monopetalous, 1 fruit-veſſel, inferior.*

203. Pyrostria. Cor. campanulata. Cal. 4-dent. Drupa nucibus 8-fœta.

P. Cor. bell-ſhaped. Cal. 4-toothed. A drupe 8-ſeeded with nuts.

202. Myonima. Cor. tubuloſa. Cal. integerrimus. Drupa nuce 4-locul. 4-ſperma.

M. Cor. tubular. Cal. entire. A drupe with a nut, and 4 cells and 4 ſeeds.

201. Petitia. Cor. tubuloſa. Cal. 4-dentat. Drupa nuce 2-locul.

P. Cor. tubulous. Cal. 4-toothed. A drupe with a 2-celled nut.

210. Aquartia. Cor. rotata. Cal. ſubquadrifidus. Bacca polyſperma.

A. Cor. wheel-ſhaped. Cal. nearly 4-cleft. A berry many-ſeeded.

190. Roussea. Cor. campanulata. Cal. 4-phyll. Bacca 4 angul polyſperma.

R. Cor. bell-ſhaped. Cal. 4-leafed. A berry 4-angular, many-ſeeded.

209. Callicarpa. Cor. tubuloſa. Cal. 4-fidus. Bacca 4-ſperma.

C. or *Tonſonia*. Cor. tubulous. Cal. 4-cleft. Berry 4-ſeeded.

208. Wallenia. Cor. tubuloſa. Cal. 4-fid. Bacca 1-ſperma.

W. Cor. tubulous. Cal. 4-cleft. Berry 1 ſeed.

211. Witheringia. Cor. ſubcampanulata. Cal. obſolete 4-dentat. Pericarp 2-locul.

W. Cor. nearly bell-ſhaped. Cal. obſcure, 4-toothed. Seed-veſſel 2-celled.

205. Aegiphila. Cor. hypocraterif. Cal. 4-dentatus. Bacca 2-locul. Stylus ſemibifidus.

A. Cor. ſalver-ſhaped. Cal. 4-toothed. Berry 2-celled. Style half-cleft.

170. Cephalanthus. Cor. infundibuliformis. Cal. 4-fidus. Capſ. 4-locul. non dehiſcens.

C. or *Button-wood*. Cor. funnel-ſhaped. Cal. 4-cleft. Capſ. 4-celled; not wide.

215. Lasiostoma. Cor. infundibuliformis, fauce villoſa. Cal. 5-fid. Capſ. 1-locul. 2-ſperma.

L. Cor. funnel-ſhaped, with a woolly mouth. Cal. 5-cleft. Capſ. 1-celled, 2-ſeeded.

223. Scoparia. Cor. rotata. Cal. 4-partitus. Capſ. 1-locularis. 2-valvis.

S. Cor. wheel-ſhaped. Cal. 4-parted. Capſ. 1-celled, 2-valved.

224. Centunculus. Cor. rotata. Cal. 4-partitus, 1-locularis, circumſciſſa.

C. or *Baſe Pimpernel*. Cor. wheel-ſhaped. Cal. 4-cleft. Capſ. 1 cell, cut round.

* 222. Plantago. Cor. refracta. Cal. 4-partitus. Capſ. 2-locularis, circumſciſſa.

* P. or *Plantain*. Cor. bent back. Cal. 4-cleft. Capſ. 2-celled, cut round.

213. Polypremum. Cor. rotata. Cal. 4-phyllus. Capſ. bilocularis, emarginata.

P. or *Carolina Flax*. Cor. wheel-ſhaped. Cal. 4-leaved. Capſ. 2 cells, notched.

220. Buddleia. Cor. campanulata. Cal. 4-fidus. Capſ. 2-locularis biſulca.

B. Cor. bell-ſhaped. Cal. 4-cleft. Capſ. 2-celled, 2-furrowed.

221. Exacum. Cor. ſubcampanulata. Cal. 4-phyllus. Capſ. 2-locularis compreſſa.

E. Cor. nearly bell-ſhaped. Cal. 4-leaved. Capſ. 2-celled, compreſſed.

212. Myrmecia. Cor. tubuloſa. Cal. 5-dentatus. Capſ. 2-locul. polyſperma.

M. Cor. tubulous. Cal. 5-toothed. Capſ. 2-celled, many-ſeeded.

214. Labatia. Cor. ſubcampanulata. Cal. 4-phyll. Capſ. 4-locularis.

L. Cor. nearly bell-ſhaped. Cal. 4-leaved. Capſ. 4-celled.

218. Penæa. Cor. campanulata. Cal. 2-phyllus. Capſ. 4-locularis, 4-valvis.

P. Cor. bell-ſhaped. Cal. 2-leaved. Capſ. 4-celled, 4-valved.

219. Blæria. Cor. ſubcampanulata. Cal. 4-partitus. Capſ. 4-locularis, angulis dehiſcens.

B. Cor. nearly bell-ſhaped. Cal. 4-partite. Capſ. 4-celled, with open angles.

† *Juſticia pulcherrima, lycium tetrandrum, cordia tetrandra.*

Sect. V. *Flores monopetali, monocarpi, ſuperi.*

Sect. V. *Flowers monopetalous, 1 ſeed-veſſel, ſuperior.*

200. Chomelia. Cor. tubuloſa. Cal. 4-fidus. Drupa nuce 2-locul.

C. Cor. tubulous. Cal. 4-cleft. A drupe with a 2-celled nut.

204. Cunninghamia. Cor. infundibuliformis. Cal. 4-dentat. Drupa nuce 2-locul.

C. Cor. funnel-ſhaped. Cal. 4-cleft. A drupe with a 2-celled nut.

182. Scolosanthus. Cor. tubulosa, limbo revoluto. Cal. 4-fid. Drupa 1-sperma.

195. Pevatta. Cor. tubulosa. Cal. 4-dentatus. Bacca 1-sperma.

194. Ixora. Cor. tubulosa. Cal. 4-partitus. Bacca 2-locularis. Sem. 2.

188. Petesia. Cor. tubulosa. Cal. 4-dentatus. Bacca 2-locularis, polysperma.

193. Catesbæa. Cor. tubulosa. Cal. 4-dentatus. Bacca 1-locularis, polysperma.

191. Froelichia. Cor. tubulosa. Cal. 4-partit. Bacca 1-sperma exsucca. Sem. arillatum.

199. Hoffmannia. Cor. tubulosa. Cal. 4-dentatus. Filamenta 0. Bacca 2-locul. polysperma.

196. Ernodea. Cor. tubulosa. Cal. 4-partitus. Bacca 2-locul. Sem. solitaria.

197. Siderodendrum. Cor. tubulosa. Cal. 4-dentatus. Bacca 2-occa. Sem. solitaria.

207. Coccopcysilum. Cor. infundibulif. Cal. 4-fid. Bacca inflata 2-locul. polysperma.

206. Mitchella. Cor. 2, tubulosæ. Cal. 4-dentatus. Bacca 4-sperma, biflora, bifida.

176. Hedyotis. Cor. tubulosa. Cal. 4-partitus. Capsl. didyma, polysperma, apice dehiscens.

240. Oldenlandia. Cor. tubulosa. Cal. 4-partitus. Capsl. didyma, polysperma, dehiscens inter dentes.

181. Hydrophylax. Cor. infundibulif. Cal. 4-partit. Capsl. angulata, 2-locul. dissepimentis contrariis. Sem. solitar.

216. Manettia. Cor. tubulosa. Cal. 8-phyllus. Capsl. 1-locularis.

183. Carphalea. Cor. tubulosa, intus hirta. Cal. 4-fid. Capsl. 2-locul. polysperma.

217. Bellardia. Cor. 4-fida. Cal. 4-fid. Capsl. 2-locul. 2-partibil. polysperma.

* 225. Sanguisorba. Cor. plana supera. Cal. 2-phyllus inferus. Capsl. 4-gona inter calycem et corollam.

† *Coffea occidentalis. Bondeletia pilosa, virgata. Hillia tetrandra. Guettarda elliptica, membranacea. Portlandia tetrandra.*

S. Cor. tubulous, with a border rolled back. Cal. 4-cleft. A drupe with 1 seed.

R. Cor. tubulous. Cal. 4-toothed. A berry with 1 seed.

I. or *American Jessamine.* Cor. tubulous. Cal. 4-partite. A 2 celled berry; 2 seeds.

P. Cor. tubulous. Cal. 4-toothed. A 2-celled berry, many-seeded.

C. or *Lily Thorn.* Cor. tubulous. Cal. 4-toothed. A berry with 1 cell, many seeds.

F. Cor. tubulous. Cal. 4-partite. Berry 1 dry seed. Seed coated.

H. Cor. tubulous. Cal. 4-cleft; no filaments. A berry with 2 cells and many seeds.

E. Cor. tubulous. Cal. 4-cleft. A 2-celled berry, 1 seed.

S. Cor. tubulous. Cal. 4-toothed. A berry with 2 cells; 1 seed in each.

C. Cor. funnel-shaped. Cal. 4-cleft. A berry inflated, with 2 cells and many seeds.

M. Cor. double, tubulous. Cal. 4-toothed. A berry 4-seeded, double-flowered, cleft.

H. Cor. tubulous. Cal. 4-partite. Capsl. double, many seeds, with an open top.

O. Cor. tubulous. Cal. 4-partite. Capsl. double; many seeds; opening between the teeth.

Sect. VI. *Flores monopetali, dicocci, inferi.*

184. Houstonia. Cor. tubulosa. Cal. 4-dentatus. Capsl. 2-locularis, 2-valvis.

H. Cor. funnel-shaped. Cal. 4-partite. Capsl. angular, 2-celled, with opposite partitions. The seeds solitary.

M. Cor. tubulous. Cal. 8-leaved. Capsl. 1 cell.

Sect. VI. *Flowers monopetalous, 2 capsules united, each with one cell, inferior.*

H. Cor. tubulous. Cal. 4-toothed. Capsl. 2-celled; 2-valved.

Sect. VII. *Flores monopetali, dicocci, superi. Stellatæ.*

* 187. Rubia. Cor. campanulata. Fructus beccati.

* 185. Galium. Cor. plana. Fructus subglobosi.

* 179. Asperula. Cor. tubulosa. Fructus subglobosi.

* 178. Sherardia. Cor. tubulosa. Fructus coronatus. Sem. 3-dentatis.

177. Spermacoce. Cor. tubulosa. Fructus coronatus. Sem. 2-dentatis.

182. Knoxia. Cor. tubulosa. Fructus bipartibilis sulcatus.

C. Cor. tubulous rough-haired within. Cal. 4-cleft. Capsl. 2 cells, many seeds.

B. Cor. 4-cleft. Cal. 4-cleft. Capsl. 2-celled, divisible into two. Many seeds.

* S. or *Greater Wild Burnet.* Cor. flat above. Cal. 2-leaved; bent downwards. Capsl. 4-gonous between the cal. and the cor.

Sect. VII. *Flowers monopetalous, 2 capsules united, each with one cell, superior. Starlike.*

* R. or *Madder.* Cor. bell-shaped. Fruit a berry.

* G. or *Ladies Bed-straw.* Cor. flat. Fruit nearly round.

* A. or *Wood-roof.* Cor. tubulous. Fruit nearly round.

* S. or *Little Field-madder.* Cor. tubulous. Fruit crowned. Seed 3-toothed.

S. or *Butter-weed.* Cor. tubulous. Fruit crowned. Seed 2-toothed.

K. Cor. tubulous. Fruit divisible; furrowed.

180.! Diodia. Cor. tubulosa. Fructus tetragonus connatus, 2-valvis.

186. Crucianella. Cor. tubulosa, aristata. Fructus nudus. Sem. linearia.

Sect. VIII. *Flores monopetali, tetracocci, inferi.*

189. Siphonanthus. Cor. tubulosa. Cal. 5-partitus. Bacca 4, 1-spermæ.

Sect. IX. *Flores tetrapetali, inferi.*

227. Epimedium. Petala nectar. 4-incumbentia. Cal. 4-phyllus. Cal. 4-phyllus. Siliqua 1-locularis.

235. Ptelea. Pet. coriacea. Cal. 4-partitus. Stigmata 2. Samara monosperma.

234. Blackburnia. Petala oblonga. Cal. 4-dentat. Stigma simplex. Bacca 1 sperma.

236. Skimmia. Pet. concava. Cal. 4-partit. Bacca 4-sperma.

233. Monetia. Pet. linearia. Cal. 4-fid. Bacca 2-locul.

230. Samara. Pet. basi lacuna. Cal. 4-partitus. Drupa subrotunda. Stigma infundibuliforme.

232. Hartogia. Pet. patentia. Cal. 5-fid. Drupa nuce 2-sperma.

247. Curtisia. Pet. obtusa. Cal. 4-part. Drupa nuce 4 s. 5-locul.

231. Fagara. Pet. staminibus breviora. Cal. 4-fidus. Capsl. 4-valved, 1 sperma.

237. Othera. Pet. lanceolata. Cal. 4-part. Stigma sessile. Capsl.

238. Orixa. Pet. lanceolata. Cal. 4-part. Stigma capitat. Capsl.

241. Amannia. Pet. rarissime presentia. Cal. tubulosus, 8-dentatus. Capsl. 4-locularis.

† *Evonymus europæus, japonicus. Portulaca meridiana. Melastoma tetrandra. Cardamine hirsuta.*

Sect. X. *Flores tetrapetali superi.*

243. Trapa. Cal. 4-partitus. Nux armata spinis conicis oppositis.

226. Cissus. Cal. cingens germen. Bacca 1-sperma.

229. Glossoma. Cal. 4-dentat. Drupa nuce 1-sperma.

* 228. Cornus. Cal. 4-dentatus, deciduus. Drupa nuce 2-loculari.

239. Ludwigia. Cal. 4-partitus. Capsl. 4-locularis, tetragona.

251. Santalum. Cor. 4-petala calyci innata. Bacca 1-sperma.

Sect. XI. *Flores incompleti inferi.*

252. Struthiola. Cor. 4-fida. Bacca 1-sperma sicca. Nectar. 8-glandulis.

175. Opercularia. Cor. 4 s. 5-fida. Stam. receptaculo inserta. Semina solitaria receptaculo immersa.

D. Cor. tubulous. Fruit 4-cornered, united at the base, 2-valved.

C. or *Petty Madder.* Cor. tubulous, awned. Fruit naked. Seed strap-shaped.

Sect. VIII. *Flowers monopetalous, with 4 capsules united, each with 1 cell, inferior.*

S. Cor. tubulous. Cal. 5-partite, 4 berries; one seed in each.

Sect. IX. *Flowers four-petalous, inferior.*

E. 4 honied petals, incumbent. Cal. 4-leaved. A pod with 1 cell.

P. or *Shrub Trefoil.* The petals leather-like. Cal. 4-partite. Two stigmas. Seed-vessel 1-seeded.

B. Petals oblong. Cal. 4-toothed. Stigma single. A 1-seeded berry.

S. Petals concave. Cal. 4-partite. A berry, 4-seeded.

M. Petals strap-shaped. Cal. 4-cleft. Berry 2-celled.

S. Petals with a pitted base. Cal. 4-partite. A roundish drupe. Stigma funnel-shaped.

H. Pet. expanding. Cal. 5-cleft. A drupe with a nut and 2 seeds.

C. or *Hassagay-tree.* Pet. obtuse. Cal. 4-partite. A drupe, and 4 or 5 cells.

F. The petals shorter than the stamens. Cal. 4-cleft. Capsl. 4-valved, 1 seed.

O. Pet. spear-shaped. Cal. 4-partite. Stigma sitting. Capsl.

O. Pet. spear-shaped. Cal. 4-partite. The stigma with a head. Capsl.

A. Pet. rarely present. Cal. tubulous 8-toothed. Capsl. 4-celled.

Sect. X. *Flowers four-petaled, superior.*

T. or *Floating Water-caltrops.* Cal. 4-partite. A nut armed with opposite conical thorns.

C. Cal. surrounding the seed-bud. A berry 1 seed.

G. Cal. 4-toothed. A drupe with a nut, and 1 seed.

* C. or *Dogwood*, or *Cornel-cherry.* Cal. 4-toothed, deciduous. A drupe with a 2-celled nut.

L. or *Base Virginian Looseſtrife.* Cal. 4-partite. Capsl. 4-celled, 4-cornered.

S. or *Sanders.* Cor. 4. Pet. fixed in the cal. A berry with 1 seed.

Sect. XI. *Flowers incomplete, inferior.*

S. Cor. 4-cleft. A berry with 1 seed, dry. Honied with 8 glands.

O. Cor. 4 or 5-cleft. The stamens inserted in the receptacle. The seed solitary, sunk in the receptacle.

165. PROTEA. Cor. 4-fida. Antheræ infra apices corollæ inſertæ. Nux 1-ſperma.

167. RUPALA. Cor. 4-petala. Stamina medio petalorum inſerta. Bacca 1-ſperma.

166. BANKSIA. Cor. 4-petala. Stamina limbo inſerta. Capſ. 2-valvis, 2-ſperma. Semina alata.

168. EMBOTHRIUM. Cor. 4-petala. Stam. limbo inſerta. Folliculus polyſpermus. Sem. alata.

245. POTHOS. Cor. 4-petala. Spatha 1-phylla. Bacca 2-locul.

253. KRAMERIA. Cor. 4-petala. Bacca ficca 1-ſperma, echinata.

255. RIVINA. Cor. 4-petala. Bacca 1-ſperma. Sem. ſcabrum.

248. CHLORANTHUS. Petalum 3-lobum. Bacca 1-ſperma.

256. SALVADORA. Cal. 4-fidus. Bacca 1-ſperma. Sem. arillatum.

257. CAMPHOROSMA. Cal. 4-fidus. Capſ. 1-ſperma.

258. ALCHEMILLA. Cal. 4-fidus. Sem. 1, calice incluſum.

244. DORSTENIA. Cal. recept. planum, carnoſum, commune.

246. CORNETES. Umbella 4-phylla, 3-flora. Capſ. 3-cocca.

† *Corchorus coreta. Convallaria bifolia. Ammannia.*

P. or *Silver-tree*. Cor. 4-cleft. The anthers inſerted below the points of the cor. A nut, 1 ſeed.

R. Cor. with 4 petals. The ſtamens inſerted in the middle of the petals. A berry with 1 ſeed.

B. Cor. with 4 petals. The ſtamens inſerted in the border. Capſ. 2-valved, 2-ſeeded; the ſeeds winged.

E. Cor. with 4 petals. The ſtamens inſerted in the border. An air-bag, many-ſeeded; ſeeds winged.

P. or *Scunkweed*. Cor. with 4 petals. Sheath 1-leaved. A berry with 2 cells.

K. Cor. 4-petaled. A dry berry, 1 ſeed, prickly.

R. Cor. 4-petaled. A berry with one ſeed. Seed rough.

C. or *Tea-leaved Chu-lan*. Pet. 3-lobed. A berry with 1 ſeed.

S. Cal. 4-cleft. A berry with one ſeed. Seed coated.

C. Cal. 4-cleft. Capſ. 1 ſeed.

A. or *Ladies Mantle*. Cal. 4-cleft. Seed 1, in the calyx.

D. or *Contrayerva*. Cal. and receptacle flát, fleſhy common.

C. an umbel 4-leaved, 3-flowered. Capſ. 3-celled

Sect. XII. *Flores incompleti, ſuperii.*

250. GONATOCARPUS. Cor. 4-fida. Drupa nuce 1-ſperma.

254. ACÆNA. Cal. 4-phyllus. Bacca echinata 1-ſperma.

242. ISNARDIA. Cal. campanulatus, perſiſtens. Capſ. 4-locularis.

249. ELÆAGNUS. Cal. companulatus, deciduus. Drupa.

† *Theſium alpinum.*

Sect. XII. *Flowers incomplete, ſuperior.*

G. Cor. 4-cleft. A drupe with a 1-ſeeded nut.

A. Cal. 4-leaved. A prickled 1-ſeeded berry.

I. Cal. bell-ſhaped, permanent. Capſ. 4-cleft.

E. or *Oleaſter*, or *Wild-olive*. Cal. bell-ſhaped, deciduous. A drupe.

ORDO II. DIGYNIA.

260. BUFONIA. Cor. 4-petala. Cal. tetraphyllus. Capſ. 1-locularis, 2-valvis, 2-ſperma.

263. HYPECOUM. Cor. 4-petala, inæqualis. Cal. 2-phyllus. Siliqua.

261. HAMAMELIS. Cor. 4-petala longiſſima. Cal. duplex. Nux 2-locularis bicornis.

* 262. CUSCUTA. Cor. 4-fida, ovata. Cal. 4-fidus. Capſ. 2-locularis circumſciſſa.

264. NERTERIA. Cor. campanulata. Cal. o. Baca 2-locul.

265. GALOPINA. Cor. campanulata. Cal. o. Sem. 2-muricata.

259. CRUZITA. Cor. o. Cal. 4-phyllus, exterior 3-phyllus. Sem. 1.

† *Herniaria fruticoſa. Gentenæ quadrifidæ. Swertia corniculata dichotoma.*

ORDER II. DIGYNIA.

B. or *Toad-graſs*. Cor. 4-petaled. Cal. 4-leaved. Capſ. 1 cell, 2 valves, 2 ſeeds.

H. Cor. 4-petaled, unequal. Cal. 4-leaved. A pod.

H. or *Witch-hazel*. Cor. 4-petaled, very long. Cal. double. A nut, 2-celled, 2-horned.

* C. or *Dodder*. Cal. 4-cleft, oval. Cal. 4-cleft. Capſ. 2-celled, cut round.

N. Cor. bell-ſhaped. No cal. A berry with 2 cells.

G. Cor. bell-ſhaped. No cal. A ſeed, thorny on two ſides.

C. No cor. Cal. 4-leaved. On the outſide 3-leaved. Seed 1.

Ordo III. TRIGYNIA.

266. Boscia. Cor. 4-petala. Cal. 4-dentatus. Capſ. 4-locularis.

Ordo IV. TETRAGYNIA.

267. Ilex. Cor. 1-petala. Cal. 4-dentatus. Bacca 4-ſperma.

268. Coldenia. Cor. 1-petala. Cal. 4-phyllus. Sem. 2, bilocularia.

271. Sagina. Cor. 4-petala. Cal. 4-phyllus. Capſ. 4-locularis, polyſperma.

272. Tillæa. Cor. 3 ſ. 4-petala. Cal. 3 ſ. 4-phyllus. Capſ. 3 ſ. 4-polyſpermæ.

273. Myginda. Cor. 4-petala. Cal. 4-partitus. Drupa 1-ſperma.

269. Potamogeton. Cor. o. Cal. 4-phyllus. Sem. 4, ſeſſilia.

270. Ruppia. Cor. o. Cal. o. Sem. 4, pedicellata.

Order III. TRIGYNIA.

B. Cor. 4-petaled. Cal. 4-toothed. Capſ. 4-celled.

Order IV. TETRAGYNIA.

I. or *Holly*. Cor. 1-petal. Cal. 4-toothed. A berry 4-ſeeded.

C. Cor. 1-petal. Cal. 4-leaved. Two ſeeds, 2-celled.

S. or *Pearlwort*. Cor. 4-petaled. Cal. 4-leaved. Capſ. 4-celled, many-ſeeds.

T. or *Small Annual Houſeleek*. Cor. 3, or 4-petated. Cal. 3 or 4-leaved. Capſ. 3, or 4, Many-ſeeds.

M. Cor. 4-petaled. Cal. 4-partite. A drupe with 1 ſeed.

P. No cor. Cal. 4-leaved. Seeds 4-ſitting.

R. or *Sea or Taſſel-graſs*. No cor. No cal. Seeds 4, on a pedicle.

Order I. MONOGYNIA.

165. Protea, or *Silver-tree*.

Cor. 4 cleft. The anthers, ſtrap-ſhaped, inſerted in the petals beneath the apex. No proper calyx. A nut. 1 ſeed.

decumbens 1. P. with leaves, 3-cleft, thread-ſhaped; the ſtem decumbent. C. of G. Hope. ♄.

florida. 2. P. with leaves, 3-cleft, winged, thread-ſhaped; ſtem erect, with ſolitary little heads, ſurrounded by leaves. ♄. C. of G. Hope.

cyanoides. 3. P. with leaves 3-cleft, winged, thread-ſhaped; ſtem erect, naked, ſolitary, little heads. ♄. C. of G. Hope.

patula. 4. P. with leaves 3-cleft, thread ſhaped; erect ſtem, little heads incorporated. ♄. C. of G. Hope.

pulchella. 5. P. with leaves double winged, ſmooth, thread-ſhaped, with terminal heads, club-ſhaped, without floral leaves. ♄. N. Holland.

ſphaero-cephala. 6. P. with double winged thread-ſhaped leaves; fruit-ſtalks ſhorter than the tops, with the ſcales of the cal. oval, woolly at the baſe. ♄. C. of G. Hope.

ſerraria. 7. P. with double winged, thread-ſhaped, hairy leaves; fruitſtalks longer than the tops; with the ſcales of the cal. egg-ſpear-ſhaped and hairy. ♄. C. of G. Hope.

triternata. 8. P. with double winged, thread-ſhaped, ſmooth leaves. The fruitſtalks longer than the head, with the ſcales of the cal. ſpear-ſhaped and hairy. ♄. C. of G. Hope.

glomerata. 9. P. with double winged thread-ſhaped leaves; and naked, common, elongated fruitſtalk; the pedicles longer than the knobs. ♄. C. of G. Hope.

phylicoides 10. P. with double winged, thread-ſhaped leaves; and terminal knobs, ſolitary, and cottony. ♄. C. of G. Hope.

11. P. with double-winged, thread-ſhaped leaves; and *lagopus.* aggregate knobs in ſpikes. ♄. C. of G. Hope.

12. P. with double-winged thread-ſhaped leaves; *ſpicata.* and heads ſpiked and diſtinct. ♄. C. of G. Hope.

13. P. with double-winged inferior leaves; the ſu- *ſceptrum.* perior being 3-cleft and entire. ♄. C. of G. Hope.

14. P. with ſmooth 5-cleft leaves; ſtem erect; and *crinita.* terminal heads by three's. ♄. C. of G. Hope.

15. P. with 5-toothed ſmooth leaves; ſtem erect and *conocarpa.* a terminal head. ♄. C. of G. Hope.

16. P. with 3-toothed, ſmooth, elliptical leaves; *elliptica.* erect ſtem and terminating head. ♄. C. of G. Hope.

17. P. with 3-toothed ſmooth leaves, a decumbent *hypophylla* ſtem and terminal head. ♄. C. of G. Hope.

18. P. with 3-toothed ſmooth leaves and lateral heads. *cucullata.* ♄. C. of G. Hope.

19. P. with 3-toothed cottony leaves. ♄. C. of *tomentoſa.* G. Hope.

20. P. with 4-toothed entire leaves, and ſtem decum- *hetero-* bent. ♄. C. of G. Hope. *phylla.*

21. P. with thread-ſhaped leaves, and flowers bunchy *pinifolia.* and ſmooth, cal. not double. ♄. C. of G. Hope.

22. P. with leaves thread-ſhaped; flowers cottony, *racemoſa.* in bunches, with a double cal. ♄. C. of G. Hope.

23. P. with leaves thread-ſhaped, bent inwards, and *incurva,* ſmooth, and bunchy ſpiked cottony knobs. ♄. C. of G. Hope.

24. P. with hairy thread-ſhaped leaves, and ſitting, *caudata.* ſpiked heads or knobs. ♄. C. of G. Hope.

25. P. with thread-ſhaped channelled leaves, a ter- *bracteata.* minal knob, and many-cleft floral leaves. ♄. C. of G. Hope.

26. P. with inferior thread-ſhaped leaves, the ſupe- *comoſa.* rior ſpear-ſhaped, and a terminal or terminating knob. ♄. C. of G. Hope.

27. P. with ſtrap-ſhaped, bent back leaves, crooked *purpurea.* terminal

terminal knobs, and decumbent ſtem. ♄. C. of G. Hope.

prolifera. 28. P. with awl-ſhaped compreſſed leaves, and a flower-bearing ſtem. ♄. C. of G. Hope.

corymboſa. 29. P. with ſtrap-awl-ſhaped contiguous leaves, and little flat-topped branches in whirls. ♄. C. of G. Hope.

nana. 30. P. with ſtrap-awl-ſhaped leaves, a terminal knob and coloured calyx. ♄. C. of G. Hope.

lanata. 31. P. with contiguous 3-ſquare leaves, and a woolly terminal knob. ♄. C. of G. Hope.

torta. 32. P. with oblique, ſtrap-ſhaped, obtuſe leaves. ♄. C. of G. Hope.

alba. 33. P. with ſtrap-ſhaped, ſilky, cottony leaves. ♄. C. of G. Hope.

aulacea. 34. P. with ſtrap-battledore-ſhaped, ſmooth leaves; flowers in bunches; ſingle calyx. ♄. C. of G. Hope.

umbellata. 35. P. with ſtrap-battledore-ſhaped, ſmooth leaves; terminal knobs, many-cleft; floral leaves. ♄. C. of G. Hope.

linearis. 36. P. with ſtrap battledore-ſhaped ſmooth leaves; a cottony terminal knob. ♄. C. of G. Hope.

cinerea. 37. P. with ſtrap-wedge-ſhaped ſilky leaves, and a ſilky terminal knob. C. of G. Hope.

ſcolymus. 38. P. with ſharp ſpear-ſhaped leaves, and a round terminal knob or head. ♄. C. of G. Hope.

abyſſinica. 39. P. with ſpear-ſhaped leaves, obtuſe and ſlender at the baſe, and a hemiſpherical terminal knob. ♄. Abyſſinia.

mellifera. 40. P. with ſtrap-elliptical-ſhaped leaves, and an oblong terminal knob. ♄. C. of G. Hope.

repens. 41. P. with ſpear-elliptical-ſhaped ſmooth leaves, an oval knob, and ſhort decumbent ſtem. ♄. C. of G. Hope.

plumoſa. 42. P. with ſpear-wedge-ſhaped hoary leaves, an oblong terminal knob, petals ſmooth beneath, and hairy above. ♄. C. of G. Hope.

obliqua. 43. P. with ſtrap-ſpear-ſhaped, callous, ſmooth, oblique leaves, and a terminal knob belonging to the ſtem. ♄. C. of G. Hope.

parviflora. 44. P. with elliptical obtuſe, callous, oblique leaves, and ſmooth terminal heads of little branches. ♄. C. of G. Hope.

pallens. 45. P. with leaves ſpear-ſhaped, ſlender at the baſe, ſmooth, ſharp, callous; and a terminal knob fenced with a pale cover. ♄. C. of G. Hope.

conifera. 46. P. with leaves ſpear-ſhaped, attenuate at the baſe, ſmooth, acute, callous, and a terminal head, fenced with a long ſharp cover of the ſame colour. ♄. C. of G. Hope.

levisanus. 47. P. with leaves inverſely egg-ſhaped, obtuſely tapering, tiled ſmooth, a hairy ſtem, and a head with an obtuſe long covering. ♄. C. of G. Hope.

ſtrobilina. 48. P. with elliptical leaves, blunt, callous, ſmooth, and a terminal knob. ♄. C. of G. Hope.

imbricata. 49. P. with leaves ſpear-ſhaped, ſmooth, ſcored, tiled, and a terminal knob. ♄. C. of G. Hope.

ſericea. 50. P. with leaves ſpear-ſhaped; ſilky, thread-ſhaped branches; ſtem decumbent. ♄. C. of G. Hope.

ſaligna. 51. P. with ſpear-ſhaped ſilky leaves; a ſhrubby ſtem; and oblong enveloped knobs. ♄. C. of G. Hope.

argentea. 52. P. with leaves ſpear-ſhaped, ſilver-cottony, fringed, with woody ſtem and globular knobs. ♄. C. of G. Hope.

53. P. with leaves oblong and ſmooth; a globular knob or head; and a ſhort decumbent ſtem. ♄. C. of G. Hope. *acaulis.*

54. P. with oblong ſmooth leaves; and aggregate terminal knobs. ♄. C. of G. Hope. *myrtifolia.*

56. P. with ſmooth oblong leaves without veins, a hemiſpherical knob, and a ſhrub-like ſtem. ♄. C. of G. Hope. *glabra.*

57. P. with oblong ſmooth leaves, an oblong knob, the ſcales of the calyx barbed at the point. ♄. C. of G. Hope. *ſpecioſa.*

58. P. with oval, ſmooth, callous leaves; cor. hairy, and cylindrical. ♄. C. of G. Hope. *totta.*

59. P. with ſmooth, oval leaves; and lateral flowers. ♄. C. of G. Hope. *hirta.*

60. P. with oval leaves; and cottony terminal knobs. ♄. C. of G. Hope. *pubera.*

61. P. with hairy oval leaves, terminal knobs, and ſtradling branches. ♄. C. of G. Hope. *divaricata.*

62. P. with ſmooth, battledore conical leaves. ♄. C. of G. Hope. *ſpathulata.*

63. P. with leaves nearly round; and ſmooth leaf-ſtalks. ♄. C. of G. Hope. *cyanaroides.*

64. P. with heart-ſhaped leaves. ♄. C. of G. Hope. *cordata.*

166. Banksia.

Recept. common, elongated, ſcaly. Cor. 4 petals. The ſtamens inſerted in the border. The capſ. 2-valved, 2-ſeeded. A moveable partition between the ſeeds, which are winged.

Of this genus there are 8 ſpecies, viz. ſerrata, grandis, integrifolia, pyriformis, dentata, ſpinuloſa, ericæfolia, gibboſa. N. Holland.

167. Rupala.

This genus has two ſpecies; viz. montana, and ſeſſifolia.

168. Embothrium.

Eight ſpecies; viz. ſpecioſiſſimum, coccineum, grandiflorum, umbellatum, hirſutum, buxifolium, ſericeum, filaifolium.

169. Globularia, or *Blue Daiſy.*

Nine ſpecies; viz. longifolia, nana, nudicaulis, orientalis. S. Eur.

170. Cephalanthus, or *Button-wood,*

Has one ſpecies; viz. occidentalis. N. America.

171. Dipsacus, or *Teazel.*

Has four ſpecies; viz. *fullonum, *ſylveſtris, laciniatus, and *piloſus.

* D. leaves ſitting, ſerrated; chaff bent backwards. It is cultivated for the uſe of the clothiers, who employ the heads with crooked awns, to raiſe the knap upon woollen cloths. For this purpoſe they are fixed round the circumference of a large broad wheel, which is made to turn round, and the cloth is held againſt them. The plant flowers in June and July, and the heads are collected in Auguſt. It is ſometimes ſown along with caraway and coriander; by which means three crops are on the ſoil at once, without inconvenience, as they ripen at different periods. *fullonum.*

172. Scabiosa, or *Scabious,*

Has 41 ſpecies; viz. alpina, uſtulata, rigida, attenuata, ſcabra, tranſylvanica, ſyriaca, leucanthia, *fuccifa, integrifolia, amplexicaulis, humilis, decurrens, tatarica,

tatarica, *arvenſis, uralenſis, ſylvatica, gramuntia, *columbaria, pyrenaica, ſicula, rutæfolia, *maritima, ſtellata, prolifera, atropurpurea, argentea, indurata, africana, monſpelienſis, pumila, cretica, limonifolia, graminifolia, lyrata, paleſtina, iſetenſis, ucranica, ochroleuca, pappoſa, and pterocephala. S. Eur. Ind. Afr.

ſucciſa. * S. bloſſoms 4-cleft, equal; ſtem undivided; branches approaching; leaves ſpear-egg-ſhaped. The dried leaves are uſed to dye wool yellow or green. (Linn.) A ſtrong decoction of it continued for a conſiderable length of time, is an empirical ſecret for gonorrheas.

arvenſis. * S. bloſſoms 4-cleft, radiating; leaves wing-cleft, and jagged; ſtem rough with ſtrong hairs. Sheep and goats eat this ſpecies. Horſes and cows are not fond of it. It is ſlightly aſtringent, bitter, and ſaponaceous.

173. KNAUTIA,

Has four ſpecies; viz. orientalis, propontica, palæſtina, and plumoſa. Levant, Archipel.

174. ALLIONIA,

Has two ſpecies; viz. violacea, and incarnata. Am.

175. OPERCULARIA,

Has three ſpecies; viz. umbellata, aſpera, diphylla. N. Holland.

176. HEDYOTIS,

Has 11 ſpecies; viz. fruticoſa, racemoſa, auricularia, hyſpida, maritima, pumila, diffuſa, herbacea, graminifolia, virgata, rupeſtris. E. & W. Ind. S. Amer.

177. SPERMACOCE, or *Button-weed*,

Has 20 ſpecies; viz. tenuior, latifolia, cœruleſcens, alata, hexagona, proſtrata, radicans, longifolia, verticillata, ſumatrenſis, aſpera, hirta, villoſa, hiſpida, ſcabra, articularis, ſtricta, linifolia, procumbens, ſpinoſa. E. Ind. Afr. Amer.

178. SHERARDIA, or *Little Field-madder*,

Contains three ſpecies; viz. arvenſis, muralis, fruticoſa. Eur. Iſle of Aſcenſion.

179. ASPERULA, or *Woodroof.*

Has ſeven ſpecies; viz. odorata, hexaphylla, arvenſis, taurina, craſſifolia, calabrica, ariſtata, tinctoria, pyrenaica, cynanchica, lævigata. Eur.

odorata. A. leaves 8 in a whirl, ſpear-ſhaped; flowers in bundles on fruitſtalks. The ſcent of it is ſaid to drive away ticks and other inſects. (Linn.) It gives a grateful flavour to wine. Cows, horſes, ſheep, and goats eat it.

180. DIODIA,

Has 6 ſpecies; viz. virginica, ſimplex, verticillata, proſtrata, ſcandens, ſarmentoſa. Amer. Jamaica.

181. HYDROPHYLAX,

Contains only one ſpecies; viz. maritima.

182. KNOXIA,

Has under it two ſpecies; zeylanica, and corymboſa. Ceylon.

183. CARPHALEA.

Has one ſpecies; viz. corymboſa. Madagaſcar.

184. HOUSTONIA.

Has three ſpecies; cœrulea, longifolia, and purpurea. N. America.

185. GALIUM, or *Ladies Bed-ſtraw*,

Includes 50 ſpecies, viz. rubioides, *paluſtre, trifidum, fruticoſum, *montanum, tinctorium, capenſe, mucronatum, expanſum, aſperum, glabrum, auſtriacum, bocconi, viſcoſum, ſaxatile, tenue, juſſiei, pyrenaicum, minutum, *puſillum, *ſcabrum, *verum, mollugo, ſylvaticum, linifolium, rigidum, ariſtatum, hieroſolymitanum, paſchale, glaucum, purpureum, rubrum, megaloſpermum, ſpurium, harcynicum, *uliginoſum, *boreale, rotundifolium, bermudianum, ericoides, hirtum, ruthenicum, aparine, *aparine, album, microcarpum, pariſienſe, piloſum, maritimum, græcum. Eur. Arab. N. Amer. Of theſe the following deſerve notice.

verum. * G. leaves 8 in a whirl, ſtrap-ſhaped, furrowed; flowering branches ſhort. The flowers will coagulate boiling milk; and their juice changes blue infuſions to a red colour, thereby diſcovering marks of acidity. The French preſcribe them in hyſteric and epileptic caſes. Boiled in alum-water they tinge wool yellow. The roots dye a very fine red, not inferior to madder, and are uſed for this purpoſe in the iſland of Jura. (Pennant 1772. p. 212.) Sheep and goats eat it. Horſes and ſwine refuſe it. Cows are not fond of it. It is ſubject to a diſeaſe, in which the ſtem and plants are ſet with fleſhy balls, about the ſize of a pea, hollow within and covered with a purpliſh ſkin.

boreale. * G. leaves 4 in a whirl, ſpear-ſhaped, ſmooth, 3-fibred; ſtem upright. The roots afford a red dye for woollens.

aparine. * G. leaves 8 in a whirl, ſpear-ſhaped; keel rough with prickles pointing backwards; joints woolly. The branches are uſed by the Swedes inſtead of a ſoi to ſtrain milk. Young geeſe are very fond of them. The ſeeds may be uſed inſtead of coffee. The plant is eaten by horſes, cows, ſheep and goats. Swine refuſe it. (Linn.) The expreſſed juice of the ſtem and leaves, taken to the amount of four ounces night and morning, is very efficacious in removing many of thoſe cutaneous eruptions, which are called, although improperly, ſcorbutic. It muſt be continued for ſeveral weeks.

186. CRUCIANELLA, or *Petty madder.*

Nine ſpecies; viz. anguſtifolia, latifolia, ægyptiaca, patula, ciliata, pubeſcens, maritima, capita, monſpeliaca. S. Eur. Arab.

187. RUBIA, or *Madder.*

Seven ſpecies; tinctorum, or *dyers madder*, with annual leaves and a prickly ſtem, ♃; chilenſis, peregrina, lucida, fruticoſa, anguſtifolia, cordifolia. Siber. S. Eur. Canar.

188. MATTUSCHKÆA,

One ſpecies; viz. hirſuta. Carolina.

189. SIPHONANTHUS,

Two ſpecies; viz. indica, and anguſtifolia. India.

190. ROUSSEA,

One ſpecies; viz. ſimplex. Mauritius.

191. FROELICHIA.

One ſpecies; viz. paniculata.

192. SCOLOSANTHUS.

One ſpecies; viz. verſicolor.

193. CATESBÆA, or *Lily Thorn.*

Two ſpecies; viz. ſpinoſa, and parviflora. Jam. Iſle of Providence.

194. IXORA, or *American Jeſſamine.*

Six ſpecies; viz. coccinea, parviflora, alba, americana, faſciculata, and multiflora. E. Ind. Jam. S. Am.

195. PAVETTA.

Five ſpecies; viz. indica, villoſa, longiflora, caffra, pentandra. C. of G. Hope.

196. Ernodea.
One ſpecies; called littoralis. Jamaica.

197. Siderodendrum.
One ſpecies; called triflorum. S. Amer.

198. Petesia,
Three ſpecies; viz. ſtipularis, carnea, tomentoſa.

199. Hoffmannia.
One ſpecies; called pendunculata. Jamaica.

200. Chomelia.
One ſpecies; called ſpinoſa.

201. Petitia.
One ſpecies; called domingenſis. St Domingo.

202. Myonima.
Two ſpecies; viz. obarata, lanceolata. Iſle of Bourb.

203. Pyrostria.
One ſpecies; viz. ſalicifolia.

204. Cunninghamia.
Two ſpecies; ſarmentoſa, verticillata. Guiana, Iſle of Bourbon.

205. Ægiphila.
Eight ſpecies; viz. martinicenſis, elata, mixia, villoſa, arboreſcens, lævis, fœtida, trifida. W. Indies.

206. Mitchella.
One ſpecies; viz. repens. N. America.

207. Coccocypsilum.
Three ſpecies; viz. repens, uniflorum, biflorum. Jam.

208. Wallenia.
One ſpecies; viz. laurifolia. Jamaica.

209. Callicarpa, or *Johnſonia*.
Ten ſpecies; viz. americana, cana, lanata, macrophylla, ferruginea, reticulata, longifolia, integrifolia, villoſa, japonica. N. Amer. Jap. Jamaica.

210. Aquartia.
Two ſpecies; viz. aculeata, microphylla. S. Amer.

211. Witheringia.
One ſpecies; viz. ſolanacea. S. Amer.

212. Myrmecia.
One ſpecies; viz. ſcandens. Guiana.

213. Polyphremum, or *Carolina Flax*.
One ſpecies; viz. procumbens. N. Amer.

214. Labatia.
Two ſpecies; viz. ſeſſiliflora, pedunculata. Hiſpan.

215. Lasiostoma.
One ſpecies; viz. cirrhoſa. Guiana.

216. Manettia.
Five ſpecies; viz. reclinata, lygiſtum, coccinea, picta, lanceolata. S. Amer. Jamaica.

217. Bellardia.
One ſpecies; viz. repens. Guiana.

218. Penæa.
Nine ſpecies; viz. ſarcocolla, mucronata, marginata, lateriflora, tomentoſa, ſucata, ſquamoſa, fruticuloſa, myrtoides. Cape of G. Hope.

219. Blæria.
Nine ſpecies; viz. cricoides, ſcabra, faſcicula, articulata, purpurea, muſcoſa, puſilla, glabella, ciliaris. Cape.

220. Buddleia.
Nine ſpecies; viz. americana, occidentalis, globoſa, ſalvifolia, madagaſcarienſis, ſalicifolia, diverſifolia, virgata, incompta. Cape, S. Amer. W. Ind.

221. Exacum.
18 Species; viz. viſcoſum, pedunculatum, albens, aureum, ſeſſile, cordatum, punctatum, quadrangulare, gujanenſe, diffuſum, tenuifolium, *filiforme, aphyllum, heteroclitum, ſpicatum, ramoſum, verticillatum, hyſſopifolium. Aſia, Africa.

222. Plantago, or *Plantain*.
33 Species; viz. *major, craſſa, aſiatica, maxima, *media, virginica, altiſſima, *lanceolata, capenſis, lagopus, luſitanica, patagonica, albicans, hirſuta, alpina, bellardi, cretica, barbata, *maritima, ſubulata, recurvata, macrorhiza, ferraria, *coronopus, loeflingii, cornuti, amplexicaulis, pſyllium, ſquarroſa, indica, pumila, cynops, afra. Eur. Egypt, China, N. Amer.

* P. leaves ſpear-ſhaped; ſpike nearly egg-ſhaped, naked; ſtalk angular. It is uſually called rib-wort or rib-graſs. Linnæus ſays it is eaten by horſes, ſheep, and goats, and that cows refuſe it; but Haller attributes the richneſs of the milk in the famous alpine dairies to this plant, and to the alchemilla vulgaris.—The total abſence of this plant in marſhy lands, is a certain criterion of the wretched quality thereof: in proportion as ſuch ſoils are meliorated by draining, this plant will flouriſh and abound. When ſown for paſturage upon rich ſands and loams, this plant gives a conſiderable herbage; and on poorer and drier ſoils, it does well for ſheep, but is inferior to ſome others. Mr Marſhall obſerves that it has ſtood the teſt of 20 years eſtabliſhed practice, in Yorkſhire, and is in good eſtimation, though not well affected by horſes, and bad for hay from retaining its ſap. The plantago major or great plantain, is called *ſeptinervia*, from its having 7 large nerves or ribs running along each leaf; the narrow-leaved ſort, above deſcribed, has only five ribs, and hence it is called *quinquenervia*. The leaves are lightly aſtringent, and the ſeeds are ſaid to be ſo; and hence they ſtand recommended in hæmorrhages and other caſes of this kind where medicines of this kind are proper. The leaves bruiſed a little are the common application of the common people to ſlight fleſh wounds. *lanceolata.*

Plantain has been alleged to be a cure for the bite of the rattle-ſnake; but for this there is probably little foundation, although it is one of the principal ingredients in the remedy of the negro Cæſar, for the diſcovery of which he received a conſiderable reward from the aſſembly of S. Carolina.

223. Scoparia.
Three ſpecies; viz. dulcis, procumbens, arborea. Egypt, N. America.

224. Centunculus, or *Baſe Pimpernel*.
One ſpecies; called minimus. Germany, S. Eur.

225. Sanguisorba, or *Great Wild Burnet*.
Three ſpecies; viz. *officinalis, media, canadenſis. Eur. N. America.

226. Cissus.
18 Species; viz, vitiginea, capenſis, repanda, latifolia, cordifolia, rotundifolia, ſicyoides, quadrangularis, acida, cirrhioſa, trifoliata, microcarpa, crenata, carnoſa, obovata, japonica, pentaphylla, pedata. Arabia, Ind. Jam.

227. Epimedium, *Barren-wort*.
One ſpecies; viz. *alpinum.

228. Cornus, or *Dog-wood Cornel Cherry.*

12 Species; viz. *ſuecica, canadenſis, florida, maſcula, japonica, *ſanguinea, alba, ſericea, circinata, ſtriata, paniculata, alternifolia. Aſia, Amer.

ſanguinea. * C. branches ſtraight; leaves egg-ſhaped, green on both ſides; tuft flatted. The wood is very hard and ſmooth, fit for the purpoſes of the turner. The leaves change to a blood red in autumn; the berries are bitter and ſtyptic, they dye purple. Horſes, ſheep, and goats eat it. Swine and cows refuſe it.

229. Glossoma.

One ſpecies; viz. arboreſcens. Guiana.

230. Samara.

Four ſpecies; viz. læta, coriacea, pentandra, floribunda. Cape, E. Ind. Jam. Guiana.

231. Fagara.

12 Species; viz. triphylla, evodia, pterota, piperita, tragodes, zanthoxyloides, horrida, capenſis, armata, avicennæ, octandra, elaphrium. W. Ind. Japan.

232. Hartogia.

One ſpecies; viz. capenſis. C. of G. Hope.

233. Monetia.

Two ſpecies; viz. barlerioides, diacantha. E. Ind.

234. Blackburnia.

One ſpecies; viz. pinnata.

235. Ptelea, or *Shrub Trefoil.*

One ſpecies; viz. trifoliata. N. Amer. S. S. iſles.

236. Skimmia.

One ſpecies; viz. japonica. Japan.

237. Othera.

One ſpecies; viz. japonica. Japan.

238. Orixa.

One ſpecies; viz. japonica.

239. Ludwigia, or *Baſe Virginian Looſeſtrife.*

Five ſpecies; alternifolia, hirſuta, juſſiacoides, oppoſitifolia, erigata. Ind. Amer. Jam.

240. Oldenlandia.

13 Species; viz. verticillata, digynia, trinervia, depreſſa, capenſis, uniflora, bitlora, pentandra, umbellata, corymboſa, hirſuta, debilis, fœtida.

241. Ammania.

Seven ſpecies; latifolia, ramoſior, debilis, ſanguinolenta, octandra, baccifera, pinnatifida. Ind. Virginia.

242. Isnardia.

One ſpecies; viz. paluſtris. Eur. China, N. Amer. W. Ind.

243. Trapa, or *Floating Water-caltrops.*

Two ſpecies; viz. natans, bicornis. Eur. China.

244. Dorstenia, or *Contrayerva.*

Ten ſpecies; viz. cordifolia, braſſilienſis, arifolia, houſtoni, contrajerea, drakena, cauleſcens, lucida, pubeſcens. Arab. S. America.

245. Pothos, or *Scunk-weed.*

12 Species; viz. ſcandens, acaulis, lanceolata, crenata, violacea, craſſinervia, cordata, macrophylla, pinnata, palmata, digitata, pentaphylla. Ind. Amer.

246. Cometes.

One ſpecies; viz. alterniſloria. E. Ind. Surat.

247. Curtisia, or *Haſſagay-tree.*

One ſpecies; viz. faginea. C. of G. Hope.

248. Chloranthus, or *Tea-leaved Chu-lan.*

One ſpecies; viz. inconſpicuus. Cape, China, Jap.

249. Eleagnus, or *Oleaſter* or *Wild Olive.*

Ten ſpecies; viz. anguſtifolia, orientalis, ſpinoſa, pungens, latifolia, criſpa, multiflora, umbellata, glabra, macrophylla. S. Eur. China, Japan.

250. Gonatocarpus.

One ſpecies; viz. micranthus. Japan.

251. Santalum, or *Sanders.*

One ſpecies; viz. album. What is uſually called *White Sanders wood*, is brought from the Eaſt Indies, in billets about the ſize of a man's leg, of a pale whitiſh colour. It conſtitutes the outer part of the timber or that part of the tree which is neareſt the bark. This white part has little ſenſible ſmell or taſte. The inner part of the timber, which uſually receives the appellation of *Yellow Sanders wood*, is of a pale yellowiſh colour, of a pleaſant ſmell and a bitteriſh aromatic taſte, accompanied with an agreeable ſort of pungency. Diſtilled with water it yields a fragrant eſſential oil, which thickens in the cold to the conſiſtence of a balſam. Digeſted in pure ſpirit it imparts a rich yellow tincture, which being committed to diſtillation, the ſpirit ariſes without bringing over any thing conſiderable of the virtues of the ſanders. The reſiduum contains the virtues of ſix times its weight of the wood. Hoffman looks upon this extract as a medicine of ſimilar virtues to ambergris, and recommends it as an excellent reſtorative in great debilities.

252. Struthiola.

Five ſpecies; viz. virgata, nana, juniperina, erecta, ovata. C. of G. Hope.

253. Krameria.

One ſpecies; viz. ixina. S. Amer.

254. Acæna.

One ſpecies; viz. elongata. Mexico.

255. Rivina.

Four ſpecies; viz. humilis, lævis, braſilienſis, octandra. W. Indies.

256. Salvadora.

One ſpecies; viz. perſica. Perſia, India.

257. Camphorosma.

Five ſpecies; viz. paleacea, monſpeliaca, acuta, glabra, pteranthus. S. Eur. Cape.

258. Alchemilla, or *Ladies-mantle.*

Six ſpecies; viz. capenſis, *vulgaris, *alpina, pentaphylla, aphanoides, aphanes. Alps of Eur.

A. leaves gaſhed. The whole of this plant is aſtrin- *vulgaris.*
gent. In the province of Smolandia in Gothland, they make a tincture of the leaves, and give it in ſpaſmodic or convulſive diſeaſes. Horſes, ſheep, and goats eat it; ſwine refuſe it; cows are not fond of it.

Order II. DIGYNIA.

259. Cruzita.

One ſpecies; viz. hiſpanica.

260. Bufonia, or *Toad-graſs.*

One ſpecies; viz. *tenuifolia.

261. HAMAMELIS, or *Witch Hazel.*
One ſpecies; viz. virginica. Carol. Virgin.

262. CUSCUTA, or *Dodder.*
Five ſpecies; viz. europea, americana, africana, monogyna, chineníis.

europæa. * C. flowers ſitting, moſtly 4-cleft. The ſeeds of this ſpecies ſown in a pot produce plants, but which ſoon die, unleſs they can attach themſelves to ſome other plant. As ſoon as the ſhoots have twined about an adjoining plant, they ſend out from their inner ſurface a number of little veſicles or papillæ, which attach themſelves to the bark or rind of the plant. By degrees the longitudinal veſſels of the ſtalk, which appear to have accompanied the veſicles, ſhoot forth from their extremities and make their way to the foſter plant, by dividing the veſſels and inſinuating themſelves into the tendereſt part of the ſtalk; and ſo intimately are they united with it, that it is eaſier to break than to diſengage them from it.

263. HYPECOUM.
Four ſpecies; viz. procumbens, littorale, pendulum, erectum.

264. NERTERIA.
One ſpecies; viz. depreſſa. S. America.

263. GALOPINA.
One ſpecies; viz. circæoides. C. of G. Hope.

ORDER III. TRIGYNIA.

266. BOSCIA.
One ſpecies; viz. undulata.

ORDER IV. TETRAGYNIA.

267. ILEX, or *Holly.*
19 Species; viz. *aquifolium, japonica, opaca, crocea, ſerrata, latifolia, perado, prinoides, caſſine, vomitoria, crenata, emarginata, ſalicifolia, aſiatica, integra, rotunda, obcordata, acuminata, cuneifolia. Aſia, N. America.

aquifolium * I. leaves egg-ſhaped, acute, thorny, on leaf-ſtalks; flowers in a kind of umbel, axillary.—All the varieties which gardeners reckon, to the amount of 40 or 50, are derived from this one ſpecies, and depend upon the variegation of the leaves or thorns, and the colour of the berries. Sheep are fed in the winter with the croppings, as are alſo deer. Birds eat the berries. The bark fermented, and afterwards waſhed from the woody fibres, makes the common bird-lime. It makes an impenetrable fence, and bears cropping; nor is its verdure, or the beauties of its ſcarlet berries ever obſerved to ſuffer from the ſevereſt of our winters. The wood is uſed in fineering, and is ſometimes ſtained black to imitate ebony. Handles for knives and cogs for mill-wheels are made of it.—It is ſaid to have been obſerved by Linnæus, that the lower branches within reach of cattle bear thorny leaves, whilſt the upper ones which ſtand in need of no ſuch defence are without thorns.

268. COLDENIA.
One ſpecies; viz. procumbens. E. Indies.

269. POTAMOGETON, or *Pond-weed.*
14 Species; viz. natans, fluitans, heterophyllum, perfoliatum, denſum, *lucens, *criſpum, ſerratum, *compreſſum, *pectinatum, *ſetaceum, *gramineum, *marinum, *puſillum. Eur. N. America.

natans. * P leaves oblong egg-ſhaped, on leafſtalks, floating. The leaves of this plant floating upon the ſurface of water, afford an agreeable ſhade to fiſh, and are the habitation and food of the phalæna potamogeton. The roots are a favourite food of the ſwan.

270. RUPPIA.
One ſpecies; viz. *maritima.

271. SAGINA, or *Pearl-wort.*
Five ſpecies; viz. *ceraſtoides, *procumbens, *apetala, *erecta, and virginica of Virginia.

272. TILLÆA, *Small annual houſe-leek.*
Eight ſpecies; viz. aquatica, proſtrata, vaillantii, capenſis, perfoliata, umbellata, decumbens, muſcoſa. Eur. C. of G. Hope.

273. MYGINDA.
Three ſpecies; viz. vragoga, rhacoma, latifolia. N. America, W. Indies.

In the claſs Tetrandria are

117 Genera, which include 638 Species. Of theſe 56 ſpecies are found in Britain.

CLASSIS V.

PENTANDRIA.

ORDO I. MONOGYNIA.

Sect. I. *Flores monopetali, inferi, monoſpermi.*

373. MIRABILIS. Nux infra corollam. Cor. infundibilif. Stigma globoſum papilloſum.

295. TRICRATUS. Nux 5-angularis. Cor. infundibilif. laciniis bilobis. Cal. 0.

CLASS V.

PENTANDRIA.

ORDER I. MONOGYNIA

Sect. I. *Flowers monopetalous, inferior, one ſeeded.*

M. Nut beneath the cor. The cor. funnel-ſhaped. Stigma globular pimpled.

T. Nut 5-angular. Cor. funnel-ſhaped with 2-lobed ſegments. No calyx.

318. Plumbago. Sem. 1. Stam. valvis inſerta. Cor. infundibilif. Stigma. 5-fidum.

317. Weigelia. Sem. 1. Cor. infundibilif. Stylus a latere germinis.

470. Quinchamalia. Sem. 1. Cor. tubuloſa. Antheræ ſeſſiles.

408. Corymbum. Sem. 1, lana involut. Cor. infundibilif. Cal. 2-phyll. Anth. connatæ.

Sect. II. *Flores monopetali, inferi, diſpermi. Aſperifoliæ.*

281. Cerinthe. Cor. fauce nuda ventricoſa. Nuc. 2, offeæ, 2-loculares.

287. Messerchmidia. Cor. fauce nuda, infundib. Nuc. 2. ſuberoſæ, 2-ſpermæ.

Sect. III. *Flores monopetali, inferi, tetraſpermi. Aſperifoliæ.*

286. Echium. Cor. fauce nuda, irregularis, campanulata.

274. Heliotropium. Cor. fauce nuda, hypocraterif. lobis dente interjectis. Sem. 4.

279. Pulmonaria. Cor. fauce nuda, infundib. Cal. priſmaticus.

276. Lithospermum. Cor. fauce nuda, infundib. Cal. 5-partitus.

282. Onosma. Cor. fauce nuda, ventricoſa. Sem. 4.

280. Symphytum. Cor. fauce dentata, ventricoſa.

283. Borago. Cor. fauce dentata, rotata.

285. Lycopsis. Cor. fauce fornicata, infundib. tubo curvato.

284. Asperugo. Cor. fauce fornicata, infundib. Fructus compreſſus.

278. Cynoglossum. Cor. fauce fornicata, infundib. Sem. depreſſa, latere affixa.

277. Anchusa. Cor. fauce fornicata, infundib. tubo baſi priſmatico.

275. Myosotis. Cor. fauce fornicata, hypocraterif. lobis emarginatis.

Sect. IV. *Flores monopetali, inferi, pentaſpermi.*

289. Nolana. Cor. monopetala. Nuces 5, 2 ſ. 4-loculares.

Sect. V. *Flores monopetali, inferi, angioſpermi.*

374. Coris. Capſ. 1-locularis, 5-valvis. Cor. irregularis. Stigm. capitatum.

303. Hydrophyllum. Capſ. 1-locularis, 2-valvis. Cor. nectariis 5, exarata. Stigma bifidum.

434. Galax. Capſ. 1-locularis, 2-valvis. Cor. hypocrat. Stigma ſubrotundum.

432. Barreria. Capſ.? Cor. rotata. Anth. cohærentes. Stigmata 3.

294. Cortusa. Capſ. 1-locularis, oblonga. Cor. rotata. Stigma ſubcapitatum.

306. Anagallis. Capſ. 1-locularis, circumſcif. Cor. rotata. Stigma capitatum.

P. Seed 1. Stamen inſerted in the valves. Cor. funnel-ſhaped. Stigma 5-cleft.

W. 1 Seed. Cor. funnel-ſhaped. Style with lateral ſeed-buds.

Q. 1 Seed. Cor. tubular. Anthers ſitting.

C. 1 ſeed covered with wool. Cor. funnel-ſhaped. Cal. 2-leaved. Anthers united at the baſe.

Sect. II. *Flowers monopetalous, inferior, 2-ſeeded. Rough leaves.*

C. Cor. with a naked mouth, diſtended. Nuts 2, hard as bone, 2-celled.

M. Cor. with a naked mouth, funnel-ſhaped. Nuts 2, eroded beneath, 2-ſeeded.

Sect. III. *Flowers monopetalous, inferior, 4-ſeeded. Rough leaves.*

E. Cor. with a naked mouth, irregular, bell-ſhaped.

H. Cor. with a naked mouth, and lobes divided by a ſalver-ſhaped tooth. Seeds 4.

P. Cor. with a naked mouth, funnel-ſhaped. Cal. priſm-ſhaped, i. e. differing from cylindrical in the cup being angular.

L. Cor. with a naked mouth, funnel-ſhaped. Cal. 5-partite.

O. Cor. with a naked mouth, diſtended. Seeds 4.

S. Cor. with a toothed mouth, diſtended.

B. Cor. with a toothed mouth, wheel-ſhaped.

L. Cor. with a vaulted mouth, funnel-ſhaped, tube curved.

A. Cor. with a vaulted mouth, funnel-ſhaped, fruit compreſſed.

C. Cor. with a vaulted mouth, funnel-ſhaped. Seed depreſſed, fixed in the ſide.

A. Cor. with a vaulted mouth, funnel-ſhaped, the tube priſmatic at the baſe.

M. Cor. with a vaulted mouth, ſalver-ſhaped; lobes notched at the end.

Sect. IV. *Flowers monopetalous, inferior, 5-ſeeded.*

N. Cor. monopetalous. 5 Nuts, 2 or 4-celled.

Sect. V. *Flowers 1-petalous, inferior. Seeds in a capſule.*

C. Capſ. 1-celled, 5-valved. Cor. irregular. The ſtigmas growing in heads.

H. Capſ. 1-celled, 2-valved. Cor. furrowed with 5 nectaries. Stigma 2-cleft.

G. Capſ. 1-celled, 2-valved. Cor. ſalver-ſhaped. Stigm. nearly round.

B. Capſ.? Cor. wheel-ſhaped. Anthers cohering. Stigmas 3.

C. Capſ. 1-celled, oblong. Cor. wheel-ſhaped. Stigma nearly growing in heads.

A. Capſ. 1-celled, cut round. Cor. wheel-ſhaped. Stigma growing in a head.

305. Lysimachia. Capſ. 1-locularis, 10-valvis. Cor. rotata. Stigma obtuſum.

300. Doroena. Capſ. 1-locul. 1-valv. polyſperma. Cor. 5 fida. Stigma emarginatum.

298. Cyclamen. Capſ. 1-locularis, intus pulpoſa. Cor. reflexa. Stigma acutum.

297. Dodecatheon. Capſ. 1-locul. oblonga. Cor. reflexa. Stigm. obtuſum.

296. Soldanella. Capſ. 1-locularis. Cor. lacera. Stigm. ſimplex.

395. Lita. Capſ. 1-locul. 2-valv. Cor. hypocraterif. Anth. in tubo ſeſſiles. Stigma truncatum.

293. Primula. Capſ. 1-locularis. Cor. infundib. fauce pervia. Stigma globoſum.

291. Aretia. Capſ. 1-locul. Cor. hypocraterif. Stigma depreſſo capitatum.

302. Bacopa. Capſ. 1-locul. Cor. hypocraterif. Cal. inæqual. Stigma capitatum.

301. Hottonia. Cor. fauce fornicata, infundib. Sem. depreſſa, latere affixa.

313. Sheffieldia. Capſ. 1-locul. 5-valv. Cor. campanulata. Stam. alterna ſterilia.

299. Menyanthes. Capſ. 1-locularis. Cor. villoſa. Stigma bifidum.

479. Allamanda. Capſ. 1-locularis, lentiformis, bivalvis, valvulis cymbiformibus. Sem. imbricata.

507. Theophrasta. Capſ. 1-locularis, maxima. Cor. campanulata. Stigma acutum.

371. Geniostoma. Capſ. 2-locul. Cor. infundibilif. fauce villoſa.

308. Spigelia. Capſ. 2-locularis, didyma. Cor. infundib. Stigma ſimplex.

334. Sphehoclea. Capſ. 2-locul. circumſciſſa. Cor. 5-fid. calyce minor. Stigma capitatum.

309. Ophiorhiza. Capſ. 2-locularis, 2-partita. Cor. infundib. Stigma 2-fidum.

321. Retzia. Capſ. 2-locul. Cor. cylindrica, extus villoſa. Stigma 2-fidum.

323. Convolvulus. Capſ. 2-locularis, 2-ſperma. Cor. campanulata. Stigm. 2-fidum.

310. Lisianthus. Capſ. 2-locularis, polyſperma. Cor. infundib. ventricoſa. Styl. perſiſtens.

377. Datura. Capſ. 2-locul. 4-valvis. Cor. infundib. Cal. deciduus.

378. Hyosciamus. Capſ. 2-locularis operculata. Cor. infundib. Stigma capitatum.

379. Nicotiana. Capſ. 2-locularis. Cor. infundib. Stigm. emarginatum.

376. Verbascum. Capſ. 2-locular. Cor. rotata. Stigma obtuſum. Stam. declinata.

394. Chironia. Capſ. 2-locular. Cor. tubo urceolato, Antheræ defloratæ ſpirales.

322. Porana. Fructus bivalvis. Calyx in fructu grandifactus. Stylus elongatus, ſemibifidus.

290. Diapensia. Capſ. 3-locularis. Cor. hypocrat. Cal. 8-phyllus.

320. Phlox. Capſ. 3-locularis. Cor. hypocrater. tubo curvo. Stigm. trifidum.

326. Polemonium. Capſ. 3-locularis. Cor. 5-partita. Stam. valvis impoſita.

324. Cantua. Capſ. 3-locul. 3-valv. Sem. alata. Cor. infundibilif. Stigm. 3-fid.

325. Ipomoea. Capſ. 3-locularis. Cor. infundib. Stigma capitatum.

L. Capſ. 1-celled, with 10 valves. Cor. wheel-ſhaped. Stigma blunt.

D. Capſ. 1-celled, 1-valved, many-ſeeded. Cor. 5-cleft. Stigma notched at the end.

C. Capſ. 1-celled, pulpy within. Cor. bent back. Stigma ſharp.

D. Capſ. 1-celled, oblong. Cor. bent back. Stigma blunt.

S. Capſ. 1-celled. Cor. ragged. Stigma undivided.

L. Capſ. 1-celled, 2-valved. Cor. ſalver-ſhaped. Anthers ſitting in the tube. Stigma lopped.

P. Capſ. 1-celled. Cor. funnel-ſhaped with a pervious mouth. Stigma globular.

A. Capſ. 1-celled. Cor. ſalver-ſhaped, flat-headed.

B. Capſ. 1-celled. Cor. ſalver-ſhaped. Cal. unequal. Stigma headed.

H. Cor. with a vaulted mouth, funnel-ſhaped. Seed ſunk, fixed in the ſide.

S. Capſ. 1-celled, 5-valved. Cor. bell-ſhaped. Alternate ſtamens barren.

M. Capſ. 1-celled. Cor. woolly. Stigma 2-cleft.

A. Capſ. 1-celled, globular, but compreſſed, 2-valved, with boat-ſhaped valves. Seed tiled.

T. Capſ. 1-celled, very large. Cor. bell-ſhaped. Stigma acute.

G. Capſ. 2-celled. Cor. funnel-ſhaped, with woolly mouth.

S. Capſ. 2-celled, double. Cor. funnel-ſhaped. Stigma undivided.

S. Capſ. 2-celled, cut round. Cor. 5-cleft, leſs than the calyx. Stigma headed.

O. Capſ. 2-celled, 2-partite. Cor. funnel-ſhaped. Stigma 2-cleft.

R. Capſ. 2-celled. Cor. cylindrical, outſide woolly. Stigma 2-cleft.

C. Capſ. 2-celled, 2-ſeeded. Cor. bell-ſhaped. Stigma 2-cleft.

L. Capſ. 2-celled, many-ſeeded. Cor. funnel-ſhaped, diſtended. Style permanent.

D. Capſ. 2-celled, 4-valved. Cor. funnel-ſhaped. Cal. deciduous.

H. Capſ. 2-celled, covered with a lid. Cor. funnel-ſhaped. Stigma headed.

N. Capſ. 2-celled. Cor. funnel-ſhaped. Stigma notched at the end.

V. Capſ. 2-celled. Cor. wheel-ſhaped. Stigma obtuſe. Stamens bent.

C. Capſ. 2-celled. Cor. with a pitcher-ſhaped tube. Anthers twiſted after having ſhed their pollen.

P. Fruit 2-valved. Calyx ſwelling with the fruit. Style elongated, half-cleft.

D. Capſ. 3-celled. Cor. ſalver-ſhaped. Cal. 8-leaved.

P. Capſ. 3-celled. Cor. ſalver-ſhaped, with a crooked tube. Stigma 3-cleft.

P. Capſ. 3-celled. Cor. 5-partite. Stamens placed on valves.

C. Capſ. 3-celled, 3-valved. Seeds winged. Cor. funnel-ſhaped. Stigma 3-cleft.

I. Capſ. 3-celled. Cor. funnel-ſhaped. Stigma with a little head.

375. Brossæa. Capſ. 5-locul. Cor. truncata. Cal. carnoſus.

312. Azalea. Capſ. 5-locularis. Cor. campanulata. Stigm. obtuſum.

315. Epæris. Capſ. 5-locul. Cor. infundibulif. villoſa. Squama nectarif.

481. Nerium. Follic. 2, erecti. Cor. fauce coronata. Sem. pappoſa.

482. Echites. Follic. 2, erecti. Cor. infundib. fauce nuda. Sem. pappoſa.

483. Plumieria. Follic. 2, retracti. Cor. infundib. Sem. alata.

484. Cameraria. Follic. 2, lobati. Cor. hypocrat. Sem. alata.

485. Tabernæmontana. Follic. 2, pulpoſi. Cor. hypocrat. Sem. ſimplicia.

480. Vinea. Follic. 2, erecti. Cor. hypocrat. Sem. ſimplicia.

475. Cerbera. Drupæ 2, nuces ſubmonoſpermæ. Cor. infundibulif.

339. Thouinia. Drupa. Cor. campanulata, extus hiſpida. Cal. 5-phyll.

402. Tectona. Drupa ſicca, nuce 3-locul. Cor. infundibulif.

391. Ardisia. Drupa 1-ſperma. Cor. hypocraterif. limbo reflexo.

401. Bumelia. Drupa 1-ſperma. Cor. hypocraterif. limbo dentibus interjecto. Nect. 5-phyll.

474. Gynopogon. Drupa nuce ſemibilocul. Cor. hypocraterif. Stigma globoſum villoſum.

399. Langeria. Drupa 1-ſperma. Nux 5-locular. Stigm. capitatum.

398. Varronia. Drupa 1-ſperma. Nux 4-locul. Stigm. 4-plex.

396. Cordia. Drupa 1-ſperma. Nux 4-locularis. Stigma dichotomum. Cal. baccæ accretus.

386. Ignatia. Drupa polyſperma. Cor. infundibulif. tubo longiſſimo.

397. Ehretia. Drupa 4-ſperma. Nux 2-locular. Stigm. emarginatum.

316. Styphelia. Drupa 5-locularis. Cor. tubuloſa.

478. Willughbeja. Cor. hypocraterif. Stigm. capitatum.

473. Carissa. Baccæ 2, polyſpermæ.

392. Jaquinia. Bacca 1-ſperma. Cor. 10-fida. Nect. 5-phyll.

421. Myrsine. Bacca 1-ſperma. Cor. campanulat. Stigm. villoſum.

422. Bladhia. Bacca 1-ſperma. Sem. arillatum. Cor. rotata.

472. Pæderia. Bacca 2-ſperma, inflata, fragilis.

471. Rauwolfia. Bacca 2-ſperma. Sem. cordata.

415. Arduina. Bacca 2-ſperma. Sem. oblonga. Cor. curvata. Stigm. 2-fidum.

387. Cestrum. Bacca 1-locularis. Filamenta dente notata.

311. Fragæa. Bacca 2-locul. carnoſ. Cor infundibulif. tubo longo. Stigma capitatum.

288. Tournefortia. Bacca 2-locul. loculis 2-ſpermis, apice perforata.

385. Strychnos. Bacca 2-locularis corticoſa. Stigma capitatum.

B. Capſ. 5-celled. Cor. lopped. Cal. fleſhy.

A. Capſ. 5-celled. Cor. bell-ſhaped. Stigm. blunt.

E. Capſ. 5-celled. Cor. funnel-ſhaped, woolly. A ſcale honey-bearing.

N. Air-bags 2, erect. Cor. with a crowned mouth. Seeds downy.

E. Air-bags 2, erect. Cor. funnel-ſhaped, with a naked mouth. Seeds downy.

P. Air-bags 2, drawn back. Cor. funnel-ſhaped. Seeds winged.

C. Air-bags 2, gaſhed. Cor. ſalver-ſhaped. Seeds winged.

T. Air bags 2, pulpy. Cor. ſalver-ſhaped. Seeds undivided.

V. Air bags 2, erect. Cor. ſalver-ſhaped. Seeds undivided.

C. Drupes 2, nuts nearly 1-ſeeded. Cor. funnel-ſhaped.

T. A drupe. Cor. bell-ſhaped, rough without, with ſtiff briſtly hairs. Cal. 5-leaved.

T. A drupe dry, with a 3-celled nut. Cor. funnel-ſhaped.

A. A drupe 1-ſeeded. Cor. ſalver-ſhaped, border turned back.

B. A drupe with 1 ſeed. Cor. ſalver-ſhaped, border notched with teeth. Nectary 5-leaved.

G. A drupe with a nut half 2-celled. Cor. ſalver-ſhaped. Stigma globular, woolly.

L. A drupe with 1 ſeed. A nut 5-celled. Stigma with a knob.

V. A drupe 1-ſeed. Nut 4-celled. Stigma 4-fold.

C. A drupe, 1 ſeed. Nut 4-celled. Stigma forked. Cal. growing to the berry.

I. A drupe. Many ſeeds. Cor. funnel-ſhaped, with a very long tube.

E. A drupe, 4-ſeeded. Nut 2-celled. Stigma notched at the end.

S. A drupe, 5-celled. Cor. tubular.

W. Cor. ſalver-ſhaped. Stigma with a little head or knob.

C. Berries 2, many-ſeeded.

J. Berry 1-ſeeded. Cor. 10-cleft. Nectary 5-leaved.

M. Berry 1 ſeed. Cor. bell-ſhaped. Stigma woolly.

B. Berry 1 ſeed. Seed coated. Cor. wheel-ſhaped.

P. Berry 2-ſeeded, inflated, brittle.

R. Berry 2-ſeeded. Seeds heart-ſhaped.

A. Berry 2-ſeeded. Seeds oblong. Cor. crooked. Stigma 2-cleft.

C. Berry 1-celled. Filaments toothed.

F. Berry 2-celled, fleſhy. Cor. funnel-ſhaped, with a long tube. Stigma with a knob.

T. Berry 2-celled, with 2-ſeeded cells perforated at the point.

S. Berry 2-celled, bark-like. Stigma with a knob.

384. Capsicum. Bacca 2-locul. exſucca. Antheræ conniventes.

* 383. Solanum. Bacca 2-locularis. Antheræ biperforatæ.

382. Physalis. Bacca 2-locul. Calyce inflato. Antheræ approximatæ.

380. Jabarosa. Bacca? Cor. tubuloſa longiſſima.

* 381. Atropa. Bacca 2-locul. Stam. diſtantia, incurvata.

304. Ellisia. Bacca 2-locular. Sem. 2, altero ſuperiore.

388. Licium. Bacca 2-locular. Stam. baſi villo claudentia.

390. Cryptostomum. Bacca 3-locul. Cor. infundibulif. calyci inſerta. Nect. 1-phyllum, corollam claudens.

416. Camax. Bacca 4-locul. villoſ. polyſp. Cor. rotata. Cal. 5-part.

319. Triguera. Bacc. 4-locul.; locul. 2-ſperm. Cor. campanulata. Cal. 5-dent.

341. Solandra. Bacca 4 locul. polyſperma. Cor. infundibulif. Cal. ringens.

369. Menais. Bacca 4-locular. Cal. 3-phyllus. Stigm. duo.

449. Leea. Bacca 5-ſperma. Cor. rotata. Nect. urceolat. 5-fid. ſtaminiferum.

403. Sideroxylon. Bacca 5-ſperma. Cor. 10-fida, laciniis interioribus conniventibus.

400. Chrysophyllum. Bacca 10-ſperma. Cor. 10-fida, laciniis exterioribus patentiſſimis.

393. Bassonia. Bacca polyſperma noduloſa. Cor. rotata.

364. Bæobotrus. Bacca polyſperma. Cor. tubuloſ. Cal. duplex.

C. Berry 2-celled, dry. Anthers converging.

* S. Berry 2-celled. Anthers double perforated.

P. Berry 2-celled. Calyx bellied. Anthers approaching.

J. Berry? Cor. very long, tubular.

* A. Berry 2-celled. Stamens diſtant, bowed inwards.

E. Berry 2-celled. Seeds 2, one ſuperior.

L. Berry 2-celled. Stamens cloſing with a hairy baſe.

C. Berry 2-celled. Cor. funnel-ſhaped, inſerted in the calyx. Nectary 1-leaved, cloſing the corolla.

C. Berry 4-celled, woolly, many-ſeeded. Cor. wheel-ſhaped. Cal. 5-partite.

T. Berry 4-celled, cells 2-ſeeded. Cor. bell-ſhaped. Cal. 5-toothed.

S. Berry 4-celled many-ſeeded. Cor. funnel-ſhaped. Cal. gaping.

M. Berry 4-celled. Cal. 3-leaved. Stigmas 2.

L. Berry 5-ſeeded. Cor. wheel-ſhaped. Nectary pitcher-ſhaped, 5-cleft, bearing the ſtamens.

S. Berry 5-ſeeded. Cor. 10-cleft, the inner ſegments converging.

C. Berry 10-ſeeded. Cor. 10-cleft, the outer ſegments very open.

B. Berry many-ſeeded, knotted. Cor. wheel-ſhaped.

B. Berry many-ſeeded. Cor. tubular. Cal. double.

Sect. VI. *Flores monopetali, ſuperi.*

* 333. Samolus. Capſ. 1-locularis, apice 5-valvis. Cor. hypocrat. Stigm. capitatum.

352. Virecta. Capſ. 1-locul. Cor. infundibulif. Cal. 5-dent. dentibus interjectis.

338. Bellonia. Capſ. 1-locul. umbilico roſtrato. Cor. rotata, ſtigm. acutum.

337. Macrocnemum. Capſ. 2-locul, turbinata. Cor. camp. Sigm. bilobum. Sem. imbricata.

351. Dentella. Capſ. 2-locul. Cor. infundibulif. laciniis 3-dentat.

350. Chimarrhis. Capſ. 2-locul.; locul. 1-ſperm. Cor. infundibulif. Stigm. 2-part.

336. Rondeletia. Capſ. 2-locular. ſubgloboſa. Cor. infund. Stigm. obtuſum.

346. Cinchona. Capſ. 2-locular. intus dehiſcens. Cor. hirſuta. Stigm. ſimplex.

340. Portlandia. Capſ. 2-locul. coronata. Cor. ventricoſa. Stigm. ſimplex. Sem. imbricata.

330. Roella. Capſ. 2-locul. coronata. Cor. rotata. Stigm. 2-fidum.

344. Goodenia. Capſ. 2-locul. Cor. 1-petal. longitudinaliter fiſſa.

* 331. Phyteuma. Capſ. 2 ſ. 3-locul. perforata. Cor. 5-partita. Stigm, 2 ſ. 3-fidum.

332. Trachelium. Capſ. 3-locul. perforata. Cor. infundibulif. Stigm. capitatum.

* 329. Campanula. Capſ. 2 ſ. 3-locul. Cor. 1-perforata. Cor. campanul. Stigm. 3-fidum.

Sect. I. *Flowers monopetalous, ſuperior.*

* S. Capſ. 1-celled, with 5 valves at the top. Cor. ſalver-ſhaped. Stigma with a knob.

V. Capſ. 1-celled. Cor. funnel-ſhaped. Cal. 5-toothed, the teeth interjected.

B. Capſ. 1-celled, dimple-beaked. Cor. wheel-ſhaped. Stigma ſharp.

M. Capſ. 2-celled, turban-ſhaped. Cor. bell-ſhaped. Stigma 2-lobed. Seeds tiled.

D. Capſ. 2-celled. Cor. funnel-ſhaped, with ſegments 3-toothed.

C. Capſ. 2-celled; cell 1-ſeeded. Cor. funnel-ſhaped, Stigma 2-partite.

R. Capſ. 2-celled, nearly globular. Cor. funnel-ſhaped. Stigma obtuſe.

C. Capſ. 2-celled, gaping within. Cor. ſhaggy. Stigma undivided.

P. Capſ. 2-celled, crowned. Cor. bellied. Stigma undivided. Seeds tiled.

R. Capſ. 2-celled, crowned. Cor. wheel-ſhaped. Stigma 2-cleft.

G. Capſ. 2-celled. Cor. 1-petal, cleft lengthwiſe.

* P. Capſ. 2 or 3-celled, perforated. Cor. 5-partite. Stigma 2 or 3-cleft.

T. Capſ. 3-celled, perforated. Cor. funnel-ſhaped. Stigma with a knob.

* C. Capſ. 2 or 5-celled, perforated. Cor. bell-ſhaped. Stigma 3-cleft.

* 342. Lobelia. Capſ. 2 ſ. 3-locul. Cor. 1-petal irregul. Anth. connatæ.

345. Scævola. Drupa 1-ſperma. Cor. irregularis flabelliformis, fiſſura longitudinali.

367. Schoepfia. Drupa 1-ſperma. Cor. campanulata. Cal. duplex, alter inferus, alter ſuperus.

372. Matthiola. Bacca 1-ſperma. Cor. infundibulif. indiviſa. Stigm. obtuſum.

363. Morinda. Bacca 1-ſperma, aggregata. Cor. infundib. Stigma 2-fidum.

349. Psychotria. Bacca 2-ſperma. Sem. ſulcata. Cor. infundib. Stigm. emarginatum.

353. Coffea. Bacca 2-ſperma. Sem. arillata. Cor. hypocrat. Stigm. 2-partitum.

354. Chiococca. Bacca 2-ſperma. Cor. infundib. Stigm. ſimplex.

389. Serissa. Bacca 2-ſperma. Cor. infundibulif. fauce ciliata, laciniis limbi ſubtrilobis.

357. Cephælis. Bacca 2-ſperma. Cor. tubuloſa. involucr. ſubtetraphyll. Recept. paleaceum.

355. Vangueria. Bacca 4 ſ. 5-ſperma. Cor. hypocraterif, tubo globoſo, fauce piloſa.

347. Solena. Bacca 1-locul. Cor. hypocraterif. tubo longiſſimo. Stigm. 3-fid.

356. Canephora. Fruct. 2-locul. Cor. campanulata. Cal. communis tubuloſus multiflorus.

358. Bertiera. Bacca 2-locul. Cor. hypocraterif. Stigm. 2-lamellat. Stam. tubo inſerta.

* 361. Lonicera. Bacca 2-locularis ſubrotunda. Cor. inæqualis. Stigm. capitatum.

476. Webera. Bacca 2-locul.; locul. 1-ſperm. Cor. infundibulif.

477. Gardenia. Bacca 2-locularis polyſperma. Cor. infundibulif.

348. Ucriana. Bacca 2-locul. Cor. hypocraterif. tubo longiſſimo. Stigm. 2-lamellat. Stam. fauci inſerta.

362. Triosteum. Bacca 3-locul. coriacea. Cor. inæqualis. Stigm. oblongum.

467. Plocama. Bacca 3-locul.; locul. 1-ſpermis. Corolla campanulata.

370. Mussænda. Bacca 4-locularis, oblonga. Cor. infundib. Stigm. 2-part.

360. Schwencfeldia. Bacca 5-locul. polyſperm. Cor. hypocraterif. Stigm. 5-part.

359. Hamellia. Bacca 5-locular. polyſperma. Cor. tubo longo. Stigm. lineare.

368. Erithalis. Bacca 10-locul. ſubgloboſa. Cor. rotata. Stigm. acutum.

† *Ixia pentandra, pavetta pentandra, oldenlandia, digyna pentandra, rubiæ et crucianellæ nonnullæ, prinos.*

Sect. VII. *Flores tetrapetali.*

365. Stroemia. Bacca corticoſa 2-valv. Cal. 4-phyll. Nect. ligulat.

Sect. VIII. *Flores pentapetali, inferi.*

442. Hirtella. Bacca 1-ſperma. Stylus lateralis. Stam. perſiſtentia, ſpiralia.

* 405. Rhamnus. Bacca 3-locularis, rotunda. Cal. tubul. Corollifer. petala 5 convergentia.

* L. Capſ. 2 or 3-celled. Cor. 1-petal, irregular. Anthers twins, that is, united at the baſe.

S. A drupe 1-ſeeded. Cor. irregular, fan-ſhaped, with a longitudinal fiſſure.

S. A drupe 1-ſeeded. Cor. bell-ſhaped. Cal. double, one inferior, the other ſuperior.

M. Berry 1-ſeeded. Cor. funnel-ſhaped undivided. Stigma obtuſe.

M. Berry 1-ſeeded, incorporated. Cor. funnel-ſhaped. Stigma 2-cleft.

P. Berry 2-ſeeded. Seeds furrowed. Cor. funnel-ſhaped. Stigma notched at the end.

C. Berry 2-ſeeded. Seeds coated. Cor. ſalver-ſhaped. Stigma 2-partite.

C. Berry 2-ſeeded. Cor. funnel-ſhaped. Stigma undivided.

S. Berry 2-ſeeded. Cor. funnel-ſhaped, with a fringed mouth, the ſegments of the border nearly 3-lobed.

C. Berry 2-ſeeded. Cor. tubular. Involucrum nearly 4-leaved. Receptacle chaffy.

V. Berry 4 or 5-ſeeded. Cor. ſalver-ſhaped, with a globular tube and hairy mouth.

S. Berry 1-celled. Cor. ſalver-ſhaped, with a very long tube. Stigma 3-cleft.

C. Fruit 2-celled. Cor. bell-ſhaped. Cal. common, tubular, many-flowered.

B. Berry 2-celled. Cor. ſalver-ſhaped. Stigma 2-gilled. The ſtamens inſerted in a tube.

* L. Berry 2-celled, nearly round. Cor. unequal. Stigma with a knob.

W. Berry 2-celled, cell 1-ſeeded. Cor. funnel-ſhaped.

G. Berry 2-celled, many-ſeeded. Cor. funnel-ſhaped.

U. Berry 2-celled. Cor. ſalver-ſhaped, with a very long tube. Stigma 2-gilled. The ſtamens inſerted in the mouth.

T. Berry 3-celled, leather-like. Cor. unequal. Stigma oblong.

P. Berry 3-celled, cells 1-ſeeded. Corolla bell-ſhaped.

M. Berry 4-celled, oblong. Cor. funnel-ſhaped. Stigma 2-partite.

S. Berry 5-celled, many-ſeeded. Cor. ſalver-ſhaped. Stigma 5-cleft.

H. Berry 5-celled, many-ſeeded. Cor. with a long tube. Stigma ſtrap-ſhaped.

E. Berry 10-celled, nearly globular. Cor. wheel-ſhaped. Stigma acute.

Sect. VII. *Flowers 4-petaled.*

S. Bark-like berry with 2-valves. Cal. 4-leaved. Nectary ſtrap-ſhaped.

Sect. VIII. *Flowers 5-petaled, inferior.*

H. Berry 1-ſeeded. Style lateral. Stamens permanent, twiſted.

* R. Berry 3-celled, round. Cal. tubular. Cor. bearing 5 converging petals.

412. Ceanothus. Bacca 3-cocca. Cal. tubul. Corollifer petala fornicata.

* 424. Evonymus. Bacca capſularis, lobata. Cal. patens. Sem. baccato-arillata.

423. Celastrus. Bacca 3-cocca. Cal. planus. Sem. arillata.

429. Staavia. Bacca 5-ſperma corticata. Recept. paleaceo-villoſum. Stam. calyci inſerta.

454. Euparea. Bacca exſucca 1-locul, polyſp. Petal. 5-12.

440. Billardiera. Bacca polyſperma. Stigm. ſimpl.

424. Ruyschia. Bacca polyſperma. Styl. 0. Cor. reflexa.

453. Vitis. Bacca 5-ſperma. Cor. ſæpe connata. Stylus nullus.

439. Escalonia. Bacca 2-locularis. Stigm. capitat.

441. Mangifera. Drupa renifomis. Cor. petalis lanceolat. Nux lanuginoſa.

406. Ziziphus. Drupa nuce 2-locul. Cal. tubul. corollifer. Petala oris 5, convergentia.

404. Schrebera. Drupa ſicca nuce 2-locul. Nect. margo elevat.

438. Elæodendrum. Drupa nuce 2-locul. Petal. ſubrotund. Glandula ſub germine.

430. Walkera. Drupæ 5, monoſpermæ. Cal. 5-part.

451. Corynocarpus. Nux clavata. Nect. 5, petaliformia baſi glanduloſa.

435. Humboldtia. Legumen. Petal. 5, lanceolata. Cal. 4-part.

425. Pilocarpus. Capſ. 2-5, infernæ coalitæ. Stam. infra germen inſerta.

436. Cedrela. Capſ. 5-locularis, baſi dehiſcens. Cor. receptaculo unita. Sem. alata.

437. Calodendrum. Capſ. 6-locul. 5-angulat. petal. lanceolat. Germen pedicellat. Nect. 5-phyll.

413. Scopolia. Capſ. baccata 5-locul.; locul. 1-ſperm. Stigm. capitat.

420. Polycardia. Capſ. 5-locul. Sem. arillata. Petala rotundata. Stigm. lobatum.

431. Pittosporum. Capſ. 2-5 locul. 5-valv. Sem. tecta pulpa. Petala conniventia in tubum.

417. Buttneria. Capſ. 5-cocca. Cal. petalis auriculatus. Stam. nectario annexa.

418. Ayenia. Capſ. 5-locul. Petala in ſtellulam connata. Nect. urceolus piſtillum tegens ſtaminiferum.

419. Gluta. Capſula? Petala pedicello germinis inſerta. Cal. campanulat. deciduus.

426. Diosma. Capſ. 5-plex. Nectar. germ. coronans. Sem. arrillata.

314. Sprengelia. Capſ. 5-locul. 5-valv. polyſperma. Anth. connatæ.

427. Hovenia. Capſ. 3-locul. 3-valv. Petala obovata. Stigmata 3.

335. Nauclea. Capſ. 2-locul. polyſperm. Recept. commun. piloſum.

447. Impatiens. Capſ. 1-locul. 5-valv. Cor. irregul. calcarat. Cal. 2-phyll. Anth. cohærentes.

* 446. Viola. Capſ. 1-locul. 3-valv. Cor. irregul. calcarata. Cal. 5-phyll. Anth. cohærentes.

459. Claytonia. Capſ. 1-locul. 3-valvis. Cal. 2-valvis. Stigm. 3-fidum.

C. Berry 3-celled. Cal. tubular. Cor. bearing vaulted petals.

* E. Berry capſular, lobed. Cal. extending. Seeds berried-coated.

C. Berry 3-celled. Cal. flat. Seeds coated.

S. Berry 5-ſeeded, barked. Receptacle chaffy-woolly. Stamens inſerted in the calyx.

E. Berry dry, 1-celled, many-ſeeded. Petals 5-12.

B. Berry many-ſeeded. Stigma undivided.

R. Berry many-ſeeded. No ſtyle. Cor. bent back.

V. Berry 5-ſeeded. Cor. oft united at the baſe. No ſtyle.

E. Berry 2-celled. Stigma with a little head.

M. A drupe kidney-ſhaped. Cor. with ſpear-ſhaped petals. Woolly nut.

Z. A drupe with a 2-celled nut. Cal. tubular, bearing the cor. Petals of the mouth 5, converging.

S. A dry drupe, with a 2-celled nut. The margin of the nectary elevated.

E. A drupe, with a 2-celled nut. Petals nearly round. A gland beneath the germen.

W. 5 drupes, 1-ſeeded. Cal. 5-partite.

C. Club-ſhaped nut. Nectaries 5, petal-ſhaped, with a glandular baſe.

H. A leguminous plant. Petals 5, ſpear-ſhaped. Cal. 4-partite.

P. Capſ. 2-5 uniting beneath. Stamens inſerted beneath the germen.

C. Capſ. 5-celled, gaping at the baſe. Cor. united to the receptacle. Seeds winged.

C. Capſ. 6-celled, 5-angled. Petals ſpear-ſhaped. Germen on a pedicle. Nectary 5-leaved.

S. Capſ. berried, 5-celled. Cells 1-ſeeded. Stigma with a little head.

P. Capſ. 5-celled. Seeds coated. Petals rounded. Stigma lobed.

P. Capſ. 2-5 celled, 5-valved. Seeds covered with pulp. Petals converging into a tube.

B. Capſ. 5-celled. Cal. ear-ſhaped with petals. Stamens annexed to the nectary.

A. Capſ. 5 celled. Petals united at the baſe into a ſtar. A pitcher-ſhaped nectary covering the piſtil which bears the ſtamens.

G. Capſule? Petals inſerted in the pedicle of the germen. Cal. bell-ſhaped, deciduous.

D. Capſ. 5-fold. Nectary crowning the germen. Seeds coated.

S. Capſ. 5 celled, 5-valved, many ſeeded. Anthers united at the baſe.

H. Capſ. 3-celled, 3 valved. Petals egg-ſhaped with the ſmall end downwards. Stigm. 3.

N. Capſ. 2 celled, many-ſeeded. The common receptacle hairy.

I. Capſ. 1-celled, 5-valved. Cor. irregular having a ſpur. Cal. 2-leaved. Anthers cohering.

* V. Capſ. 1-celled, 3-valved. Cor. irregular, ſpurred. Cal. 5-leaved. Anthers cohering.

C. Capſ. 1-celled, 3-valved. Cal. 2-valved. Stigma 3-cleft.

457. Roridula. Capſ. 1-locul. 3-valvis. Nectarium ſcrotiforme.

433. Itea. Capſ. 1-locul. 2-valvis. Cal. corollifer. Stigm. obtuſum.

455. Ægiceras. Capſ. 1-locul. arcuata, 1-valv. 1-ſperma. Cal. 5-fid.

458. Sauvagesia. Capſ. 1-locul. Nectarium 5-phyllum. Petala imbricata.

407. Ventilago. Samara 1-ſperma, apice alata. Cal. 5-fid. corollifer.

428. Brunia. Sem. 1, villoſum. Recept. commune villoſum. Stam. unguibus petal. inſerta.

† *Cæſalpinia pentandra. Bombax pentandrum. Caſſia nictitans.*

R. Capſ. 1-celled, 3-valved. Nectary purſe-ſhaped.

I. Capſ. 1-celled, 2-valved. Cal. bearing the corolla. Stigma obtuſe.

Æ. Capſ. 1-celled, bowed with 1 valve, 1 ſeed. Cal. 5-cleft.

S. Capſ. 1-celled. Nectary 5-leafed. Petals tiled.

V. Cloſe ſeed-veſſel, 1-ſeeded, winged at the point. Cal. 5-cleft, bearing the corolla.

B. Seed 1, woolly. Common receptacle woolly. The ſtamens inſerted in the claws of the petals.

Sect. IX. *Flores pentapetali, ſuperi.*

* 445. Ribes. Bacca polyſperma. Cal. corollif. Styl. 2-fidus.

* 452. Hedera. Bacca 5-ſperma. Cal. cingens fruct. Stigm. ſimplex.

444. Plectronia. Bacca 2-ſperma. Cal. unguibus clauſus. Antheræ incluſæ geminatæ.

443. Strumpfia. Bacca 1-ſperma. Cal. 5-dent. Anth. in corpus ovatum coalitæ.

409. Phylica. Bacca 3-cocca. Cal. tubuloſus, corollifer, ſquamis 5-convergentibus.

410. Carpodetus. Bacca ſicca, 5-locul. petala calycis margini inſerta.

448. Gronovia. Capſ. 1-ſperma, colorata. Cal. coloratus. Petala minuta.

* 328. Jasione. Capſ. 2-locul. Involuc. 10-fid. Cal. 5-part. Anth. baſi cohærentes.

343. Cyphia. Capſula? Petala æqualia linearia. Filamenta piloſa, baſi cohærentia. Stigm. cavum, gibbum.

450. Argophyllum. Capſ. 3-locul. Petala lanceolata. Nect. 5-angul, pyramidatum.

327. Lightfootia. Capſ. 3-5-locul. Cor. fundo clauſa, valvis ſtaminiferis. Cal. 5-phyll.

458. Lagoecia. Sem. 2, nuda. Cal. pinnato pectinatus. Pet. bicornia.

366. Conocarpus. Sem. 1, depreſſum. Recept. aggregens. Petala conniventia.

Sect. X. *Flores incompleti, inferi.*

462. Achyranthis. Sem. 1, oblongum. Cal. exterior, 3-phyllus, nudus.

464. Chenolia. Utriculus depreſſus, 1-ſpermus.

463. Celosia. Capſ. 3-ſperma. Cal. exterior, 3-phyllus; coloratus.

* 465. Illecebrum. Capſ. 1-ſperma, 5-valvis. Cal. ſimplex, rudis.

* 466. Glaux. Capſ. 5-ſperma, 5-valvis. Cal. ſimplex, rudior, campanulatus.

411. Colletia. Fruct. 3-coccus. Cor. campanulata, 5-fida, plicis 5 ſquamiformibus inſtructa. Cal. o.

† *Polygonum amphibium, lapathifolium. Polycnemum oppoſitifolium. Samara pentandra, floribunda. Ceratonia.*

Sect. IX. *Flowers 5-petaled, ſuperior.*

* R. Many-ſeeded berry. Cal. bearing the corolla. Style 2-cleft.

* H. Berry 5-ſeeded. Cal. ſurrounding the fruit. Stigma undivided.

P. Berry 2-ſeeded. Cal. ending in claws. Anthers in pairs, ſhut up.

S. Berry 1-ſeeded. Cal. 5-toothed. Anthers uniting into an egg-ſhaped body.

P. Berry 3-celled. Cal. tubular, bearing the corolla with 5 converging ſcales.

C. Berry dry, 5-celled. Petals inſerted in the extremity of the calyx.

G. Capſ. 1-ſeeded, coloured. Cal. coloured. Petals minute.

* J. Capſ. 2-celled. Involucrum 10-cleft. Cal. 5-partite. Anthers cohering at the baſe.

C. Capſule? Petals equal, ſtrap-ſhaped. Filaments hairy, cohering at the baſe. Stigma hollow, bulging.

A. Capſ. 3-celled. Petals ſpear-ſhaped. Nectary 5-angled, pyramidal.

L. Capſ. 3-5 celled. Cor. with a ſhut bottom, the valves bearing the ſtamens. Cal. 5-leafed.

L. Seeds 2, naked. Cal. comb-like, winged. Petals 2-horned.

C. Seed 1, depreſſed. Receptacle incorporating. Petals converging.

Sect. X. *Flowers incomplete, inferior.*

A. Seed 1, oblong. Cal. exterior, 3-leafed, naked.

C. A little bag, depreſſed, 1-ſeeded.

C. Capſ. 3-ſeeded. Cal. exterior, 3-leafed, coloured.

* I. Capſ. 1-ſeeded, with 5 valves. Cal. undivided, rough.

* G. Capſ. 5-ſeeded, 5-valved. Cal. undivided, conſiderably rough, bell-ſhaped.

C. Fruit 3-celled. Cor. bell-ſhaped; 5-cleft, with 5 ſcaly plaits. No cal.

Sect.

Sect. XI. *Flores incompleti, ſuperi.*

* 469. THESIUM. Sem. 1, coronatum. Cal. ſtaminifer.

460. HELICONIA. Capſ. 3-cocca, locul. 1-ſperm. Cor. 3-petal. Nect. 2-phyll.

461. STRELITZIA. Capſ. 3-cocca, locul. polyſperm. Cor. 3-petal. Nect. 3-phyll.

ORDO II. DIGYNIA.

Sect. I. *Flores monopetali, inferi.*

494. STAPELIA. Folliculi 2. Cor. rotata, nectariis ſtellaris.

488. CYNANCHUM. Folliculi 2. Cor. rotata. Nectario cylindrico.

487. PERIPLOCA. Folliculi 2. Cor. rotata. Nectariis 5, filiformibus.

491. HOSTEA. Folliculi 5, angulares. Cor. rotata.

489. APOCYNUM. Folliculi 2. Cor. campan. Nectariis glanduloſis 5. Setis 5.

486. PERGULARIA. Folliculi 2. Cor. hypocraterif. Nect. 5, ſemi-ſagittata.

490. ASCLEPIAS. Folliculi 2. Cor. reflexa. Nectariis 5, auriformibus unguiculatis.

493. CEROPEGIA. Folliculi 2. Cor. limbus connivens.

492. MELODINUS. Bacca 2-locul. polyſperma. Faux corollæ coronatus.

* 511. SWERTIA. Capſ. 1-locul. 2-valvis. Cor. rotata, poris 5 nectariferis.

* 512. GENTIANA. Capſ. 1-locul. 2-valvis. Cor. tubuloſa indeterminata.

502. CRESSA. Capſ. 1-ſperma, 2-valvis. Cor. hypocrater. Limbo reflexo.

506. NAMA. Capſ. 1-locul. 4-gona, 2-valvis. Cor. longitudine calycis tubuloſa.

507. HYDROLEA. Capſ. 2-locul. 2-valvis. Cor. rotata.

508. ROCHEFORTIA. Fruct. 2-locul. polyſperm. Cor. infundibuliform.

513. DICHONDRA. Capſulæ 2. Cor. campanulata.

† *Cuſcutæ nonnullæ.*

Sect. II. *Flores pentapetali, inferi.*

510. VELZIA. Capſ. 1-locul. 1-valvis. Cor. 5-petala. Cal. tubuloſus.

495. LINCONIA. Capſ. 2-locul. Petalis lacuna. Cal. 4-phyllus.

515. BUMALDA. Capſ. 2-locul. 2-roſtris. Cor. 5-petal. germini inſerta. Styli villoſi.

509. HEUCHERA. Capſ. 2-locul. 2-roſtrata. Cor. 5-petala, calyci inſerta.

501. ANABASIS. Bacca 1-ſperma. Cor. 5-petala, minima.

† *Staphylea pinnata.*

Sect. III. *Flores incompleti.*

* 500. SALSOLA. Sem. 1, cochleatum, tectum. Cal. 5-phyllus.

Sect. XI. *Flowers incomplete, ſuperior.*

* T. Seed 1, crowned. Cal. bearing the ſtamens.

H. Capſ. 3-celled, cells 1-ſeeded. Cor. 3-petaled. Nectary 2-leafed.

S. Capſ. 3-celled, cells many-ſeeded. Cor. 3-petaled. Nectary 3-leafed.

ORDER II. DIGYNIA.

Sect. I. *Flowers monopetalous, inferior.*

S. Air-bags 2. Cor. wheel-ſhaped; with ſtar-like nectaries.

C. Air-bags 2. Cor. wheel-ſhaped. A cylindrical nectary.

P. Air-bags 2. Cor. wheel-ſhaped, with 5 thread-ſhaped nectaries.

H. Air-bags 5-angular. Cor. wheel-ſhaped.

A. Air-bags 2. Cor. bell-ſhaped, with 5 glandular nectaries. Briſtles 5.

P. Air-bags 2. Cor. ſalver-ſhaped. Nectaries 5, half-arrow-ſhaped.

A. Air-bags 2. Cor. bent back, with 5 nectaries ear-ſhaped, with claws.

C. Air-bags 2. Cor. the border converging.

M. Berry 2-celled, many-ſeeded. The mouth of the cor. crowned.

* S. Capſ. 1-celled, 2-valved. Cor. wheel-ſhaped, with 5 honey-bearing little holes.

* G. Capſ. 1-celled, 2-valved. Cor. tubular, not bordered.

C. Capſ. 1-ſeeded, with 2 valves. Cor. ſalver-ſhaped; the border bent back.

N. Capſ. 1-celled, 4-gon. 2-valved. Cor. tubular, of the length of the calyx.

H. Capſ. 2-celled, 2-valved. Cor. wheel-ſhaped.

R. Fruit 2-celled, many-ſeeded. Cor. funnel-ſhaped.

D. Capſules 2. Cor. bell-ſhaped.

Sect. II. *Flowers 5-leaved, inferior.*

V. Capſ. 1-celled, 1-valved. Cor. 5-petaled. Cal. tubular.

L. Capſ. 2-celled, with a pit in the petals. Cal. 4-leaved.

B. Capſ. 2-celled, with 2 beaks. Cor. with 5 petals inſerted in the germen. Styles woolly.

H. Capſ. 2-celled, 2-beaked. Cor. 5 petals inſerted in the calyx.

A. Berry 1-ſeeded. Very ſmall 5-petaled cor.

Sect. III. *Flowers incomplete.*

* S. Seed 1, ſhell-like, covered. Cal. 5-leaved.

* 497. Chenopodium. Sem. 1, orbiculare. Cal. 5-phyllus, foliolis concavis.

* 498. Beta. Sem. 1, reniforme. Cal. 5-phyllus, baſi ſemen fovens.

* 496. Herniaria. Sem. 1, ovatum, tectum. Cal. 5-partitus. Filam. 5 ſterilia.

503. Gomphrena. Capſ. 1-ſperma, circumſciſſa. Cal. diphyllus, compreſſus, coloratus.

504. Bosea. Bacca 1-ſperma. Cal. 5-phyllus.

* 505. Ulmus. Samara, compreſſa. Cal. 1-phyllyus, emarceſcens.

499. Microtea. Drupa ſicca echinata. Cal. 5-phyll. patens.

* C. 1 round and flat ſeed. Cal. 5-leaved, with concave leaflets.

* B. 1 ſeed, kidney-ſhaped. Cal. 5-leaved, ſeed adhering to the baſe.

* H. 1 oval covered ſeed. Cal. 5-partite. 5 barren filaments.

G. Capſ. 1-ſeeded, cut round. Cal. 2-leaved, compreſſed, coloured.

B. A berry 1-ſeeded. Cal. 5-leaved.

* U. Seed-veſſel compreſſed. Cal. 1-leaf, fading.

M. A drupe, dry, prickly. Cal. 5-leaved, expanding.

† *Polygonum virginianum. Ziziphi nonnullæ ſpecies. Trianthema pentandra.*

Sect. IV. *Flores pentapetali, ſuperi, capſulares.*

514. Vahlia. Capſ. truncata 1-locul. 2-valv. Petal. ovata. Cal. 5-phyll.

Sect. IV. *Flowers 5-petaled, ſuperior, capſular.*

V. Capſ. lopped, 1-celled, 2-valved. Petals oval. Cal. 5-leaved.

Sect. V. *Flores pentapetali, ſuperi, diſpermi, umbellatæ.*

A. *Involucro univerſali partialique.*

516. Phyllis. Flor. diſperſi.

* 518. Eryngium. Fl. capitati. Recept. paleaceum.

* 519. Hydrocotyle. Fl. ſubumbellati, fertiles. Sem. compreſſa.

520. Azorella. Fl. ſubumbellati, fertiles. Sem. ſubgloboſa, tridentata, ſulcata.

517. Cussonia. Fl. ſubumbellati. Margo receptaculi in calicem 5-dentatum dilatatus.

* 521. Sanicula. Flor. ſubumbellati, abortivi. Sem. muricata.

522. Astrantia. Flor. umbellati, abortivi. Involucrum colorata. Sem. rugoſa.

* 541. Heracleum. Fl. radiati, abortivi. Invol. deciduum. Sem. membranacea.

* 548. Oenanthe. Fl. radiati, abortivi radio. Involucrum ſimplex. Sem. coronata, ſeſſilia.

* 525. Echinophora. Fl. radiati, abortivi. Involucrum ſimplex. Sem. ſeſſilia.

* 528. Caucalis. Fl. radiati, abortivi. Involucrum ſimplex. Sem. muricata.

529. Artedia. Fl. radiati, abortivi. Involucrum pinnatum. Sem. margine crenis foliaceis.

* 530. Daucus. Fl. radiati, abortivi. Involucrum pinnatum. Sem. hiſpida.

* 527. Tordylium. Fl. radiati, fertiles. Involucrum ſimplex. Sem. margine crenata.

540. Laserpitium. Fl. floſculoſi, abortivi. Pet. cordata. Sem. 4-alata.

* 536. Peucedanum. Fl. floſculoſi, abortivi. Involucrum ſimplex. Sem. depreſſa, ſtriata.

531. Ammi. Fl. floſculoſi, fertiles. Involucrum pinnatum. Sem. gibba, lævia.

526. Hasselquistia. Fl. floſcul. fertiles. Petala cordata. Sem. radii plana; diſci urceolata.

Sect. V. *Flowers with 5 petals, ſuperior, 2-ſeeded, umbellated.*

A. *With an univerſal and partial involucrum.*

P. Flowers diſperſed.

* E. Flowers with little heads. Receptacle chaffy.

* H. Flowers nearly umbellated, fertile. Seeds compreſſed.

A. Flowers nearly umbellated, fertile. Seeds nearly globular, 3-toothed, furrowed.

C. Flowers nearly umbellated. The extremity of the receptacle dilated into a 5-toothed calyx.

* S. Flowers nearly umbellated, barren. Seeds covered with ſharp points.

A. Flowers umbellated, barren. Involucrum coloured. Seeds wrinkled.

* H. Flowers radiated, barren. Involucrum deciduous. Seeds membranaceous.

* O. Flowers radiated, outer florets barren. Involucrum undivided. Seeds crowned, ſitting.

* E. Flowers radiated, barren. Involucrum undivided. Seeds ſitting.

* C. Flowers radiated, barren. Involucrum undivided. Seeds covered with ſharp points.

A. Flowers radiated, barren. Involucrums winged. Seeds in the border with ſcolloped leaves.

* D. Flowers radiated, barren. Involucrum winged. Seeds rough, with briſtly hairs.

* T. Flowers radiated, fertile. Involucrum undivided. Seeds ſcolloped at the border.

L. Flowers with tubular florets, barren. Petals heart-ſhaped. Seeds 4-winged.

* P. Fl. tubular florets, barren. Involucrum undivided. Seeds depreſſed, ſcored.

A. Fl. tubular florets, fertile. Involucrum winged. Seeds bulging, level.

H. Fl. tubular florets, fertile. Petals heart-ſhaped. Seeds of the ray flat; of the diſk pitcher-ſhaped.

* 533. CONIUM. Fl. floſcul. fertiles. Pet. cordata. Sem. gibba, coſtato-ſulcata; involucella dimidiata.

524. EXOACANTHA. Fl. floſcul. fertiles. Petal. cordata. Sem. ovata-ſtriata. Involucrum et involucella ſpinoſa.

* 532. BUNIUM. Flor. floſc. fert. Pet. cordata. Involucella ſetacea.

* 535. ATHAMANTA. Fl. floſc. fert. Pet. cordata. Sem. convexa, ſtriata.

* 523. BUPLEURUM. Fl. floſc. fert. Pet. involuta (pleriſque folia indiviſa. ſ. involucella petaliformia).

* 544. SIUM. Fl. floſc. fert. Pet. cordata. Sem. ſubovata, ſtriata.

* 534. SELINUM. Fl. floſc. fert. Pet. cordata. Sem. depreſſa, ſtriated.

547. CUMINUM. Fl. floſc. fert. Pet. cordata. Umb. 4-fid. Invol. ſetacea, longiſſima.

539. FERULA. Fl. floſc. fert. Pet. cordata. Sem. plana.

* 737. CRITHMUM. Fl. floſc. fert. Pet. planiuſcula. Invol. horizontale.

546. BUBON. Fl. floſc. fert. Pet. planiuſc. Invol. 5-phyllum.

538. COCHRYS. Fl. floſc. fert. Pet. planiuſc. Sem. cortice ſuberoſo.

* 542. LIGUSTICUM. Fl. floſc. fert. Pet. involuta. Invol. membranacea.

* 543. ANGELICA. Fl. floſc. fert. Pet. planiuſc. Umbellulæ globoſæ.

* 545. SISON. Fl. floſc. fert. Pet. planiuſc. Umbell. depauperata.

B. *Involucris partialibus; univerſali nullo.*

* 551. ÆTHUSA. Flor. ſubradiati, fertiles. Involucella dimidiata.

* 552. CORIANDRUM. Fl. radiati, abortivi. Fr. ſubgloboſi.

* 553. SCANDIX. Flor. radiat. abort. Fr. oblongi.

* 554. CHÆROPHYLLUM. Fl. floſcul. abort. Fr. ſubgloboſi.

* 549. PHELLANDRIUM. Fl. floſcul. fert. Fr. coronati.

* 555. IMPERATORIA. Fl. floſc. fert. Umbell. expanſo-plana.

556. SESELI. Fl. floſc. fert. Umbell. rigidula.

* 550. CICUTA. Fl. floſc. fert. Pet. planiuſcula.

† *Bupleurum rotundifolium. Apium petroſelinum et aniſum.*

C. *Involucro nullo; nec univerſali, nec partialibus.*

* 559. SMYRNIUM. Flor. floſcul. abortivi. Sem. reniformia angulata.

* 561. CARUM. Fl. floſcul. abortivi. Sem. gibba, ſtriata.

557. THAPSIA. Fl. floſc. fert. Sem. membranacea, alata, emarginata.

* 558. PASTINACA. Fl. floſc. fert. Sem. depreſſo plana.

* 560. ANETHUM. Fl. floſc. fert. Sem. marginata, ſtriata.

* C. Flowers with tubular florets, fertile. Petals heart-ſhaped. Seeds bulging, rib-furrowed; the ſmall involucrums extending half round.

E. Fl. tubular florets, fertile. Petals heart-ſhaped. Seeds oval, ſcored. The total and partial involucrums thorny.

* B. Fl. tubular florets, fertile. Petals heart-ſhaped. Seeds convex, ſtriped.

* A. Fl. florets, fertile. Petals heart-ſhaped. Seeds convex, ſcored.

* B. Fl. florets, fertile. Petals rolled inwards (uſually the leaves undivided, or the involucella or ſmall involucrums petal-ſhaped).

* S. Fl. florets, fertile. Petals nearly heart-ſhaped. Seeds nearly egg-ſhaped, ſcored.

* S. Fl. florets, fertile. Petals heart-ſhaped. Seeds depreſſed, ſcored.

C. Fl. florets, fertile. Petals heart-ſhaped. An umbel 4-cleft. Involucrums very long, briſtly.

F. Fl. florets, fertile. Petals heart-ſhaped. Seeds flat.

* C. Fl. florets, fertile. Petals little planes. Involucrum horizontal.

B. Fl. florets, fertile. Petals flattened. Involucrum 5-leafed.

C. Fl. florets, fertile. Petals flattened. Seeds with a gnawed bark.

* L. Fl. florets, fertile. Petals rolled inwards in a membranaceous involucrum.

* A. Fl. florets, fertile. Petals flattened. Small globular umbels.

* S. Fl. florets, fertile. Petals flattened. Slender umbel.

B. *With partial involucrums; none univerſal.*

* Æ. Flowers nearly radiated, fertile. Small involucrums going half-round.

* C. Flowers radiated, barren. Fruits nearly globular.

* S. Flowers radiated, barren. Fruit oblong.

* C. Flowers are florets, barren. Fruit nearly globular.

* P. Flowers are florets, fertile. Fruit crowned.

* I. Flowers are florets, fertile. An umbel expanding, flat.

S. Flowers are florets, fertile. Inflexible umbel.

* C. Flowers are florets, fertile. Petals flattened.

C. *With no involucrum, neither univerſal nor partial.*

* S. Flowers, barren florets. Seeds kidney-ſhaped, angular.

* C. Flowers, barren florets. Seeds bulging, ſcored.

T. Flowers, fertile florets. Seeds membranaceous, notched at the end.

* P. Flowers fertile florets. Seeds ſunk flat.

* A. Flowers fertile florets. Seeds bordered, ſcored.

* 564. ÆGOPODIUM. Fl. floſc. fert. Sem. gibba, ſtriata. Pet. cordata.
* 563. APIUM. Fl. floſc. fert. Sem. minuta, ſtriata. Pet. inflexa.
* 562. PIMPINELLA. Fl. floſc. fert. Umbell. ante floreſcentiam nutantes. Pet. cordata.

ORDO III. TRIGYNIA.

Sect. I. *Flores ſuperi.*

* 567. VIBURNUM. Cor. 5-fida. Bacca 1-ſperma.
* 569. SAMBUCUS. Cor. 5-fida. Bacca 3 ſperma.

Sect. II. *Flores inferi.*

565. SEMICARPUS. Cor. 5-petala. Nux 1-ſperma in receptaculo compreſſo carnoſo magno.
566. RHUS. Cor. 5-petala. Bacca 1-ſperma.
568. CASSINE. Cor. 5-petala. Bacca 3-ſperma.
574. REICHELIA. Cor. 1-petala, campanulata. Capſ. 3-locul. circumſciſſa.
570. SPATHELIA. Cor. 5-petala. Capſ. 3-locularis. 3-gona, 1-ſperma. Filamenta baſi dentata.
* 571. STAPHYLEA, Cor. 5-petala. Capſ. 2 ſ. 3-fida, inflata.
* 572. TAMARIX. Cor. 5-petala. Capſ. 1-locularis. ſem. coma pappiformi coronata.
581. DRYPIS. Cor. 5-petala. coronata. Capſ. 1-ſperma, circumſciſſa.
576. TURNERA. Cor. 5-petala. Capſ. 1-locularis. Cal. 1-phyllus, corollifer.
575. SALMASIA. Cor. 5-petala. Styl. 0. Capſ. 3-locul. 3-valv.
583. SAROTHRA. Cor. 5-petala. Capſ. 1-locul. colorata. Cal. 1-phyllus.
* 580. ALSINE. Cor. 5-pet. Capſ. 1-locul. Cal. 5-phyllus. Pet. 2-fida.
577. TELEPHIUM. Cor. 5-pet. Capſ. 1-locul. triquetra. Cal. 5-phyllus.
* 578. CORRIGIOLA. Cor. 5-pet. Sem. 1, triquetrum. Cal. 5-partitus.
584. PORTULACARIA. Cor. 5-petala. Sem. 1, alato-triquetrum. Cal. 2-phyllus.
579. PHARNACEUM. Cor. nulla. Cal. 5-phyllus. Capſ. 3-locularis.
573. XYLOPHYLLA. Cal. 5-partitus. Capſ. 3-cocc. ſeminibus binis.
582. BASELLA. Cor. nulla. Cal. 6-fidus. Sem. 1-globoſum, calyce baccato.

† *Ziziphus paliurus. Celaſtrus.*

ORDO IV. TETRAGYNIA.

* 585. PARNASSIA. Cor. 5-petala. Capſ. 4-valvis. Nect. 5, ciliato-glanduloſa.
586. EVOLVULUS. Cor. 1-petala. Capſ. 4-locul.

ORDO V. PENTAGYNIA.

Sect. I. *Flores ſuperi.*

587. ARALIA. Cor. 5-petala. Bacca 5-locul.; locul. 1-ſperma.

* Æ. Flowers fertile florets, Seeds bulging, ſcored. Petals heart-ſhaped.
* A. Flowers fertile florets. Seeds minute, ſcored. Petal bent inwards.
* P. Flowers fertile florets. Umbels drooping before the flowering. Petals heart-ſhaped.

ORDER III. TRIGYNIA.

Sect. I. *Flowers ſuperior.*

* V. Cor. 5-cleft. Berry 1-ſeeded.
* S. Cor. 5-left. Berry 3-ſeeded.

Sect. II. *Flowers inferior.*

S. Cor. 5-petaled. Nect. 1-ſeed in a large fleſhy compreſſed receptacle.
R. Cor. 5 petals. Berry 1-ſeed.
C. Cor. 5 petals. Berry 3-ſeeded.
R. Cor. 1 petal, bell-ſhaped. Capſ. 3-celled, cut round.
S. Cor. 5 petals. Capſ. 3-celled, 3-gon. 1-ſeed. Filaments toothed at the baſe.
* S. Cor. 5 petals. Capſ. 2 or 3-cleft, inflated.

* T. Cor. 5 petals. Capſ. 1-celled. Seeds crowned with a down-like comb.
D. Cor. 5 petals crowned. Capſ. 1-ſeeded, cut round.
T. Cor. 5 petals. Capſ. 1-celled. Cal. 1-leafed, bearing the coroll.
S. Cor. 5 petals. No ſtyle. Capſ. 3-celled. 3-valved.
S. Cor. 5-petaled. Capſ. 1-celled, coloured. Cal. 1-leafed.
* A. Cor. 5 petals. Capſ. 1-celled. Cal. 5-leafed. Pet. 2-cleft.
T. Cor. 5 petals. Capſ. 1-celled, 3-cornered. Cal. 3-leafed.
* C. Cor. 5 petals. Seed 1, 3-cornered. Cal. 5-partite.
P. Cor. 5 petals. Seed 1-winged at 3 ſides. Cal. 2-leafed.
P. No cor. Cal. 5-leafed. Capſ. 3-celled.

X. Cal. 5 partite. Capſ. 3-celled, with two ſeeds in each.
B. No cor. Cal. 6-cleft. Seed 1, globular, with a berried calyx.

ORDER IV. TETRAGYNIA.

* P. Cor. 5-petals. Capſ. 4-valved. Nectaries 5, fringed, glandular.
E. Cor. 1-petal. Capſ. 4-celled.

ORDER V. PENTAGYNIA.

Sect. III. *Flowers ſuperior.*

A. Cor. 5-petals. Berry 5-celled, each cell 1-ſeeded.

588.

588. Glossopetalum. Cor. 5-petala. Bacca 1-locul. 5-ſperma.

G. Cor. 5-petals. Berry 1-cell, 5-ſeeds,

Sect. II. *Flores inferi.*

Sect. II. *Flowers inferior.*

594. Crassula. Cor. 5-partita. Capſ. 5, poly-ſperma.

C. Cor. 5-partite. Capſ. 5, many ſeeded.

593. Gisechia. Cor. o. Cal. 5-phyllus. Capſ. 5 rotundæ, 5-ſperma.

G. No cor. Cal. 5-leafed. Capſ. 5round, 5-ſeeded.

* 590. Linum. Cor. 5-petala. Capſ. 10-locularis, 2-ſperma.

* L. Cor. 5-petaled. Capſ. 10-celled, 2-ſeeded.

591. Aldrouanda. Cor. 5-petala. Capſ. 1-locularis, 10-ſperma.

A. Cor. 5-petaled. Capſ. 1-celled, 10-ſeeded.

* 592. Drosera. Cor. 5-petala. Capſ. 1-locularis, apice dehiſcens.

* D. Cor. 5-petaled. Capſ. 1-celled, opening at the top.

595. Mahernia. Cor. 5-petala. Capſ. 5-locularis, glabra.

M. Cor. 5-petaled. Capſ. 5-celled, ſmooth.

596. Commersonia. Cor. 5-petala. Capſ. 5-locul. echinata.

C. Cor. 5-petaled. Capſ. 5-celled, prickly.

* 597. Sibbaldia. Cor. 5-petala. Sem. 5. Cal. 10 fidus.

* S. Cor. 5-petaled. Seeds 5. Cal. 10-cleft.

* 589. Statice. Cor. 5-partita. Sem. 1, calyce infundib. veſtitum.

* S. Cor. 5-partite. Seed 1, covered by a funnel-ſhaped calyx.

† *Ceraſtium pentandrum. Spergula pentandra. Erodium.*

Ordo VI. DECAGYNIA.

Order VI. DECAGYNIA.

598. Schefflera. Cor. 5-petala. Capſ. 10-locul.; locul. 1-ſpermis.

S. Cor. 5-petaled Capſ. 10-celled, with 1 ſeed in each cell.

Ordo VII. POLYGYNIA.

Order VII. POLYGYNIA.

* 599. Myosurus. Cal. 5-phyllus. Nect. 5, linguiata. Sem. numeroſa.

* M. Cal. 5-leafed. Nectaries 5, tongue-ſhaped. Seeds numerous.

560. Zanthorhiza. Cal. o. Petala 5. Nect. 5, pedicellata. Capſ. 5, monoſpermæ.

Z. No cal. Petals 5. Nectaries 5, on pedicles. Capſ. 5, 1-ſeeded.

Order I. MONOGYNIA.

274. Heliotropium, or *Turn-ſole*,

Includes 22 ſpecies; viz. peruvianum, amplexicaule, indicum, parviflorum, inundatum, villoſum, europæum, coromandelianum, malabaricum, marifolium, ſupinum, undulatum, lineatum, ſtrigoſum, curaſſavicum, zeylanicum, perſicum, ſcabrum, orientale, gnaphaloides, ternatum, pinnatum. S. Eur. Aſia, W. Indies, Peru.

275. Myosotis.

12 ſpecies; viz. ſcorpioides, * arvenſis, nana, fruticoſa, ſpathulata, rupeſtris, virginiana, lappula, ſquarroſa, echinophora, ſpinocarpos, pectinata. Europe, North America.

276. Lithospermum, or *Gromwell.*

16 ſpecies; viz. * officinale, arvenſe, incanum, papilloſum, virginianum, tinctorium, apulum, ſcabrum, orientale, * purpureo-cœruleum, fruticoſum, calloſum, ciliatum, tenuiflorum, diſpermum, retortum. Europe, Egypt, Virginia.

arvenſe. * L. ſeeds wrinkled; corolla or bloſſoms hardly longer than the calyxes or cups.—The girls in the north of Europe, it is ſaid, paint their faces with the juice of the root of this plant upon days of feſtivity. The bark of the root tinges wax and oil of a beautiful red, ſimilar to that which is obtained from the root of the foreign alkanet that is kept in the ſhops. Sheep and goats eat it. Cows are not fond of it. Horſes and ſwine refuſe it.

* L. ſeeds ſmooth; corol. ſcarcely longer than the *officinale.* calyx; leaves lanceolate or ſpear-ſhaped. This ſpecies is found wild in dry fields and hedges. Its ſeeds are roundiſh, hard, of a whitiſh colour, like little pearls; and from theſe circumſtances, they were at one time ſuppoſed peculiarly ſerviceable in calculous diſorders. Their taſte is merely farinaceous.

277. Anchusa, or *Bugloſs.*

13 ſpecies; viz. paniculata, capenſis, officinalis, italica, anguſtifolia, undulata, tinctoria, hiſpida, virginica, lanata, * ſempervirens, parviflora, ceſpitoſa. Eur. Mad. N. Amer.

278. Cynoglossum, or *Hounds-tongue.*

24 ſpecies; viz. * officinale, pictum, lanceolatum, virginicum, limenſe, cheirifolium, apenninum, hiſpidum, hirſutum, echinatum, muricatum, anguſtifolium, lævigatum,

gatum, glaſtifolium, criſtatum, luſitanicum, linifolium, lanatum, japonicum, lateriflorum, ſcorpioides, omphalodes, cappadocicum, myoſotoides. S. Europe, Japan, Virginia.

officinale. * C. ſtamens ſhorter than the bloſſom; leaves broad, ſpear-ſhaped, ſitting, cottony.—Both the root and leaves of this plant have been ſuſpected to poſſeſs narcotic properties, but ſome will not admit of the fact. It is diſcarded from the preſent practice; though ſome individuals are ſaid to uſe a decoction of the roots inwardly, and cataplaſms of them outwardly, in ſtrumous and ſcrophulous caſes. Its ſcent is very diſagreeable, and very much reſembles that of mice. Goats eat it. Cows, horſes, ſheep, and ſwine, refuſe it. It furniſhes food to the *phalenæ domina*.

279. PULMONARIA, or *Lung-wort*.

Seven ſpecies; viz. * anguſtifolia, * officinalis, ſuffriticoſa, paniculata, virginica, ſibirica, * maritima. Europe, N. America.

officinalis. * R. root-leaves egg-heart-ſhaped, rough; upper leaves egg-ſhaped, acute.—This plant when burnt, is ſaid to afford a larger quantity of aſhes than almoſt any other vegetable; often 1-7th of its weight. Sheep and goats eat it. Cows are not fond of it. Horſes and ſwine refuſe it, The *chryſomela nemorum* feeds upon it.

280. SYMPHYTUM, or *Comfrey*.

Three ſpecies; viz. officinale, * tuberoſum, orientale. Ger. Fr. Spain, India.

officinale. * S. leaves egg-ſhaped, decurrent.—The particles of the pollen are ſaid to appear in the microſcope like two globules united together. The leaves give a grateful flavour to cakes and panada, and the young ſtems and leaves are excellent when boiled. The roots are glutinous and mucilaginous, and a decoction of them is uſed by dyers to extract the colouring matter of gum lac. Cows and ſheep eat it. Horſes, goats, and ſwine, refuſe it.

281. CERINTHE, or *Honey-wort*.

Three ſpecies; viz. major, aſpera, minor. Auſtria, S. Europe.

282. ONOSMA.

Eight ſpecies; viz. ſimpliciſſima, orientalis, echioides, ſericea, cœrulea, tenuiflora, caſpica, micrantha. Europe, India.

283. BORAGO, or *Borage*.

Seven ſpecies; viz. officinalis, indica, africana, longifolia, zeylanica, orientalis, cretica. Eaſt Indies, Africa.

officinalis. * B. all the leaves alternate; cal. expanding.—It appears by experiment that the juice of this plant affords a true nitre. It is ſeldom uſed inwardly, but as an ingredient in cool tankards for ſummer drinking, though the young and tender leaves are good in ſallads, or as a pot herb. It is ſaid to afford nouriſhment to the *phalæna gamma*. Horſes are ſaid to have eaten it.

284. ASPERUGO, or *Small Wild Bugloſs*.

Two ſpecies; viz. * procumbens and ægyptiaca. Europe, Egypt.

285. LYCOPSIS.

Nine ſpecies; viz. veſicaria, pulla, ciliata, obtuſifolia, variegata, * arvenſis, echioides, orientalis, virginica. Germ. S. Eur. Virginia.

286. ECHIUM, or *Vipers Bugloſs*.

26 ſpecies; viz. fruticoſum, candicans, giganteum, ſtrictum, argenteum, ſericeum, ſetoſum, trichotomum, hiſpidum, paniculatum, trigonum, capitatum, lævigatum, glabrum, incanum, ſpicatum, caudatum, plantagineum, * italicum, rubrum, * vulgare, * violaceum, maritimum, creticum, orientale, luſitanicum. S. Europe, Cape, Canaries.

* E. ſtem rough with briſtles and tubercles; ſtem-leaves ſpear-ſhaped, rough with hair; flowers in lateral ſpikes.—Cows and ſheep are ſaid not to be fond of this plant. Horſes and goats refuſe it. Bees are fond of the flowers, but get their wings torn by its ſtrong hairs. *vulgare.*

287. MESSERSCHMIDIA.

Three ſpecies; viz. fruticoſa, arguzia, cancellata. Siberia, Canaries.

288. TOURNEFORTIA, or *Baſket Withe*.

Eleven ſpecies; viz. ſerrata, hirſutiſſima, volubilis, ſyringæfolia, foetidiſſima, humilis, bicolor, cymoſa, argentea, ſericea, ſuffruticoſa. Ceylon, Weſt Indies, S. America.

289. NOLANA.

One ſpecies; viz. proſtrata. Peru.

290. DIAPENSIA.

One ſpecies; lapponica. Lapland.

291. ARETIA.

Three ſpecies; viz. helvetica, alpina, vitaliana. Alps, Pyrenees.

292. ANDROSACE.

Ten ſpecies; viz. maxima, elongata, filiformis, ſeptentrionalis, odoratiſſima, villoſa, chamæjaſme, obtuſifolia, lactea, carnea. N. Eur. Archipelago.

263. PRIMULA, or *Primroſe*.

18 Species; viz. verticillata, * veris, * elatior, * farinoſa, cortuſoides, villoſa, nivalis, longiflora, glutinoſa, marginata, auricula, gigantea, minima, integrifolia, carniolica, ſinmarchica, viſcoſa, ſibirica. Europe.

* P. leaves toothed, wrinkled, ſcape many-flowered, lumbus of the cor. concave.—This is a low plant growing wild in woods and hedges, and producing pale yellow flowers in the ſpring. The leaves have an herbaceous taſte. The roots are ſlightly bitter, with a kind of aromatic flavour, which ſome compare to that of aniſeſeeds; their expreſſed juice purified by ſettling is ſometimes uſed as a ſternutatory. The flowers have an agreeable flavour, but very weak; an infuſion of them in wine, and a ſpirit diſtilled from them, are uſed in ſome places as cordial and nervine. *veris.*

294. CARTUSA, or *Bears-ear, Sanicle*.

Two ſpecies; viz. mathioli, gmelini. Alps of Siberia and Auſtria.

295. TRICRATUS.

One ſpecies; viz. admirabilis.

296. SOLDANELLA, or *Soldanel*.

One ſpecies; viz. alpina. Alps of Auſtria and Swizerland.

297. DODECATHEON, or *Virginian Cowſlip*.

One ſpecies; viz. meadia. North America.

298. CYCLAMEN, or *Sow-bread*.

Five ſpecies; viz. coum, * europæum, perſicum, hederæfolium, indicum. Auſtria, S. Europe, Ceylon.

299.

299. Menyanthes, or *Bog-bean.*

Four ſpecies; viz. * nymphoides, ovata, indica, * trifoliata. Europe, Cape, Ceylon, Mal.

trifoliata. * M. leaves growing by threes; cor. ſegments entire at the edge, ſhaggy on the upper ſurface.—An infuſion of the leaves of this plant is ſaid to be extremely bitter, and is preſcribed in rheumatiſms and dropſies. A dram of them in powder, purges and vomits. It is ſometimes given to deſtroy worms. In a ſcarcity of hops, this plant is uſed in the north of Europe to bitter the ale. Two ounces ſupply the place of a pound of hops. Some people ſmoke the dried leaves. The powdered roots are ſometimes uſed in Lapland inſtead of bread, but they are unpalatable. Some people ſay that ſheep will eat it, and that it cures them of the rot. But from the uſual experiments, it appears that though goats eat it, ſheep ſometimes will and ſometimes will not. Cows, horſes, and ſwine, refuſe it.

300. Doræna.

One ſpecies; viz. japonica.

301. Hottonia, or *Water-violet.*

Four ſpecies; viz. * paluſtris, ſeſſiliflora, indica, ſerrata. North of Europe and India.

302. Bacopa.

One ſpecies; viz. aquatica. Guiana, Cayenne.

303. Hydrophyllum, or *Water-leaf.*

Two ſpecies; viz. virginicum, canadenſe. North America.

314. Ellisia.

One ſpecies; viz. nyctelea. Virginia.

305. Lysimachia, or *Looſe-ſtrife,*

15 ſpecies; viz. * vulgaris, decurrens, ephemerum, atro-purpurea, dubia, ſtricta, * thyrſiflora, quadrifolia, punctata, linum, ſtellatum, mauritiana, * nemorum, japonica, * nummularia. Europe, Japan, N. America.

nummularia. * L. leaves ſomewhat cordate, flowers ſolitary, ſtem creeping.—This ſpecies called *Moneywort*, or *Herb Twopence*, grows ſpontaneouſly in moiſt watery places, and creeps on the ground with two little roundiſh leaves at each joint. Their taſte is ſubaſtringent and very ſlightly acid; hence, they ſtand recommended by Boerhaave in the hot ſcurvy, and in uterine and other hemorrhagies. But their effects are ſo inconſiderable, that common practice takes no notice of them.

306. Anagallis, or *Pimpernel.*

Six ſpecies; viz. * arvenſis, pumila, monelli, latifolia, linifolia, * tenella. Europe, Jamaica.

307. Theophrasta.

Two ſpecies; viz. americana, longifolia. America.

308. Spigelia, or *Worm-graſs.*

Two ſpecies; viz. anthelmia, marilandica. North America, W. Indies.—This laſt ſpecies grows wild in the ſouthern parts of North America. The roots are celebrated as an anthelmintic, particularly for the expulſion of lumbrici from the alimentary canal. Some order it in doſes of ten or fifteen grains, and allege it is apt to occaſion nervous affections if given in larger doſes; while others order it in dram doſes, alleging that the bad effects mentioned more readily happen from ſmall, as the large ones often purge or puke: ſome prefer the form of infuſion. An emetic is generally premiſed; and its purgative effect aſſiſted by ſome ſuitable additions.

309. Ophiorrhiza, or *Serpents-tongue.*

Three ſpecies; viz. mungos, mitreola, ſubumbellata. E. Indies, S. America.

310. Lisianthus.

15 ſpecies; viz. longifolius, glaucifolius, cœruleſcens, alatus, chelonoides, purpuraſcens, grandiflorus, exſertus, glaber, frigidus, latifolius, umbellatus, cordifolius, carinatus, trinervius. Weſt Indies, Surinam.

311. Fagræa.

One ſpecies; viz. zeylanica. Ceylon.

312. Azalea, or *Amer. Upright Honeyſuckle.*

Six ſpecies; viz. pontica, indica, nudiflora, viſcoſa, lapponica, * procumbens. N. Europe, N. America.

313. Sheffieldia.

One ſpecies; viz. repens.

314. Sprengelia.

One ſpecies; viz. incarnata.

315. Epacris.

Four ſpecies; viz. grandiflora, longifolia, roſmarinifolia, pumila. Caribbee Iſles.

316. Styphelia.

Eight ſpecies; viz. tubiflora, ericoides, ſtrigoſa, ſcoparia, daphnoides, lanceolata, elliptica, juniperina.

317. Weigelia.

Two ſpecies; viz. japonica, coræenſis. Japan.

318. Plumbago, or *Lead-wort.*

Seven ſpecies; viz. europæa, lapathifolia, capenſis, zeylanica, roſea, ſcandens, auriculata. S. Europe, E. Indies, S. America.

319. Triguera.

Two ſpecies; viz. ambroſiaca, inodora. Iſle of Bourbon.

320. Phlox, or *Baſe Lychnis, Lichnidea.*

12 ſpecies; viz. paniculata, undulata, ſuaveolens, maculata, piloſa, carolina, glaberrima, divaricata, ovata, ſubulata, ſibirica, ſetacea. Siberia, N. America.

321. Retzia.

One ſpecies; viz. ſpicata. Cape of Good Hope.

322. Porana.

One ſpecies; viz. volubilis. Eaſt Indies.

323. Convolvulus, or *Bind-weed.*

120 ſpecies; viz. * arvenſis, * ſepium, wheleri, ſcammonia, involucratus, ſibiricus, rupeſtris, farinoſus, lanuginoſus, incanus, emarginatus, medium, filicaulis, tridentatus, anguſtifolius, japonicus, haſtatus, panduratus, bracteatus, bicolor, trilobus, plataniſolius, acuminatus, carolinus, hederaceus, nil, purpureus, obſcurus, flavus, angularis, batatas, maximus, biflorus, gemellus, ſtriatus, pentanthus, gujanenſis, capitatus, hiſpidus, parviflorus, triflorus, verticillatus, violaceus, umbellatus, tuguriorum, cordifolius, bifidus, malabaricus, coeleſtis, canarienſis, ferrugineus, muricatus, triqueter, anceps, turpethum, grandiflorus, ſpecioſus, trinervius, peltatus, jalapa, macroſpermus, tenellus, ſericeus, tomentoſus, quinqueflorus, hermanniæ, arenarius, althæoides, cairicus, quinquelobus, copticus, vitifolius, diſſectus, mucronatus, macrocarpus,

paniculatus, macrorhizos, quinquefolius, venoſus, glaber, pentaphyllus, tenuifolius, ſiculus, pentapetaloides, lineatus, ſaxatilis, cneorum, linearis, cantabrica, amanni, piloſellæfolius, dorycnium, proliferus, lanatus, hyſtrix, ſpinoſus, ſcoparius, œnotheroides, floridus, cuneatus, corymboſus, ſpithamæus, perſicus, tricolor, acetoſæfolius, repens, reptans, edulis, hirtus, * ſoldanella, imperati, pes capræ, braſilienſis, multifidus, ſublobatus, capenſis, ſagittatus, littoralis, martinicenſis. Europe, Aſia, Africa, America.

ſepium. * C. leaves arrow-ſhaped, lopped at the baſe; fruit-ſtalk four-cornered, bearing 1 flower.—The inſpiſſated juice of this plant in doſes of 20 or 30 grains, is ſaid to be a powerful draſtic purge. Scammony is the inſpiſſated juice of a ſpecies of convolvulus, ſo much reſembling this, that they are with difficulty diſtinguiſhed. Though an acrid purgative to the human race, it is eaten by hogs in large quantities without any detriment. Sheep, goats, and horſes eat it. Cows refuſe it.

ſoldanella. * C. leaves kidney-ſhaped; fruitſtalks with 1 flower.—It is ſaid, that half an ounce of the juice, or a drachm of the powder of this plant, is an acrid purge. The leaves applied externally, are ſaid to diminiſh dropſical ſwellings of the feet. The different ſpecies furniſh nouriſhment to the *ſphinx convolvuli*, and *phalæna elpenor*.

jalap. The root of the ſpecies termed *jalapa*, is brought to us in thin ſlices from Xalpa, a province of New Spain. Such pieces ſhould be choſen as are moſt compact, hard, weighty, dark-coloured, and abound moſt with black circular ſtriæ. Slices of bryony root are ſaid to be ſometimes mixed with jalap. Theſe may be eaſily diſtinguiſhed by their whiter colour and leſs compact texture. This root has no ſmell, and very little taſte upon the tongue; but when ſwallowed it affects the throat with a ſenſe of heat, and occaſions a plentiful diſcharge of ſaliva. Taken in ſubſtance in a doſe of about half a drachm, (leſs or more, according to the circumſtances of the patient) in plethoric or cold phlegmatic habits, it proves an effectual, and, in general, a ſafe purgative; performing its office mildly, ſeldom occaſioning nauſea or gripes, which too frequently accompany other ſtrong cathartics. In hypochondriacal caſes, and hot bilious temperaments, it gripes violently if the jalap be good; but rarely takes due effect as a purge. An extract made with water purges almoſt univerſally, but weakly; and, at the ſame time, has a conſiderable effect by urine: the root remaining after this proceſs gripes violently. The pure reſin, prepared by ſpirit of wine, occaſions moſt violent gripings and other diſtreſſing circumſtances, but proves ſcarce at all cathartic. Triturated with ſugar or with almonds, into the form of an emulſion, or diſſolved in ſpirits and mixed with ſyrups, it purges plentifully in a ſmall doſe, without occaſioning much diſorder. The part of the jalap remaining after the ſeparation of the reſin, yields to water an extract, which has no effect as a cathartic, but operates powerfully by urine.

Frederic Hoffman particularly cautions againſt giving this medicine to children, and aſſures us that it will deſtroy appetite, weaken the body, and perhaps occaſion death. In this point this celebrated practitioner was probably deceived. Children, whoſe veſſels are lax, and their food ſoft and lubricating, bear theſe kinds of medicines, as Geoffrey obſerves, better than adults; and, accordingly, inoculators make much uſe of the tincture mixed with ſimple ſyrup. A compound powder of it is employed in dropſy as a hydragogue purge; and where ſtimulus is not contra-indicated, jalap is conſidered as a ſafe cathartic.

ſcammony. The ſpecies of the genus convolvulus, called *ſcammonia*, is a climbing plant, which grows in Aſiatic Turkey, and affords a gum reſin. The beſt ſorts of the gum reſin come from Aleppo, in light ſpongy maſſes, eaſily friable, of a ſhining aſh-colour verging to black; when powdered, of a light gray or whitiſh colour. An inferior ſort is brought from Smyrna in more compact ponderous pieces, of a darker colour, and full of ſand and other impurities. This juice is chiefly of the reſinous kind. Rectified ſpirit of wine diſſolves five ounces out of ſix; the remainder is a mucilaginous ſubſtance mixed with droſs: proof ſpirit totally diſſolves it, the impurities only being left. It has a faint and unpleaſant ſmell, and a bitteriſh ſomewhat acrimonious taſte. Scammony is an efficacious and a ſtrong purgative. Its doſe is from three to 12 grains.

324. Cantua.

Four ſpecies; viz. pyrifolia, buxifolia, hoitzia, coronopifolia. Peru.

325. Ipomoea, or *Quamoclit*.

28 ſpecies; viz. quamoclit, diſſecta, umbellata, carolina, coccinea, lacunoſa, leucantha, ſolanifolia, tuberoſa, digitata, bona nox, campanulata, violacea, verticillata, carnea, repanda, filiformis, haſtata, glaucifolia, ſimplex, hederacea, triloba, ſanguinea, hederifolia, parviflora, hepaticifolia, tamnifolia, pes tigridis. Eaſt and Weſt Indies, America.

326. Polemonium, or *Greek Valerian*.

Five ſpecies; viz. * cœruleum, reptans, dubium, roelloides, campanuloides. N. Eur. Aſia, C. of G. Hope, America.

327. Lightfootia.

Two ſpecies; viz. oxycoccoides, ſubulata. C. of G. Hope.

328. Jasione, or *Sheep's Scabious*.

One ſpecies; viz. * montana. Europe, C. of G. Hope.

329. Campanula, or *Bell-flower*.

85 ſpecies; viz. ceneſia, uniflora, bellardi, pulla, zoyſii, gracilis, glauca, grandiflora, tetraphylla, triphylla, verticillata, * rotundifolia, linifolia, pubeſcens, linarioides, carpatica, lobelioides, poroſa, undulata, linearis, ſeſſiliflora, * patula, * rapunculus, unidentata, faſciculata, perſicifolia, pyramidalis, americana, nitida, latifolia, enſifolia, rhomboidea, * latifolia, urticifolia, ſtyloſa, rapunculoides, bononienſis, veſula, ptarmicæfolia, graminifolia, * trachelium, * glomerata, cervicaria, marginata, thyſſoidea, petræa, adpreſſa, ſubulata, hiſpidula, paniculata, cinerea, peregrina, cernua, allionii, punctata, medium, barbata, ſpicata, ſtrigoſa, alpina, mollis, ſaxatilis, alliariæfolia, ſibirica, tridentata, laciniata, ſtricta, aurea, fruticoſa, ſpeculum, * hybrida, priſmatocarpus, cochlearifolia, limonifolia, pentagonia, perfoliata, capenſis, procumbens, tenella,

tenella, elatines, diffuſa, *hederacea, crinoides, heterophylla, erinus. Europe, N. America, Cape, Japan.

rapunculus * C. leaves waved; root leaves ſpear oval; panicle compact.—The roots of this plant are ſaid to be eaten raw in ſallads, or boiled like aſparagus. In gardens they are blanched.

330. ROELLA.

Five ſpecies; viz. ciliata, ſquarroſa, decurrens, muſcoſa, ſpicata. Africa.

331. PHYTEUMA, or *Rampions*.

16 ſpecies; viz. pauciflora, ſcheuchzeri, michelli, hemiſphærica, comoſa, *orbicularis, nigra, betonicæfolia, ſpicata, ovata, virgata, lobelioides, lanceolata, rigida, amplexicaulis, pinnata. Europe.

332. TRACHELIUM.

Three ſpecies; viz. cœruleum, diffuſum, tenuifolium. Italy, Levant, Cape.

333. SAMOLUS, *Water Pimpernel*.

One ſpecies; viz. * valerandi. Europe, Aſia, America.

334. SPHENOCLEA.

One ſpecies; viz. zeylanica.

335. NAUCLEA.

Six ſpecies; viz. orientalis, purpurea, parvifolia, africana, aculeata, cordifolia. E. Indies, Guiana.

336. RONDELETIA.

13 ſpecies; viz. americana, odorata, trifoliata, virgata, piloſa, thyrſoidea, racemoſa, laurifolia, tomentoſa, umbellulata, incana, hirſuta, hirta. Eaſt and Weſt Indies.

337. MARCRONEMUM.

Three ſpecies; viz. jamaicenſe, candidiſſimum, coccineum. Jamaica.

338. BELLONIA.

Two ſpecies; viz. aſpera and ſpinoſa. America.

339. THOUINIA

One ſpecies; viz. ſpectabilis. Jamaica, Hiſpaniola.

340. PORTLANDICA.

Four ſpecies; viz. tetrandra, grandiflora, coccinea, hexandra. Jamaica, S. America.

341. SOLANDRA.

One ſpecies; viz. grandiflora. Jamaica.

342. LOBELIA, or *Cardinal-flower*.

48 Species; viz. linearis, ſimplex, pinifolia, *dortmanna, tupa, kalmii, paniculata, graminea, grandis, cornuta, depreſſa, columneæ, arborea, bellidifolia, triquetra, cinerea, longiflora, tomentoſa, ſecunda, acuminata, ſtricta, patula, aſſurgens, cardinalis, ferruginea, debilis, ſiphilitica, ſurinamenſis, inflata, cliffortiana, *urens, minuta, laurentia, radicans, campanuloides, evinus, erinoides, anceps, repens, thermalis, pubeſcens, zeylanica, lutea, angulata, hirſuta, pygmæa, coronopifolia, crenata. Cape, Eaſt and Weſt Indies, America.

The ſpecies called *ſiphilitica* grows in moiſt places in Virginia, and bears our winters. It is perennial, has an erect ſtalk three or four feet high, blue flowers, a milky juice, and a rank ſmell. The root conſiſts of white fibres about two inches long, reſembles tobacco in the taſte, which remains on the tongue, and is apt to excite vomiting. It is uſed by the North American Indians as a ſpecific for the venereal diſeaſe. The form is that of decoction; the doſe of which is ordered to be gradually increaſed till it bring on very conſiderable purging, then to be intermitted for a little, and again uſed in a more moderate degree till the cure be completed. The ulcers are alſo waſhed with the decoction, and the Indians are ſaid to ſprinkle them with the powder of the inner bark of the ſpruce tree. The ſame ſtrictneſs of regimen is ordered as during a ſalivation or mercurial courſe. The benefit to be derived from this article has not, ſo far as we know, been confirmed either in Britain, or by the practitioners of Virginia; for there, as well as in this country, recourſe is almoſt univerſally had to the uſe of mercury. Hence the London college have omitted it in their liſt of medical plants; though in ſome caſes it would ſeem to deſerve trial.

343. CYPHIA.

Six ſpecies; viz. volubilis, digitata, bulboſa, cardamines, inciſa, phyteuma.

344. GOODENIA.

Nine ſpecies; viz. ovata, albida, lævigata, paniculata, bellidifolia, ſtricta, ramoſiſſima, heterophylla, hederacea.

345. SCÆVOLA.

Three ſpecies; viz. lobelia, koengii, ſericea. South America.

346. CINCHONA, or *Jeſuits-bark Tree*.

Nine ſpecies; viz. officinalis, pubeſcens, macrocarpa, caribæa, corymbifera, lineata, floribunda, brachycarpa, auguſtifolia. Peru, Weſt Indies, South ſea.

The *cinchona officinalis* (Peruvian or Jeſuits-bark tree), is deſcribed as being in general about 15 feet high, and ſix inches thick. It ſomewhat reſembles our cherry tree, grows promiſcuouſly in foreſts, particularly in the hilly parts of Quito in Peru, and is ſpontaneouſly propagated from its own ſeeds. The bark has ſome odour, to moſt people not unpleaſant, and very perceptible in the diſtilled water, in which floating globules, like eſſential oil, have been obſerved. Its taſte is bitter and aſtringent, accompanied with a degree of pungency, and leaving a conſiderably laſting impreſſion on the tongue. Two ſorts are mentioned, viz. the coloured and the white. The coloured includes the pale, the red, the yellow, and the knotty; their barks being coloured, having the cinchona taſte and ſmell, and the trees having very ſmooth leaves and purpliſh flowers. The white includes four varieties, their barks being of a whitiſh colour, with very little taſte or ſmell, and the trees having broad hairy leaves, very fragrant red flowers, with hairs on the inſide. The proper red bark, and one of the white kind, have been found in the province of Santa Fe.

Dr Wright has deſcribed very accurately a ſpecies of cinchona, under the appellation of *cinchona jamaicenſis*, from its being found chiefly in Jamaica. It is there called the *ſea-ſide beech*, and grows from 20 to

40 feet high. The white-furrowed thick outer bark is not uſed; the dark-brown inner bark has the common flavour, with a mixed kind of taſte at firſt of the horſe-radiſh and ginger, becoming at laſt bitter and aſtringent. It ſeems to give out more extractive matter than the officinalis. Some of it was imported from St Lucia, in conſequence of its having been ſucceſsfully uſed in the army and navy; and Dr Kentiſh has treated of it at great length, under the name of *St Lucia bark*. When freſh, it is conſiderably cathartic and emetic, but is ſaid to loſe theſe properties on drying.

The pale and the red are chiefly uſed in Britain. The pale is brought to us in pieces of different ſizes, either flat or quilled, and the powder is rather of a lighter colour than that of cinnamon. The red is generally in much larger thicker flattiſh pieces, but ſometimes alſo in the form of quills, and its powder is reddiſh, like that of the Armenian bole. It is much more reſinous, and poſſeſſes the ſenſible qualities of the cinchona, in a much higher degree than the other ſorts; and the more nearly the other kinds reſemble the red bark, the better they are now conſidered. The red bark is heavy, round, and dry; friable between the teeth; does not ſeparate into fibres; and breaks, not ſhivery, but ſhort, cloſe, and ſmooth. It has three layers; the outer is thin, ragged, of a reddiſh-brown colour, but frequently covered with moſſy matter: the middle is thicker, more compact, darker-coloured, very reſinous, brittle, and yields firſt to the peſtle. The inmoſt is more woody, fibrous, and of a brighter red.

The Peruvian bark yields its virtues both to cold and boiling water; but the decoction is thicker, gives out its taſte more readily, and forms an ink with a chalybeate more ſuddenly, than the freſh cold infuſion. This infuſion, however, contains at leaſt as much extractive matter, but more in a ſtate of ſolution; and its colour, on ſtanding ſome time with the chalybeate, becomes darker, while that of the decoction becomes more faint. When they are of a certain age, the addition of a chalybeate renders them green; and when this is the caſe, they are found to be in a ſtate of fermentation, and effete. Mild or cauſtic alkalies, or lime, precipitate the extractive matter, which in the caſe of the cauſtic alkali is re-diſſolved by a farther addition of the alkali. Lime-water precipitates leſs from a freſh infuſion, than from a freſh decoction; and in the precipitate of this laſt ſome mild earth is perceptible. The infuſion is by age reduced to the ſame ſtate with the freſh decoction, and then they depoſite nearly an equal quantity of mild earth and extractive matter; ſo that lime-water, as well as a chalybeate, may be uſed as a teſt of the relative ſtrength and periſhable nature of the different preparations, and of different barks. Accordingly, cold infuſions are found, by experiments, to be leſs periſhable than decoctions; infuſions and decoctions of the red bark than thoſe of the pale: thoſe of the red bark, however, are found, by length of time, to ſeparate more mild earth with the lime-water, and more extractive matter. Lime-water, as precipitating the extract, appears an equally improper and diſagreeable menſtruum.

The power of different menſtrua, as acting upon Peruvian bark, is comparatively in the following order; the moſt powerful ſolvent being placed firſt.

1. Dulcified ſpirit of vitriol,
2. Cauſtic ley,
3. French brandy,
4. Soft water,
5. Vinegar and water,
6. Dulcified ſpirit of nitre,
7. Mild volatile alkali,
8. Rectified ſpirit of wine,
9. Mild vegetable alkali,
10. Lime-water.

The antiſeptic powers of vinegar and bark united, are double the ſum of thoſe taken ſeparately. The aſtringent power of the bark is increaſed by acid of vitriol; the bitter taſte is deſtroyed by it. The officinal preparations of the bark are,

1. The powder. Of this, the firſt parcel that paſſes the ſieve, being the moſt reſinous and brittle layer, is the ſtrongeſt.

2. The extract. The watery and ſpirituous extracts conjoined form the moſt proper preparations of this kind.

3. Spirituous tincture. This is beſt made with proof ſpirit.

4. The decoction. This preparation, though frequently employed, is inferior to a ſimple watery infuſion.

The beſt form is that of powder; in which the conſtituent parts are in the moſt effectual proportion. The cold infuſion, which can be made in a few minutes by agitation, the ſpirituous tincture, and the extract, are likewiſe proper in this reſpect. For covering the taſte, different patients require different vehicles, liquorice, aromatics, acids, port wine, ſmall beer, porter, butter milk, brandy, rum, currant-jelly, &c.

According to ſome, the Peruvians learned the uſe of the bark, by obſerving certain animals affected with intermittents, inſtinctively led to it; while others ſay, that a Peruvian, having an ague, was cured by having drank of a pool, in which ſome felled trees had ſo long ſoaked, as to give the taſte of their bark to the water; and its uſe in gangrene is ſaid to have orginated from its curing one in an aguiſh patient. About the year 1640, the lady of the Spaniſh viceroy, the Comitiſſa del Cinchon, was cured by the bark, which has therefore been called *cortex* or *pulvis comitiſſæ*, *cinchona*, *chinachina* or *chinchina*, *kinakina* or *kinkina*, *quinaquina* or *quinquina;* and from the intereſt which the cardinal de Lugo and the Jeſuits took in its diſtribution, it has been called *cortex* or *pulvis Cardinalis de Lugo*, *Jeſuiticus*, *Patrum*, &c.

As it was firſt introduced into practice for the cure of intermittent fevers, ſo it ſeldom fails of ſucceſs, when properly exhibited in theſe. Practitioners, however, have differed as to the beſt mode of exhibiting it; ſome prefer giving it juſt before the fit, ſome during the fit, others immediately after it. Some again order it in the quantity of an ounce between the fits, the doſe being the more frequent and larger, according to the frequency of the fits; and this mode of exhibition, although it may ſometimes lead to the employment of more bark than is neceſſary, is thought, upon the whole, preferable, from being the beſt ſuited to moſt ſtomachs. The requiſite quantity is very different in different caſes, and in many vernal intermittents it ſeems even hardly neceſſary.

It often pukes and purges, and ſometimes oppreſſes the ſtomach. Theſe, or any other irregular effects that may take place, are to be counteracted by remedies particularly appropriated to them. Thus, vomiting

ing is often reſtrained by exhibiting it in wine; looſeneſs, by combining it with opium; and oppreſſion at ſtomach, by combining it with an aromatic. But, unleſs for obviating particular occurrences, it is more ſucceſsful when exhibited in its ſimpleſt ſtate, than with any addition.

It is now given from the very commencement of the diſeaſe, and is to be continued, not only till the paroxyſms ceaſe, but till the natural appetite, ſtrength, and complexion, return. Its uſe is then to be gradually left off, and repeated at proper intervals to ſecure againſt a relapſe, to which there is a tendency, eſpecially when the wind blows from the eaſt. An emetic is often advantageouſly employed before commencing the uſe of it, but other evacuants ſeem hurtful.

The Peruvian bark ſeems not only ſuited to intermittent fevers, both latent and formed, but to that ſtate of the conſtitution on which all diſeaſes, rigidly periodical, ſeem to depend; as periodical pain, inflammation, hemorrhagy, ſpaſm, cough, loſs of external ſenſe, &c. Bark is now uſed by ſome in all continued fevers, taking care to keep the bowels clean, and to promote, when neceſſary, the evacuation of redundant bile. In confluent ſmallpox it promotes languid eruption and ſuppuration, diminiſhes the fever through the whole courſe of it, and prevents or corrects putreſcence or gangrene. In gangrenous ſore throats it is much uſed, as it is externally and internally in all caſes of gangrene. In contagious dyſentery, after due evacuation, it has been uſed by the mouth, and by injection, with and without opium.

In all thoſe hemorrhagies called *paſſive*, which all hemorrhagies are very apt to become, and likewiſe in all other increaſed diſcharges, it is much uſed; and, in certain undefined caſes of hæmoptyſis, ſome allege, that it is remarkably effectual, when joined with an abſorbent. It is uſed for obviating the diſpoſition to nervous and convulſive diſeaſes; and ſome have great confidence in it, joined with the acid of vitriol, in caſes of phthiſis, ſcrofula, ill-conditioned ulcers, rickets, ſcurvy, and in ſtates of convaleſcence. In theſe caſes, however, it ought, in general, to be joined with a milk diet.

In dropſy, not depending on any particular local affection, it is often alternated or conjoined with diuretics or other evacuants; and by its early exhibition after the water is drawn off, or even begins to be freely diſcharged, a freſh accumulation is prevented, and a radical cure obtained. In obſtinate venereal caſes, particularly thoſe which appear under the form of pains in the bones, the Peruvian bark is often ſucceſsfully ſubjoined to mercury, or even given in conjunction with it. On the whole this remedy is uſeful in ſuch a vaſt variety of caſes, that its virtues cannot be ſufficiently explained, by conſidering it merely as an ordinary tonic or aſtringent; and hence many practitioners conſider it as poſſeſſing ſpecific qualities peculiar to itſelf, the nature of which is by no means well underſtood.

347. SOLENA.

One ſpecies; viz. longiflora.

348. UCRIANA.

One ſpecies; viz. ſpecioſa.

349. PSYCHOTRIA, or *Ipecacuanha*.

39 ſpecies; viz. aſiatica, glabrata, axillaris, laurifolia, parviflora, hirſuta, fœtens, citrifolia, nitida, marginata, tenuifolia, nervoſa, carthaginenſis, myrſiphyllum, laxa, paraſitica, horizontalis, nutans, ſpecioſa, involucrata, flexuoſa, racemoſa, violacea, brachiata, grandis, patens, uliginoſa, ſerpens, herbacea, emetica, corymboſa, pubeſcens, pedunculata, crocea, alpina, paniculata, palicurea, lutea, longiflora. E. and W. Indies, S. America, China.

The root of the *Pſychotria emetica*, or common ipecacuan is brought from the Spaniſh W. Indies. It is divided into two ſorts, the Peruvian and Brazilian: but the eye diſtinguiſhes three; aſh-coloured or gray, brown, and white. The aſh-coloured or Peruvian ipecacuan of the ſhops is a ſmall wrinkled root, bent and contorted into a great variety of figures; brought over in ſhort pieces full of wrinkles, and deep circular fiſſures, quite down to a ſmall white woody fibre that runs in the middle of each piece. The cortical part is compact, brittle, looks ſmooth and reſinous upon breaking. It has very little ſmell: the taſte is bitteriſh and ſubacrid, covering the tongue as it were with a kind of mucilage. The brown is ſmall and ſomewhat more wrinkled than the foregoing; of a brown or blackiſh colour without and white within: this is brought from Braſil. The white ſort is woody and has no wrinkles, and no perceptible bitterneſs in taſte. The firſt ſort, the aſh-coloured or grey ipecacuan, is that uſually preferred for medicinal uſe. The brown has been ſometimes obſerved, even in a ſmall doſe, to produce violent effects. The white, though taken in a large one, has ſcarce any effect at all: Mr Geoffrey calls this ſort baſtard ipecacuan, and complains that it is an impoſition upon the public. Geoffrey, Newman, Dale, and Sir Hans Sloane inform us, that the roots of a kind of *Apocynum* (dog's-bane), are frequently brought over inſtead of it; and inſtances are given of ill conſequences following from the uſe of theſe roots. If the marks above laid down, particularly of the aſh-colour, brittleneſs, deep wrinkles, and bitteriſh taſte, be carefully attended to, all miſtakes of this kind may be prevented.

Ipecacuan was firſt brought to Europe about the middle of the century before the laſt, and an account of it publiſhed about the ſame time by Piſo; but it did not come into general uſe till about the year 1686, when Helvetius, under the patronage of Lewis XIV. introduced it into practice. This root is one of the mildeſt and ſafeſt emetics with which we are acquainted; and has this peculiar advantage, that if it ſhould not operate by vomit, it paſſes off by the other emunctories. It was firſt introduced among us with the character of an almoſt infallible remedy in dyſenteries and other inveterate fluxes, as menorrhagia and leucorrhea, and alſo in diſorders proceeding from obſtructions of long ſtanding: nor has it loſt much of its reputation by time. In dyſenteries it almoſt always produces happy effects, and often very ſpeedily performs a cure. In other fluxes of the belly, in beginning dyſenteries, and ſuch as are of a malignant kind, or where the patient breathes a tainted air, it has not been equally ſucceſsful: in theſe caſes it is neceſſary to continue the uſe of this medicine for ſeveral days, and to join with it opiates, diaphoretics, and the like. This root given in ſubſtance is as effectual, if not more ſo, than any of the preparations

rations of it: the pure reſin acts as a ſtrong irritating emetic, but is of little ſervice in dyſenteries; whilſt an extract prepared with water is almoſt of equal ſervice in theſe caſes with the root itſelf, though it has little effect as an emetic. Geoffrey concludes from hence that the chief virtue of ipecacuan in dyſenteries depends upon its gummy ſubſtance, which, lining the inteſtines with a ſoft mucilage when their own mucus has been abraded, occaſions their exulcerations to heal, and defends them from the acrimony of the juices; and that the reſinous part, in which the emetic quality reſides, is required where the morbific matter is lodged in the glands of the ſtomach and inteſtines. Water aſſiſted by a boiling heat takes up from all vegetables a conſiderable portion of reſinous along with the gummy matter: if the ipecacuan remaining after the action of water be digeſted with pure ſpirit, it will not yield half ſo much reſin as at firſt; ſo that the aqueous extract differs from the crude root only in degree, being proportionably leſs reſinous, and having leſs effect both as an emetic, and in the cure of dyſenteries. The virtues of ipecacuan in this diſorder depend on its producing perſpiration, the freedom of which here is of the utmoſt importance, and an increaſe of which, even in healthful perſons, is generally obſerved to decreaſe the evacuation by ſtool. In dyſenteries the ſkin is for the moſt part dry and tenſe, and perſpiration obſtructed: the common diaphoretics paſs off without effect through the inteſtinal canal; but ipecacuan, if the patient after a puke or two be covered up warm, brings on a plentiful ſweat. After the removal of the dyſentery, it is neceſſary to continue the uſe of the medicine for ſome time longer, in order to prevent a relapſe; for this purpoſe a few grains divided into ſeveral doſes, ſo as not to occaſion any ſenſible evacuation, may be exhibited every day: by this means the cure is effectually eſtabliſhed. And indeed ſmall doſes given even from the beginning have been found to have better effects in the cure of this diſeaſe than larger ones. The only officinal preparation of this root is a tincture made in wine, which has the appellation of *Vinum Ipecacuanhæ* both in the London and Edinburgh Pharmacopœias. Ipecacuan, particularly in the ſtate of powder, is now advantageouſly employed in almoſt every diſeaſe in which full vomiting is requiſite; and when combined with opium, it furniſhes us with the moſt uſeful and active ſweating medicine that we poſſeſs. It is alſo often given with advantage in ſmall doſes, ſo as neither to operate by vomiting, purging, nor ſweating. The full doſe of the powder is a ſcruple or half a dram, and double that in form of watery infuſion. The full doſe is recommended in the paroxyſm of ſpaſmodic aſthma, and a doſe of three or four grains every morning in habitual aſthmatic indiſpoſition: a doſe of one third or half a grain rubbed with ſugar, and given every four hours or oftener is recommended in uterine hæmorhagy, cough, pleuriſy, hæmoptoë, &c. and has often been found highly ſerviceable. Dr Irving found that by long boiling, the activity of the root is almoſt totally deſtroyed; but that its emetic property was moſt effectually counteracted by means of the acetous acid; inſomuch that 30 grains of the powder, taken in two ounces of vinegar, produced only ſome looſe ſtools.

350. CHIMARRHIS.
One ſpecies; viz. cymoſa. Martinico.

351. DENTELLA.
One ſpecies; viz. repens. South ſea iſles.

352. VIRECTA.
One ſpecies; viz. biflora. Cayenne, Surinam.

353. COFFEA, or *Coffee-tree*.
Eight ſpecies; viz. ſambucina, opulina, odorata, arabica, triflora, gujanenſis, paniculata, occidentalis. Yemen in Arabia, Weſt Indies, S. America.

The coffea arabica, though it originally came from Arabia, is now cultivated in the Weſt Indies. Its fruit is employed rather as food than as a medicine. The medical effects expected from it are to aſſiſt digeſtion, promote the natural ſecretions, and prevent or remove a tendency to ſleepineſs. It has been recommended in ſpaſmodic aſthma; and in ſome caſes it is found highly uſeful in alleviating ſevere headach. In the influenza, or epidemic complaint of ſpring 1803, the uſe of coffee as the chief article of food was found to be attended with the beſt effects, particularly in removing that extreme debility which was the moſt univerſal and remarkable ſymptom of the diſeaſe.

354. CHIOCOCCA, or *Snow-berry*.
Two ſpecies; viz. racemoſa and barbata. Jamaica, S. America.

355. VANGUERIA.
One ſpecies; viz. edulis. Iſle of Madagaſcar.

356. CANEPHORA.
Two ſpecies; viz. axillaris and capitata. Madagaſcar.

357. CEPHÆLIS.
12 ſpecies; viz. violacea, tomentoſa, punicea, elata, axillari, purpurea, alba, glabra, involucrata, tetrandra, feſſiliflora, muſcoſa.

358. BERTIERA.
One ſpecies; viz. gujanenſis.

359. HAMELLIA.
Five ſpecies; viz. patens, axillaris, chryſantha, ventricoſa, feſſiliflora. S. America, W. Indies.

360. SCHWENKFELDIA.
Three ſpecies; viz. hirta, cinerea, aſpera. Weſt Indies.

361. LONICERA, or *Honeyſuckle*.
20 ſpecies; viz. caprifolium, dioica, ſempervirens, grata, implexa, * periclymenum, japonica, nigra, quadrifolia, tatarica, * xyloſteum, pyrenaica, alpigena, cœrulea, orientalis, flexuoſa, ſymphoricarpos, diervilla, bubalina, corymboſa. Eur. Cape, Japan, N. America.

* L. heads egg-ſhaped, tiled, terminating; leaves diſtinct, deciduous; bloſſom gaping.—The beauty and fragrance of the flowers of this plant render it a pleaſing ornament to our gardens, hedges and arbours. Cows, goats, and ſheep, eat it; horſes refuſe it. Various inſects feed upon it. *periclymenum.*

* L. fruitſtalks 2 flowered; berries diſtinct, leaves very entire, pubeſcent.—In the north of Europe this is a common plant; Linnæus informs us it makes excellent garden hedges in a dry ſoil: that the clear parts between the joints of the ſhoots are uſed in Sweden as tubes for tobacco pipes, and that the wood being extremely hard makes teeth for rakes, &c. *xyloſteum.*

362. Triosteum, or *Fever-root, Tinker's Weed.*
Three ſpecies; viz. perfoliatum, anguſtifolium, triflorum.

363. Morinda.
Three ſpecies; viz. umbellata, citrifolia, royoc.

364. Bæbrotrys.
Two ſpecies; viz. nemoralis and lanceolata.

365. Siaderia.
Four ſpecies; viz. farinoſa, tetrandra, glanduloſa, rotundifolia. Arabia.

366. Conocarpus, or *Button-tree.*
Three ſpecies; viz. erecta, procumbens, racemoſa. Weſt Indies, Brazil.

367. Schoepfia.
One ſpecies; viz. americana.

368. Erithalis.
Two ſpecies; viz. fruticoſa, polygama. Jamaica, S. America.

369. Menais.
One ſpecies; viz. topiaria. S. America.

370. Mussænda.
Two ſpecies; viz. frondoſa, glabra.

371. Geniostoma.
One ſpecies; viz. rupeſtris. South ſea iſles.

372. Mathiola.
One ſpecies; viz. ſcabra.

373. Mirabilis, or *Marvel of Peru.*
Three ſpecies; viz. dichotoma, longiflora, and ialapa. E. and W. Indies, Mex. Peru.

374, Coris, or *Heath Low Pine.*
One ſpecies; viz. monſpelienſis. South of Europe.

375. Brossæa.
One ſpecies; viz. cocinea. S. America.

376. Verbascum, or *Mullein.*
17 ſpecies; viz. * thapſus, * thapſoides, boerhaavii, hæmorrhoidale, phomoides, * lychnitis, ſerrugineum, * nigrum, phœniceum, * blattaria, gallicum, ſinuatum, pinnatifidum, barnadeſii, oſbechii, ſpinoſum, myconi. S. of Europe, Madeira.

thapſus. * V. leaves decurrent, cottony on both ſides; ſtem unbranched; ſummit globular.—This plant externally uſed is ſaid to be emollient. Dr Home adviſes a decoction of it, two ounces to a quart, in diarrhœas of an old ſtanding. It eaſes the pains of the inteſtines: it is uſed as an injection in teneſmus with advantage; and is often applied externally to the piles. It is ſaid to intoxicate fiſh ſo that they may be taken with the hand. In Norway they give it to cows that are conſumptive. The down ſerves for tinder. Neither cows, goats, ſheep, horſes, or ſwine will eat it.

377. Datura, or *Thorn-apple.*
Seven ſpecies; viz. ferox, ſtramonium, tatula, faſtuoſa, metel, lævis, arborea. Europe, Aſia, Africa, America.

ſtramonium. * D. ſeed-veſſel thorny, upright, egg-ſhaped; leaves egg-ſhaped, ſmooth.—At night the leaves, particularly the upper ones, riſe up and encloſe the flowers. An ointment prepared from the leaves gives eaſe in external inflammations and hæmorrhoids. The Edinburgh college directs an extract to be prepared by evaporating the expreſſed juice of the leaves. This has been given with great advantage in convulſive affections and epilepſies: out of 14 epileptic patients 8 were entirely cured by it at Stockholm. The doſe from 2 to 16 grains a-day. The ſeeds or leaves given internally bring on delirium, tremors, ſwelling, itching, eruption, and inflammation on the ſkin; theſe effects were produced by a doſe of a drachm and a half in a girl nine years old. Cows, goats, ſheep, and horſes, refuſe it.

378. Hyoscyamus, or *Henbane.*
Eight ſpecies; viz. * niger, reticulatus, albus, aureus, muticus, puſillus, phyſaloides, ſcopolia. S. Europe, Siberia, Perſia.

niger. H. leaves embracing the ſtem, indented flowers ſitting.—The ſeeds, the leaves, and the roots taken internally are reputed poiſonous; and well attcſted inſtances of their bad effects are recorded: madneſs, convulſion, and death are the general conſequence. But Dr Smith ſays, he has often eaten the ſeeds with impunity. It is ſaid that the leaves ſcattered about a houſe will drive away mice. The Edinburgh college order the expreſſed juice of the plant to be evaporated to an extract: and perhaps in this ſtate it may be advantageouſly joined with opium, where the effects of that medicine are deſirable, and coſtiveneſs is to be avoided. There is no doubt of its being an uſeful medicine under proper management. The doſe is from half a ſcruple to half a drachm. Goats are not fond of it; horſes, cows, ſheep, and ſwine refuſe it; ſheep are, however, ſaid ſometimes to eat it when young: *Chryſomela hyoſcyami* and the *cimex hyſcyami* are found upon it.

379. Nicotiana, or *Tobacco.*
Seven ſpecies; viz. tabacum, fruticoſa, * ruſtica, paniculata, urens, glutinoſa, puſilla. America, China.

The ſpecies called *N. tabaccum* was firſt brought into Europe about the year 1560 from the iſland of Tobago in America; and is now ſometimes cultivated for medicinal uſes in our gardens, but in general imported from America in large quantities. The leaves are about two feet long, of a pale green colour while freſh, and when carefully dried of a lively yellowiſh caſt. They have a ſtrong diſagrecable ſmell, like that of the narcotic plants, and a very acrid burning taſte. Taken internally, they prove virulently cathartic and emetic, occaſioning almoſt intolerable cardialgic anxieties. By boiling water their virulence is abated and at length deſtroyed: an extract made by long coction is recommended by Stahl and other German phyſicians, as a ſafe and moſt effectual aperient, expectorant, detergent, &c. but this medicine, which is extremely precarious and uncertain in ſtrength, has never come into eſteem among us. Of late, however, tobacco, under the form of a vinous or watery infuſion, and taken in ſuch ſmall doſes as to produce little effect from its action on the ſtomach, has been recommended by Dr Fowler. He found it to be a very uſeful and powerful diuretic, and publiſhed many caſes of dropſy and dyſury in which its employment was attended with the beſt effects. Theſe good effects have been confirmed by the obſervation of other phyſicians.

Tobacco is ſometimes uſed externally in unguents for deſtroying cutaneous inſects, cleanſing old ulcers, &c.

Beaten into a mash with vinegar or brandy, it has sometimes proved serviceable in removing hard tumours of the hypochondres. Injections by the anus of the smoke or decoction have been used with advantage in cases of obstinate constipation threatening ileus, of incarcerated hernia, of ascarides, of spasmodic asthma, and of persons apparently dead from drowning or other sudden causes. It has been used internally in form of syrup, conserve, and infusion, in cases of worms, epilepsy, amenorrhea, asthma, &c.; but it is certainly too active to be thus ventured on.

The *N. rustica* is found wild on dunghills in several parts of England. It is said to be often substituted in the market for true tobacco, from which, however, it may be known by the leaves being much smaller and the flowers not reddish like those of the proper sort, but of a yellowish green colour.

380. JABOROSA.

Two species; viz. integrifolia, runcinata. Mon. Viedo, Buen. Ayr.

381. ATROPA, or *Deadly Nightshade*.

Seven species; viz. mandragora, * belladonna, physaloides, procumbens, solanacea, arborescens, frutescens. Europe, Peru, Lima.

belladonna * A. stem herbaceous; leaves egg-shaped, entire.—The whole of this plant is poisonous; and children, allured by the beautiful appearance of the berries, have too often experienced their fatal effects. Tumours of the breasts, even of the cancerous kind, are said to have been resolved by a topical application of the fresh leaves. Dr Graham says he found great benefit from a poultice made of the roots, boiled in milk, and applied to hard ill-conditioned tumours and ulcers: and relates a deplorable case in which this poultice effected a perfect cure. There is no doubt but their external application may be productive of good effects in several cases, but the following instance shows us that their application is dangerous when the skin is broken: A lady who had a small ulcer, a little below one of her eyes, which was supposed to be of a cancerous nature, put a small bit of the green leaf upon it. In the morning the uvea of that eye was so affected, that the pupil would not contract even by the brightest light; whilst the other eye retained its usual powers. The leaf being removed, the eye was gradually restored to its former state. This could not be an accidental effect, for it was repeated three separate times, and the same circumstances attended each application. The juice of the ripe berries stains paper of a beautiful and durable purple.

Med. Commun. vol. i. p. 419.

382. PHYSALIS, or *Alkekengi Winter Cherry*.

17 species; viz. somnifera, aristata, flexuosa, arborescens, curassavica, tomentosa, viscosa, pennsylvanica, alkekengi, peruviana, angulata, pubescens, barbadensis, chenopodifolia, minima, pruinosa, prostrata. Europe, E. and W. Indies, Carolina.

383. SOLANUM, or *Nightshade*.

83 species; viz. laurifolium, verbascifolium, auriculatum, pubescens, bombense, pseudo-capsicum, microcarpum, terminale, pauciflorum, diphyllum, fugax, geminatum, retrofractum, stellatum, * dulcamara, triquetrum, scandens, lyratum, tegore, quercifolium, laciniatum, radicans, havannense, triste, racemosum, corymbosum, quadrangulare, repandum, bonariense, macrocarpon, tuberosum, pimpinellifolium, lycopersicum, pseudo-lycopersicum, peruvianum, montanum, rubrum, nodiflorum, * nigrum, æthiopicum, melongena, subinerme, longiflorum, muricatum, insanum, torvum, volubile, ferox, campechiense, fuscatum, mammosum, hirtum, paniculatum, aculeatissimum, virginianum, aquini, xanthocarpum, coagulans, jamaicense, indicum, carolinense, sinuatum, sodomeum, serpens, marginatum, stramonifolium, vespertilio, sanctum, hybridum, tomentosum, polygamum, bahamense, obscurum, giganteum, flexuosum, lanceæfolium, lanceolatum, eleagnifolium, polyacanthos, igneum, milleri, trilobatum, lycioides. Eur. Asia, Africa, Am.

dulcamara * S. stem without prickles, rather shrub-like, zigzag: upper leaves halberd-shaped: flowers in tuft-like bunches.—Boerhaave says it is a medicine far superior to china and sarsaparilla as a sweetener and restorative. Linnæus says, an infusion of the young twigs is an admirable medicine in acute rheumatisms, inflammations, fevers, and suppression of the lochia. Dr Hill says he has found it very efficacious in the asthma. Dr Hallenberg advises it in ischiatic and rheumatic pains, jaundice, scurvy and lues venerea. He directs a pint of boiling water to be poured upon two drachms of the stalks sliced and dried after standing half an hour. It must be boiled 15 minutes. The dose is two cups full or more, morning and evening. The stalks may be gathered early in spring, or at the end of autumn. The root has the smell of the potato. Sheep and goats eat it; horses, cows, and swine refuse it.

nigrum. * S. stem without prickles, herbaceous: leaves egg-shaped, toothed, angular, bunches nodding, pointing two ways.—From one to three grains of the leaves infused in boiling water and taken at bed-time occasions a copious perspiration, increases the secretion by the kidneys, and generally purges more or less the following day. These properties judiciously applied render it capable of doing essential service in several diseases. But its effects on the nervous system are so uncertain, and sometimes so considerable, that it must ever be administered with the greatest caution. The leaves externally applied abate inflammation and assuage pain. The flowers smell like musk. Horses, cows, goats, sheep, and swine refuse it.

384. CAPSICUM, or *Guinea Pepper*.

Six species; viz. annuum, baccatum, sinense, grossum, frutescens, cerasiforme. E. and W. Indies. The *capsicum annuum* is cultivated in our gardens. It ripens its seeds in September and October. The taste of capsicum is extremely pungent and acrimonious, setting the mouth as it were on fire. It is chiefly employed for culinary purposes, and has long been used in that way; but of late it has been employed also in the practice of medicine. And there can be little doubt that it furnishes us with one of the purest and strongest stimulants which can be introduced into the human stomach, while at the same time it has nothing of the narcotic effect of ardent spirit. Dr Mackitrick Adair, who was perhaps the first who employed it as a medicine, directs its being given to the extent of six or eight grains under the form of pills, or under the form of tincture, by infusing half an ounce in a pound of rectified spirit, and giving this from one to three drachms, diluted,

diluted, for a dose. He found it useful in a variety of affections, particularly in that morbid disposition which he calls the *cachexia africana*, and which he considers as a most frequent and fatal predisposition to disease among the slaves. This pepper has also been successfully employed in a species of cynanche maligna (putrid sore throat), which proved fatal in the West Indies, resisting the use of Peruvian bark, wine, and the other remedies commonly employed. A variety of it called in the West Indies *bird-pepper*, is the basis of a powder brought us from thence under the name of cayan pepper.

385. STRYCHNOS, or *Poison-nut.*
Three species; viz. nux-vomica, calubrina, potatorum. East Indies.

386. IGNATIA, or *St Ignatius's Beans.*
One species; viz. amara. India.

387. CESTRUM.
11 species; viz. laurifolium, nocturnum, parqui, auriculatum, scandens, vespertinum, diurnum, venenatum, tomentosum, hirtum, latifolium. West Indies, Peru.

388. LYCIUM, or *Box-thorn.*
11 species; viz. afrum, rigidum, ruthenicum, tetrandrum, barbarum, cinereum, europæum, horridum, barbatum, boerhaaviæfolium, capsulare. Eur. Asia, Africa, America.

389. SERISSA.
One species; viz. fœtida.

390. CRYPTOSTOMUM.
One species; viz. laurifolium. Guiana.

391. ARDISIA, or *Aderno.*
Nine species; viz. tinifolia, coriacea, serrulata, acuminata, humilis, solanacea, lateriflora, excelsa, parasitica. Madeira, Ceylon, W. Indies.

392. JACQUINIA.
Five species; viz. arborea, armillaris, venosa, ruscifolia, linearis. W. Indies, S. America.

393. BASSOVIA.
One species; viz. sylvatica. Guiana.

394. CHIRONIA.
16 species; viz. trinervia, jasminoides, lychnoides, nudicaulis, campanulata, augularis, * pulchella, chilensis, * centaurium, inaperta, maritima, spicata, linoides, baccifera, frutescens, tetragona. Ceyl. Cape, N. America.

centaurium. * C. herbaceous: leaves, spear-shaped; cal. shorter than the tube of the blossom.—This plant is extremely bitter. It is the basis of the famous Portland powder, which prevents fits of the gout, when taken in a large quantity and a long time together; but brings on hardness of the liver, palsy, and apoplexy. A tincture of the leaves, and the upper part of the root, is a good medicine in weak stomachs and cachectic habits. A decoction of the whole plant destroys lice, and cures the itch. Cows are not fond of it, and in sheep-pasture it is frequently left untouched.

395. LITA.
Two species; viz. rosea, cœrulea.

396. CORDIA, or *Sebesten Plum.*
18 species; viz. myxa, obliqua, monoica, spinescens, sebestena, aspera, dichotoma, geraschanthus, flavescens, toquere, macrophylla, micranthus, elliptica, colococca, hirsuta, tetrandra, patagonula, tetraphylla. Guiana.

397. EHRETIA, or *Base Cherry-tree.*
Nine species; viz. tinifolia, aspera, lævis, internodis, spinosa, beurreria, virgata, exsucca, buxifolia. W. Indies, S. America.

398. VARRONIA.
Nine species; viz. lineata, bullata, mirabiloides, martinicensis, globosa, curassavica, angustifolia, alba, monosperma. W. Indies, S. America.

399. LAUGERIA.
Five species; viz. odorata, lucida, coriacea, resinosa, tomentosa. W. Indies, S. America.

400. CHRYSOPHYLLUM, or *Star-apple.*
Seven species; viz. cainito, monopyrenum, microcarpum, argenteum, rugosum, pyriforme, glabrum. W. Indies, S. America.

401. BUMELIA.
12 species; viz. nigra, pallida, tenax, retusa, fœtidissima, salicifolia, manglillo, montana, nervosa, pentagona, rotundifolia, cuneata. W. Indies.

402. TECTONA, or *Indian Oak*, or *Teak-wood.*
One species; viz. grandis. The teak-wood is extremely valuable for ship-building on account of its resisting in the Indian seas the worms which so speedily destroy oak and all other sorts of timber. That which is used at Calcutta is chiefly or rather entirely imported from Rangoon, a port belonging to the Birman empire in the eastern peninsula of India. See ASIA, N°106.

403. SIDEROXYLON, or *Iron-wood.*
Nine species; viz. mite, inerme, melanopheum, cymosum, sericeum, argenteum, tomentosum, lycioides, decandrum. Morocco, Cape, N. America.

404. SCHREBERA.
One species; viz. albens. C. of G. Hope.

405. RHAMNUS, or *Buck-thorn.*
32 species; viz. * catharticus, infectorius, lycioides, erythroxylon, eleoides, crenulatus, saxatilis, theezans, sarcomphalus, ferreus, lævigatus, tetragonus, polifolius, valentinus, cubensis, colubrinus, daruricus, alpinus, pumilus, * frangula, latifolius, glandulosus, ellipticus, prinoides, mystacinus, almifolius, sphærospermus, hybridus, alaternus, carpinifolius, capensis, circumsciſſus. Europe, E. and W. Indies, Africa. N. America.

catharticus. * R. thorns terminating: flowers 4-cleft; male and female on different plants: leaves egg-shaped; stem upright.—A purgative syrup prepared from the berries of this plant is kept in the shops. About an ounce of it is a moderate dose; but it generally occasions so much sickness and griping that it is falling into disuse. The flesh of birds that feed upon the berries is said to be purgative. The juice of the unripe berries is of the colour of saffron, and is used for staining maps or paper. These are sold under the name of French berries. The juice of the ripe berries mixed with alum, is the sap-green of the painters; but if they are gathered late in the autumn the juice is purple. The bark affords a beautiful yellow dye. Goats, sheep, and horses eat it; cows refuse it.

frangula. * R. without thorns: flowers hermaphrodite, with 1 pistil: leaves very entire.—It is said, that from a

quarter to half an ounce of the inner bark of this plant boiled in ſmall beer, is a ſharp purge. In dropſies or conſtipations of the bowels of cattle, it is a very certain purgative. The berries gathered before they are ripe, dye wool green. The bark dyes yellow, and with preparation of iron black. Charcoal prepared from the wood is preferred by the makers of gunpowder. The flowers are particularly grateful to bees: goats devour the leaves voraciouſly, and ſheep will eat them. The *papilio rhamni* and *argus* live upon both the ſpecies.

406. Zizyphus.

Ten ſpecies; viz. lineatus, volubilis, paliurus, lotus, napeca, jujuba, xylopyrus, œnoplia, vulgaris, ſpina chriſti.

407. Ventilago.

One ſpecies; viz. maderaſpatana.

408. Corymbium,

Four ſpecies; viz. ſcabrium, filiforme, glabrum, villoſum. C. of G. Hope.

409. Phylica, or *Baſe Alaternus*.

19 ſpecies; viz. ericoides, lanceolata, bicolor, capitata, eriophoros, plumoſa, villoſa, imberbis, ſtipularis, pinifolia, cordata, dioica, buxifolia, ſpicata, calloſa, paniculata, imbricata, racemoſa, parviflora. C. of G. Hope.

410. Carpodetus.

One ſpecies; viz. ferratus. South ſea iſles.

411. Colletia.

One ſpecies; viz. horrida. Brazil, Peru.

412. Ceanothus, or *New-Jerſey Tea*.

Five ſpecies; viz. americanus, macrocarpus, aſiaticus, africanus, capſularis. N. America, Cape, Ceylon.

413. Scopolia.

Two ſpecies; viz. aculeata, inermis. South ſea iſles.

414. Ruyschia.

Two ſpecies; viz. cluſiæfolia, ſurubea. W. Indies. Guiana.

415. Arduina, or *Cape Buckthorn*.

One ſpecies: viz. biſpinoſa. C. of G. Hope.

416. Camax.

One ſpecies; viz. fraxinea. Guiana.

417. Buttneria.

Seven ſpecies; viz. ſcabra, tereticaulis, microphylla, ovata, cordata, herbacea, catalpæfolia. S. America.

418. Ayenia.

Four ſpecies; viz. puſilla, lævigata, tomentoſa, magna. Jamaica, Cumana, Peru.

419. Gluta.

One ſpecies; viz. benghas. Java.

420. Polycardia.

One ſpecies; viz. madagaſcarenſis. Madagaſcar.

421. Myrsine, or *African Box-tree*.

Two ſpecies; viz. africana, retuſa. Azores, Africa.

422. Bladhia.

Four ſpecies; viz. japonica, glabra, villoſa, criſpa. Japan.

423. Celastrus, or *Staff-tree*.

32 ſpecies; viz. lucidus, microphyllus, bullatus, laurinus, roſtratus, undulatus, octogonus, filiformis, ſcandens, paniculatus, procumbens, acuminatus, caſſinoides, ſtriatus, ceruis, undatus, edulis, crenatus, dilatatus, myrtifolius, maytenus, tetragonus, articulatus, alatus, linearis, integrifolius, emarginatus, phyllacanthus, buxifolius, pyracanthus, rotundifolius, parviflorus, Amer. Cape, iſle of Bourbon, Japan.

424. Evonymus.

Seven ſpecies; viz. tobira, japonicus, * europæus, verrucoſus, latifolius, atro-purpureus, americanus.

* E. flowers moſtly 4-cleft; leaves ſitting.—The ber- *europæus*.
ries vomit and purge violently. They are fatal to ſheep. Powdered, and ſprinkled upon the hair, they deſtroy lice. If the wood is cut when the plant is in bloſſom, it is tough, and not eaſily broken; and in that ſtate is uſed by watch-makers for cleaning watches, and to make ſkewers and toothpicks. Goats and ſheep eat it; horſes refuſe it; cows are ſo fond of the ſhoot in the ſpring as conſtantly to break down the banks of the fields wherever a plant of it ſtands.

425. Pilocarpus.

One ſpecies; viz. racemoſus.

426. Diosma, or *African Spiræa*.

30 ſpecies; viz. oppoſitifolia, obtuſata, linearis, virgata, alba, hirſuta, rubra, pectinata, ericoides, hiſpida, ciliata, biſurca, bifida, capitata, villoſa, cupreſſina, imbricata, marginata, lanceolata, pubeſcens, latifolia, crenata, tetragona, uniflora, rugoſa, ovata, barbigera, pulchella, betulina, orbicularis. C. of G. Hope.

427. Hovenia.

One ſpecies; viz. dulcis. Japan.

428. Brunia.

Eight ſpecies; viz. nodiflora, paleacea, lanuginoſa, verticillata, abrotanoides, ſuperba, fragarioides, ciliata. C. of G. Hope.

429. Staaria.

Two ſpecies; viz. radiata, glutinoſa.

430. Walkera.

One ſpecies; viz. ſerrata. India.

431. Pittosporum.

One ſpecies; viz. coriaceum. Madeira, Canary iſles.

432. Barreria.

One ſpecies; viz. theabromæfolia. Guiana.

433. Itea.

Two ſpecies; viz. virginica, cyrilla. N. America.

434. Galax.

One ſpecies; viz. aphylla. Virginia.

435. Humboldtia,

One ſpecies; viz. laurifolia.

436. Cedrela, or *Barbadoes Baſe Cedar*,

One ſpecies; viz. odorata. Weſt Indies.

437. Calodendrum.

One ſpecies; viz. capenſe. C. of G. Hope.

438. Elæodendrum.

Two ſpecies; viz. orientale, argan. Cape, iſle of Mauritius.

439. Escallonia,

Two ſpecies; viz. myrtilloides, ſerrata. S. America.

440. Billardiera.
One ſpecies; viz. ſcandens.

441. Mangifera, or *Mango-tree.*
Three ſpecies; viz. indica, laxiflora, axillaris. Eaſt Indies.

442. Hirtella.
Three ſpecies; viz. americana, triandra, paniculata. W. Indies, Cayenne.

443. Strumpfia.
One ſpecies; viz. maritima. America.

444. Plectronia.
One ſpecies; viz. ventoſa. C. of G. Hope.

445. Ribes, or *Currant and Gooſeberry.*
16 ſpecies; viz. rubrum, petræum, procumbens, glandulofum, alpinum, fragrans, triſte, nigrum, floridum, diacantha, faxatile, reclinatum, groſſularia, uva criſpa, oxyacanthoides, cynoſbati. Europe, N. Amerca.

446. Viola, or *Violet.*
39 ſpecies; viz. palmata, pedata, pinnata, ſagittata, lanceolata, obliqua, cucullata, primulifolia, *hirta, magellanica, paluſtris, *odorata, *canina, montana, nummularifolia, ceniſia, canadenſis, ſtriata, pubeſcens, mirabilis, biflora, uniflora, decumbens, * tricolor, grandiflora, zoyſii, calcarata, cornuta, capenſis, arborefcens, ſtipularis, parviflora, enneaſperma, ſuffruticoſa, calceolaria, oppoſitifolia, hybanthus, ipecacuanha, diandra. Alps, Pyren. Cape, America.

odorata. * V. leaves heart-ſhaped; ſuckers creeping.—The flowers and ſeeds of this plant are ſaid to be mild laxatives. The powdered root, in doſes from 40 to 80 grains, vomits and purges. The petals give the colour to the ſyrup of violets, for which purpoſe they are cultivated in large quantities at Stratford-upon-Avon. This ſyrup is very uſeful in many chemical inquiries, to detect an acid or an alkali, the former changing the blue colour to a red, and the latter to a green. Slips of white paper ſtained with the juice of the petals, and kept from the air and light, anſwer the ſame purpoſe.

tricolor. * V. ſtem branched; leaves egg-ſhaped, toothed; cal. ſmooth, but half the ſize of the bloſſom.—Some allege that it infallibly cures the ſcabby complaints in young children, called *cruſta lactea.* Boil a handful of the freſh, or half a dozen of the dried leaves, in half a pint of milk, and give this milk morning and evening for ſome weeks.

447. Impatiens, or *Balſam balſamine.*
12 ſpecies; viz. bifida, chinenſis, latifolia, capenſis, oppoſitifolia, faſciculata, cornuta, balſamina, biflora, triflora, natans, *nolitangere. Europe, N. America, E. Indies, China.

nolitangere. * I. fruitſtalks many-flowered, ſolitary; leaves egg-ſhaped; ſtem ſwoln at the joints.—The whole of this plant is conſiderably acrid. Goats eat it. Horſes, cows, and ſheep refuſe it. The *ſphinx elpenor* lives upon it.

448. Gronovia.
One ſpecies; viz. ſcandens. Jamaica, Vera Cruz.

449. Leea.
Three ſpecies; viz. ſambucina, æquata, criſpa. Cape, Eaſt Indies.

450. Argophyllum.
One ſpecies; viz. nitidum. New Caledonia.

451. Corynocarpus.
One ſpecies; viz. lævigata. New Zealand.

452. Hedera, or *Ivy.*
Four ſpecies; viz. helix, pendula, mutans, terebinthinacea. Europe, N. Amer. Jamaica.

helix. * H. leaves ſome egg-ſhaped, others lobed.—The roots are uſed by leather-cutters to whet their knives upon. Its evergreen leaves adorn our walls, and cover the naked trunks of trees. Apricots and peaches covered with ivy during the month of February, have been obſerved to bear fruit plentifully. The leaves have a naufeous taſte. Some ſay they are given in Germany as a ſpecific in the atrophy of children. The common people apply them to iſſues. The berries have a little acidity. They purge and vomit. In warm climates a reſinous juice exudes from the ſtalks. Horſes and ſheep eat it. Goats and cows refuſe it. Sheep are fond of it, and in ſevere weather it is ſtripped off the trees as food.

453. Vitis, or *Vine.*
12 ſpecies; viz. vinifera, palmata, indica, flexuoſa, labruſca, vulpina, heterophylla, laciniofa, hederacea, heptaphylla, pinnata, arborea. Temperate parts of the world.

vinifera. V. with leaves gaſhed, indented, naked.—The leaves of this ſpecies, which is the proper vine tree, were formerly celebrated as aſtringents, but have for a long time been entirely diſregarded; their taſte is herbaceous with only a ſlight degree of roughneſs. The trunk of the tree wounded in the ſpring produces a limpid watery juice; this, called the tear of the vine, has been accounted excellent for ſore eyes, and by ſome recommended alſo in ardent and malignant fevers, and as a diuretic. The flowers have a pleaſant ſmell, which water elevates from them in diſtillation; along with the water a ſmall portion of an elegant eſſential oil is ſaid to ariſe, poſſeſſing in great perfection the fragrance of the flowers. The unripe fruit is of a very harſh, rough, ſour taſte; its expreſſed juice, called *verjuice*, was in great eſteem among the ancients, and ſtill continues ſo in ſome places as a cooling aſtringent medicine; a rob and a ſyrup were formerly prepared from it. The ripe fruit or grapes, of which there are many kinds, properly cured and dried, are the raiſins of the ſhops. The juice by fermentation affords wine, vinegar, and tartar, of which mention will be made under their proper heads.

454. Euparea.
One ſpecies; viz. amœna. New Holland.

455. Ægiceras.
Two ſpecies; viz. majus, minus.

456. Lagoecia, or *Wild Cumin.*
One ſpecies; viz. cuminoides. Crete, Levant.

457. Roridula.
One ſpecies; viz. dentata. Cape of G. Hope.

458. Sauvagesia.
One ſpecies; viz. erecta. Jamaica, St Domingo, Surinam.

459. Claytonia.
Three ſpecies; viz. virginica, ſibirica, perfoliata. Siberia, N. America.

460.

460. Heliconia, or *Baſe* or *Wild Plantain.*
Five ſpecies; viz. caribæa, behai, humilis, pſittacorum, hirſuta. Cape, W. Indies.

461. Strelitzia.
Two ſpecies; viz. reginæ, anguſta. C. of G. Hope.

462. Achyranthes.
16 ſpecies; viz. argentea, aſpera, lappacea, echinata, muricata, patula, proſtata, ſarmentoſa, alternifolia, polygonoides, altiſſima, nivea, ſtellata, corymboſa, tenuifolia, dichotoma. S. Europe, E. and W. Indies.

463. Celosia, or *Cock's Comb.*
18 ſpecies; viz. argentea, albida, margaritacea, criſtata, comoſa, paniculata, nitida, coccinea, caſtrenſis, monſoniæ, corymboſa, caudata, trigyna, virgata, polygonoides, baccata, gnaphaloides, nodiflora. China, E. and W. Indies, Senegal.

464. Chenolea.
One ſpecies; viz. diffuſa.

465. Illecebrum, or *Mountain Knot-graſs.*
19 ſpecies; viz. brachiatum, ſanguinolentum, lanatum, javanicum, * verticillatum, ariſtatum, canarienſe, cymoſum, paronychia, capitatum, divaricatum, benghalenſe, arabicum, achyrantha, fruteſcens, polygonoides, ficoideum, ſeſſile, alſinefolium. S. Europe, Eaſt Indies, South America.

466. Glaux, or *Sea Milk-wort.*
One ſpecies; viz. * maritima. Europe.

467. Plocama.
One ſpecies; viz. pendula. Canary iſles.

468. Hedycrea.
One ſpecies; viz. incana. Guiana.

469. Thesium, or *Baſe Toad-flax.*
19 ſpecies; viz. * linophyllum, alpinum, humile, lineatum, ſquarroſum, friſea, funale, ſpicatum, capitatum, ſtrictum, umbellatum, fragile, ſcabrum, paniculatum, amplexicaule, triflorum, euphorbioides, colpoon, ſpinoſum. Alps of Europe, Cape, N. America.

470. Quinchamala.
One ſpecies; viz. chilenſis. Chili.

471. Rauwolfia.
Four ſpecies; viz. nitida, glabra, caneſcens, tomentoſa. W. Indies, S. America.

472. Pæderia.
Two ſpecies; viz. fœtida, fragrans. India.

473. Carissa.
Five ſpecies; viz. carandas, ſpinarum, edulis, inermis, mitis. India, Arabia.

474. Gynopogon.
Three ſpecies; viz. ſtellatum, alyxia, ſcandens. South ſea iſles.

475. Cerbera.
Six ſpecies; viz. ahovai, ovata, parviflora, manghas, thevetia. South America.

476. Webera.
Three ſpecies; viz. corymboſa, cymoſa, tetrandra.

477. Gardenia, or *Cape Jeſſamine.*
17 ſpecies; viz. radicans, florida, thunbergia, latifolia, cluſiæfolia, gummiſera, muſſæada, genipa, rothmannia, uliginoſa, armata, ſpinoſa, dumetorum, randia, micranthus, ſcandens, multiflora. Cape, E. and W. Indies. Japan.

478. Willughbeja.
Two ſpecies; viz. acieca, ſcandens. Guiana.

479. Allamanda.
One ſpecies; viz. cathartica. Surinam, Cayenne.

480. Unica, or *Periwinkle.*
Five ſpecies; viz. * minor, * major, lutea, roſea, parviflora. Ger. Fr. Sp. Eaſt Indies, N. America.
* U. ſtems trailing; leaves ſpear-egg-ſhaped; flowers on fruitſtalks.—The fruit of this plant ſeldom comes to maturity. It may, however, be eaſily obtained by planting the *U. major* in a pot, where the roots not having free room to extend themſelves, the juices are more copiouſly propelled towards the piſtil, which then expands into well-formed ſeed-veſſels. *minor.*

481. Nerium, or *Oleander*, or *Roſe Bay.*
Eight ſpecies; viz. oleander, odorum, ſalicinum, obeſum, zeylanicum, divaricatum, antidyſentericum, coronarium. S. Europe, E. Indies.

482. Echites, or *Savanna-flower.*
22 ſpecies; viz. biflora, quinquangularis, annularis, tomentoſa, ſuberecta, domingenſis, aggluntinata, aſperuginis, toruloſa, umbellata, circinalis, floribunda, trifida, repens, corymboſa, coſtata, ſpicata, ſiphilitica, candata, ſcholaris, ſucculenta, biſpinoſa. W. Indies, Surinam, Carolina, Cape.

483. Plumeria, or *Red Jeſſamine.*
Four ſpecies; viz. rubra, alba, obtuſa, pudica. W. Indies, S. America.

484. Cameraria.
Four ſpecies; viz. latifolia, zeylanica, lutea, anguſtifolia. W. Indies, S. America.

485. Tabernæmontana.
12 ſpecies; viz. citrifolia, laurifolia, echinata, grandiflora, cymoſa, amygdalifolia, diſcolor, perſicariæfolia, elliptica, alternifolia, amſonia, anguſtifolia. E. and W. Indies, N. America, Japan.

Order II. DIGYNIA.

486. Pergularia.
Five ſpecies; viz. glabra, edulis, tomentoſa, purpurea, japonica. India, Japan.

487. Periploca, or *Virginian Silk.*
11 ſpecies; viz. græca, ſecamone, lævigata, anguſtifolia, eſculenta, emetica, indica, capſularis, africana, tunicata, ſylveſtris. Syria, Cape, India.

488. Cynanchum, or *Baſe Dogs-bane.*
25 ſpecies; viz. viminale, filiforme, criſpum, tenellum, obtuſifolium, capenſe, acutum, planiflorum, roſtratum, grandiflorum, nigrum, racemoſum, maritimum, ſuberoſum, carolinenſe, obliquum, hirtum, criſpiflorum, proſtratum, monſpeliacum, extenſum, reticulatum, undulatum, parviflorum, erectum. S. Europe, Cape, E. Indies, America.

489. Apocynum, or *Dogs-bane.*
14 ſpecies; viz. filiforme, haſtatum, androſæmifolium,

lium, cannabinum, hypericifolium, venetum, frutescens, paniculatum, umbellatum, reticulatum, cordatum, lanceolatum, trifiorum, lineare. Am. Isles, Adriatic, India.

490. Asclepias, or *Swallow-wort.*

41 species; viz. aphylla, undulata, crispa, pubescens, mucronata, procera, gigantea, grandiflora, carnosa, syriaca, amoena, purpurascens, variegata, curassavica, nivea, laniflora, parviflora, incarnata, pulchra, critifolia, decumbens, lactifera, vincetoxicum, nigra, fœtida, convolvulacea, volubilis, alexiaca, asthmatica, viminalis, arborescens, fruticosa, sibirica, davurica, setosa, filiformis, verticillata, mexicana, linaria, rubra, tuberosa. Europe, Africa, East Indies, America.

491. Hostea.

One species; viz. viridiflora.

492. Melodinus.

One species; viz. scandens. New Caledonia.

493. Ceropegia.

Eight species; viz. candelabrum, tuberosa, bulbosa, biflora, juncea, acuminata, sagittata, tenuiflora. Cape, Ceylon, Malabar.

494. Stapelia, or *African Swallow-wort.*

49 species; viz. ciliata, revoluta, hirsuta, sororia, grandiflora, ambigua, pulvinata, asterias, gemmiflora, divaricata, rufa, acuminata, reclinata, elegans, cæspitosa, arida, parviflora, subulata, concinna, glandulifera, pedunculata, aperta, gordoni, pilifera, candata, articulata, mammillaris, pruinosa, ramosa, pulla, adscendens, quadrangula, incarnata, punctata, geminata, decora, pulchella, vetula, verrucosa, irrorata, mixta, variegata, campanulata, barbata, venusta, guttata, humilis, reticulata, clarata. C. of G. Hope.

495. Linconia.

One species; viz. alopecuroidea. C. of G. Hope.

496. Herniaria, or *Rupture-wort.*

Six species; viz. *glabra, *hirsuta, alpina, fruticosa, lenticulata, polygonoides. Germany, Spain, Italy, Chili.

glabra. * H. Plant smooth.—This plant is a little saltish, and astringent. It is said to increase the secretions by the kidneys, and that the juice takes away specks in the eye; but, to the virtue for which it has been most celebrated, that of curing ruptures, it has no title. Cows, sheep, and horses eat it. Goats and swine refuse it.

497. Chenopodium, or *Goosefoot*, or *Wild Orache.*

26 species; viz. *bonus henricus, mucronatum, triandrum, *urbicum, atriplicis, *rubrum, guineense, *murale, quinoa, serotinum, *album, *viride, *hybridum, botrys, ambrosioides, multifidum, anthelminticum, *glaucum, *vulvaria, *polyspermum, caudatum, laterale, scoparia, *maritimum, oppositifolium, aristatum. Europe, China, America.

bonus henricus. * C. Leaves triangular, arrow-shaped, very entire; spikes compound, leafless, axillary.—This plant is said to be cultivated as spinage by the poor people at Boston in Lincolnshire. The young shoots, peeled and boiled, may be eaten as asparagus, which they resemble in flavour. They are gently laxative. The leaves are often boiled in broth. The roots are given to sheep that have a cough. Goats and sheep are not fond of it. Cows, horses, and swine, refuse it.

album. * C. leaves diamond-triangular, gnawed, entire behind, the uppermost oblong; bunches upright.—Cows, goats, and sheep eat it. Horses refuse it. Swine are extremely fond of it. A black *aphis* feeds upon it, and sometimes destroys it.

maritimum. * C. leaves awl-shaped, semi-cylindrical.—It is an excellent pot-herb. The *phalæna lubricipeda* feeds upon most of the species.

botrys. C. with leaves oblong indented; branches naked, many-cleft. Called *Jerusalem oak.*—It is cultivated in gardens. It has a strong, not disagreeable smell, and a warm, somewhat pungent taste. It is recommended as a carminative pectoral, and it has also been recommended as an emmenagogue. Infusions of the leaves and seed may be drank as tea; and in this form it has been recommended in cases of chronic catarrh. But the proper menstruum, both for the leaves and seed, is rectified spirit.

vulvaria. * C. with entire, diamond-shaped, oval leaves, with flowers incorporated at the bosom of the leaves. *Stinking orach.* It is a low plant, sprinkled all over with a kind of whitish clammy meal; it grows about dunghills, and waste places. The leaves have a strong fetid smell, with which the hand, by a light touch, becomes so impregnated, as not to be easily freed from it. Its smell has gained it the character of an excellent antihysteric; and this is the only use it is applied to.—Tournefort recommends a spirituous tincture, others a decoction in water, and others a conserve of the leaves, as of wonderful efficacy in uterine disorders; but in the present practice it is little employed.

498. Beta, or *Beet.*

Four species; viz. vulgaris, patula, cicla, maritima. France, Portugal, Madeira.—The *beta vulgaris* has of late attracted much notice on the continent, from the discovery of M. Achard of Berlin, that sugar may be extracted from it in large quantities with profit. See Sugar.

499. Microtea.

One species; viz. debilis.

500. Salsola, or *Glass-wort.*

25 species; viz. *kali, tragus, rosacea, soda, sativa, spicata, altissima, trigyna, salsa, nudiflora, flavescens, hirsuta, laniflora, hyssopifolia, polyclonos, prostrata, monandra, vermiculata, arbuscula, aphylla, arborescens, *fruticosa, indica, sedoides, muricata. Europe, Egypt, Cape, Asia, Carnatic.

501. Anabasis, or *Berry-bearing Glass-wort.*

Five species; viz. aphylla, cretacea, foliosa, spinosissima, tamariscifolia. Spain, Caspian sea, Egypt.

502. Cressa.

Two species; viz. cretica, indica. Crete, Arabia.

503. Gomphrena, or *Globe Amaranth.*

Ten species; viz. globosa, perennis, hispida, angustifolia, vermicularis, brasilienfis, serrata, interrupta, flava, arborescens. India, S. Amer. New Gran.

504. Bosea, or *Golden-rod Tree.*

One species; viz. yervamora. Canary isles.

509. Ulmus, or *Elm-tree.*

Seven species; viz. *campestris, suberosa, effusa, americana,

americana, nemoralis, pumila, integrifolia. N. Europe, N. America.

campeſtris. * U. leaves doubly ſerrated, unequal at the baſe; flowers almoſt ſitting, coronated together.—A decoction of the inner bark, drank freely, has been known to carry off the water in dropſies. It cures the *lepra ichthyoſis* of Sauvages. The bark dried and ground to powder has been mixed with meal in Norway, to make bread in times of ſcarcity. The flowers have a violet ſmell. The wood, being hard and tough, is uſed to make axle-trees, mill-wheels, heels of boots, chairs, and coffins. The tree is beautiful, and well adapted to make ſhady walks, as it does not deſtroy the graſs; and its leaves are acceptable to cows, horſes, goats, ſheep, and ſwine; for this purpoſe, it ſhould be grafted upon the *U. glabra*, and then the roots will not ſend out ſuckers, which the common elm is very apt to do, and give a great deal of trouble to keep the ground clear of them. It loves an open ſituation, and black or clayey ſoil. It bears to be tranſplanted. *Papilio polychloros* and *C. album*, *phalæna lubricipeda*, *pavonia betularia et vellica*, *ſimex ulmi et ſtriatus*, *cicada ulmi*, *aphis ulmi*, feed upon it. The latter generally curl the leaves ſo as to make them a ſecure ſhelter againſt the weather. Silk worms will devour the tender leaves with great avidity.

506. NAMA.

One ſpecies; viz. jamaicenſis. Jamaica.

507. HYDROLEA.

Three ſpecies; viz. ſpinoſa, trigyna, zeylanica. E. and W. Indies, America.

508. ROCHEFORTIA.

Two ſpecies; viz. cuneata, ovata. Arabia.

509. HEUCHERA, or *Virginian Sanicle.*

One ſpecies; viz. americana. Virginia.

510. VELEGIA.

One ſpecies; viz. rigida. Spain.

511. SWERTIA, or *Marſh-Gentian.*

Six ſpecies; viz. * perennis, difformis. decumbens, corniculata, dichotoma, tetrapetala. Siberia, Auſtria, Virginia, Canada.

512. GENTIANA, or *Gentian.*

56 ſpecies; viz. * lutea, purpurea, pannonica, punctata, campanulata, ſeptemfida, aſclepiadea, montana, cruciata, macrophylla, adſcendens, * pneumonanthe, triflora, frigida, algida, ſaxoſa, ſaponaria, ochroleuca, villoſa, linearis, quinqueflora, aurea, glauca, exaltata, acaulis, altaica, pyrenaica, verna, utriculoſa, bavarica, imbricata, proſtrata, * nivalis, pumila, aquatica, ſcilloides, uniflora, germanica, * amarella, obtuſifolia, uliginoſa, pratenſis, * campeſtris, auriculata, tenella, glacialis, dichotoma, nana, carinthiaca, ſulcata, rotata, ciliata, crinita, barbata, detonſa, ſerrata.—The *gentiana lutea*, is ſaid to be found wild in ſome parts of England; but the dried roots are moſt commonly brought from Germany. They are much uſed in medicine. They ſhould be choſen freſh, and of a yellow or bright colour within. This root is a ſtrong bitter, and as ſuch, very frequently made uſe of in practice: in taſte it is leſs exceptionable than moſt other bitters. Infuſions of it, flavoured with orange-peel, are ſufficiently grateful. It is the capital ingredient in the bitter wine, tincture, and infuſion of the druggiſts. An extract from it is likewiſe prepared. This uſeful bitter is not uſed as a powder, as it loſes conſiderably by the drying, which is requiſite for giving it that form. As a very trifling quantity of it gives taſte to a large quantity of water, it is ſaid to be ſometimes fraudulently uſed in malt liquors, to ſave the more expenſive ingredient of hops.

513. DICHONDRA.

Two ſpecies; viz. repens, ſericea. Jamaica, South ſea iſles.

514. VAHLIA.

One ſpecies; viz. capenſis. C. of G. Hope.

515. BUMALDA.

One ſpecies; viz. trifolia. Japan.

516. PHYLLIS, or *Baſe Hares-ear.*

One ſpecies; viz. nobla. Canary iſles.

517. CUSSONIA.

Two ſpecies; viz. thyrſiflora, ſpicata. C. of G. Hope.

518. ERYNGIUM, or *Sea-holly.*

11 ſpecies; viz. fœtidum, aquaticum, planum, puſillum, tricuſpidatum, * maritimum, * campeſtre, amethyſtinum, triquetrum, alpinum, bourgati. Europe, N. America, W. Indies.

* E. root leaves roundiſh, plaited, thorny; flowering heads on fruitſtalks; chaff 3-pointed.—The leaves are ſweetiſh, with a light aromatic warmth and pungency. The roots are ſuppoſed to have the ſame aphrodiſiac virtues as the orchis tribe. They are kept in the ſhops, candied. *maritimum*

519. HYDROCOTYLE, or *Water Navel-wort.*

18 ſpecies; viz. * vulgaris, umbellata, bonarienſis, americana, hirſuta, moſchata, aſiatica, erecta, villoſa, glabrata, ſpananthe, ranunculoides, ſaniculæfolia, ſolandra, tridentata, chinenſis, liniifolia, virgata. Eur. N. America, India.

520. AZORELLA.

Two ſpecies; viz. filamentoſa, ceſpitoſa.

521. SANICULA, or *Sanicle.*

Three ſpecies; viz. * europæa, canadenſis, marilandica. Europe, N. America.

522. ASTRANTIA, or *Black Maſter-wort.*

Five ſpecies; viz. epipactis, major, carniolica, minor, ciliaris. Alps of Europe.

523. BUPLEURUM, or *Hares-ear.*

23 ſpecies; viz. * rotundifolium, ſtellatum, petræum, graminifolium, anguloſum, pyrenacicum, longifolium, falcatum, caricifolium, odontites, ſemicompoſiton, ranunculoides, rigidum, * tenuiſſimum, baldenſe, gerardi, junceum, nudum, fruticoſum, coriaceum, frutescens, ſpinoſum, difforme. Germany, Switzerland, S. Europe.

425. ECHINOPHORA, or *Prickly Parſnip.*

Two ſpecies; viz. * ſpinoſa, tenuifolia. Apulia, Med. ſea-ſhores.

426. HASSELQUISTIA.

Two ſpecies; viz. ægyptiaca, cordata. Egypt, Levant.

527. Tordylium, or *Hart-wort of Crete.*
Six ſpecies; viz. ſyriacum, * officinale, peregrinum, apulum, * maximum, ſiifolium. Auſtria, Italy, Crete, Syria.

528. Caucalis, or *Baſe Parſley.*
13 ſpecies; viz. grandiflora, * daucoides, * latifolia, mauritanica, pumila, orientalis, africana, leptophylla, platycarpos, * arvenſis, * anthriſcus, japonica, * nodoſa. S. Europe, Egypt, India.

529. Artedia.
One ſpecies; viz. ſquamata. Levant.

530. Daucus, or *Carrot.*
Six ſpecies; viz. * carota, mauritanicus, lucidus, viſnaga, gingidium, muricatus. Europe, Barb. Carolina.—For the culture and properties of the carrot, ſee Agriculture, N° 40, 341—353.

531. Ammi, or *Biſhop's-weed.*
Four ſpecies; viz. majus, copticum, glaucifolium, daucifolium. Auſtria, S. Europe, Egypt.

532. Bunium, or *Pig* or *Earth nut.*
Three ſpecies; viz. * bulbocaſtanum, majus, aromaticum. Germany, France.

533. Conium, or *Hemlock.*
Four ſpecies; viz. * maculatum, rugoſum, rigens, africanum. Europe, Cape.

maculatum * C. ſeeds without prickles; ſtem greatly branched, ſmooth, ſpotted.—The whole plant is poiſonous, and many inſtances are recorded of its deleterious effects; but modern experience has proved it to be leſs virulent than was formerly imagined, and though it may not cure cancers, it is certainly a very uſeful medicine when properly prepared. The powder of the dried leaves is now only preſcribed. Let the leaves be gathered about the end of June when the plant is in flower. Pick off the leaves and throw away the leafſtalks. Dry theſe ſelected little leaves in a hot ſun on a tin dropping-pan or pewter diſh, before a fire. Preſerve them in bags made of ſtrong brown paper; or powder them, and keep the powder in glaſs phials, in a drawer, or ſomething that will exclude the light; for the light ſoon diſſipates the beautiful green colour, and with its colour the medicine loſes its efficacy. From 15 to 25 grains of this powder may be taken, twice or thrice a-day. It has been found particularly uſeful in chronic rheumatiſms, and alſo in many of thoſe diſeaſes which are uſually ſuppoſed to ariſe from acrimony. This plant is recommended as well worth the medical practitioner's attention.

534. Selinum, or *Milk Parſley.*
Nine ſpecies; viz. ſylveſtre, * paluſtre, auſtriacum, ſibiricum, carvifolia, chabræi, ſeguieri, monnieri, decipiens. Europe.

535. Athamanta, or *Baſe Spignel.*
11 ſpecies; viz. * libanotis, cervaria, ſibirica, condenſata, incana, oreoſolinum, ficula, mathioli, cretenſis, amnia, chinenſis. Europe.—The ſeeds of the *A. Cretenſis* or Candy Carrot, are brought from the Levant. It is an umbelliferous plant which grows in the iſland of Candy and the ſouth of Europe. The ſeeds have a warm biting taſte, and an aromatic ſmell. They are ſaid to be diuretic, but are not at preſent regarded in medical practice.

536. Peucedanum.
11 ſpecies; viz. * officinale, alpeſtre, capillaceum, tenuifolium, ſibiricum, japonicum, * ſilaus, alſaticum, aureum, nodoſum, geniculatum. Alps, Canaries, Japan.

* P. leaves five times divided into three; thread-ſtrap- *officinale.*
ſhaped.—The roots have a ſtrong fetid ſmell, and an acrid, bitteriſh, unctuous taſte. Wounded in the ſpring, they yield a conſiderable quantity of yellow juice, which dries into a gummy reſin, and retains the ſtrong ſcent of the root. Its virtues have not yet been aſcertained with preciſion.

537. Crithmum, or *Samphire.*
Two ſpecies; viz. * maritimum, latifolium. Sea ſhores, Europe, Canary.

* C. leaves ſpear-ſhaped, fleſhy.—Poor people on the *maritimum*
ſea coaſt eat it as a pot-herb, and gather it for ſale, it being much uſed as a pickle. Sheep and cows eagerly feed, and are ſaid to grow fat upon it.

538. Cachrys.
Seven ſpecies; viz. odontalgica, libanotis, moriſoni, ficula, taurica, cretica, panacisfolia. Spain, Sicily.

539. Ferula, or *Fennel-giant.*
12 ſpecies; viz. communis, ſibirica, glauca, rablenſis, tingitana, ferulago, orientalis, meoides, nodiflora, canadenſis, aſſafœtida, perſica. Europe, Perſia, N. America.

The large umbelliferous plant, with obtuſe leaflets, alternately indented, called *ferula aſſafœtida*, is a native of Perſia, and produces a valuable concrete juice. This juice exudes from wounds made in the root of the plant, liquid and white like milk. On being expoſed to the air it turns of a browniſh colour, and gradually acquires different degrees of conſiſtency. It is brought to us in large irregular maſſes, compoſed of various little ſhining lumps or grains, which are partly of a whitiſh colour, partly reddiſh, and partly of a violet hue. Theſe maſſes are accounted the beſt, which are clear, of a pale reddiſh colour and variegated, with a great number of elegant white tears. This drug has a ſtrong fetid ſmell, ſomewhat like that of garlick. It loſes, with age, of its ſmell and ſtrength, a circumſtance to be attended to in the uſe of it. It conſiſts of about one-third part of pure reſin, and two-thirds of gummy matter; the former ſoluble in rectified ſpirit, the latter in water. Proof ſpirit diſſolves almoſt the whole into a turbid liquor; the tincture in rectified ſpirit is tranſparent.

Aſſafœtida is the ſtrongeſt of the fœtid gums, and of frequent uſe in hyſteric and different kinds of nervous complaints. It is likewiſe of conſiderable efficacy in flatulent colics, and for promoting all the fluid ſecretions in either ſex. The ancients attributed to this medicine many other virtues, which are not at preſent expected from it. This gummy reſin is an ingredient in the gum pills of the druggiſts, fetid tincture, tincture of ſoot, and fetid volatile ſpirit.

540. Laserpitium, or *Laſer-wort.*
23 ſpecies; viz. latifolium, libanotis, capenſe, trilobum, aquilegifolium, gallicum, anguſtiſſimum, formoſum, anguſtifolium, aureum, prutenicum, dauricum, ſilafolium, aciphylla, peucedanoides, ſilex, archange-

lica, chironium, lucidum, ferulaceum, hirſutum, ſcabrum, ſimplex. Europe, New Zealand.

541. Heraclium, or *Cow-parſnip.*

10 ſpecies; viz. * ſphondylium, flaveſcens, anguſtifolium, elegans, ſibiricum, panacea, tuberoſum, auſtriacum, alpinum, pumilum. Siber. Auſtria, Alps, Italy.

ſphondylium. * H. leafets wing-cleft, even; flowers radiated.—In Poland and Lithuania the poor people are ſaid to prepare a liquor from the leaves and ſeeds of this plant, which undergoes a fermentation, and is drank inſtead of ale. The ſtalks, when peeled, are eaten by the Kamtſchatkans. The Ruſſians take the leaf-ſtalks of the root-leaves, peel them, and hang them in the ſun to dry a little: then they tie them in little bundles, and hang them up again till they become yellow: in this ſtate they put them into bags, and a mealy ſubſtance like ſugar forms upon the ſurface of them. This they ſhake off, and treat their gueſts with it as a great delicacy. They likewiſe diſtil an ardent ſpirit from it. The peelings of the ſtalks are acrid. The leaves are a favourite food of rabbits, hogs, and aſſes. Cows, goats, and ſheep eat them; but horſes are not fond of them.

542. Ligusticum, or *Lovage.*

13 ſpecies; viz. leviſticum, * ſcoticum, aquilegifolium, nodiflorum, peloponenſe, auſtriacum, * cornubienſe, pyrenacum, candicans, peregrinum, balearicum, gingidium, longifolium. Alps, Auſtria, Portugal, Barbary.

ſcoticum. * L. leaves doubly threefold.—This plant is much valued in the iſle of Skye. The root is reckoned a good carminative, and an infuſion of the leaves a good purge for calves. It is, beſides, uſed as food, either as a ſalad, or boiled as greens. Horſes, ſheep, and goats eat it. Cows refuſe it.

543. Angelica.

Six ſpecies; viz. * archangelica, * ſylveſtris, razoulii, verticillaris, atropurpurea, lucida. N. Europe, N. America.

ſylveſtris. * A. leafets equal, egg-ſpear-ſhaped, ſerrated.—It is warm, acrid, bitter, and aromatic: but the ſpecies cultivated in our gardens, poſſeſſing theſe properties in a higher degree, this has been long neglected. *Papilio machaon* feeds upon it. Cows, goats, and ſwine eat it. Horſes refuſe it.

544. Sium, or *Water Parſnip.*

18 ſpecies; viz. filifolium, * latifolium, anguſtifolium, * nodiflorum, * repens, ſiſarum, rigidius, japonicum, falcaria, paniculatum, grandiflorum, patulum, græcum, decumbens, ſiculum, aſperum, hiſpidum, villoſum. Europe, China, Japan, N. America.

latifolium. * S. leaves winged; leafets egg-ſpear-ſhaped, regularly and ſharply ſerrated; the terminating leafet 3-cleft; umbels terminating. Horſes and ſwine eat it. Sheep are not fond of it. The roots are noxious to cattle.

nodiflorum. * S. leaves winged; leafets tooth-ſerrated; umbels lateral, oppoſite the leaves, ſitting or on fruitſtalks.—It is ſaid, that a young lady, ſix years old, was cured of an obſtinate cutaneous diſeaſe, by taking three large ſpoonfuls of the juice twice a-day. Three or four ounces have been repeatedly given to adults, every morning, in ſimilar complaints, with the greateſt advantage. It is not nauſeous, and children take it readily, if mixed with milk. In the doſes given, it neither affects the head, the ſtomach, nor the bowels.

545. Siſon, or *Baſe Stone-parſley.*

Eight ſpecies; viz. * amomum, * ſegetum, canadenſe, ammi, * inundatum, * verticillatum, ſalſum, crinitum. Europe, N. America.

546. Bubon, or *Macedonian Parſley.*

Five ſpecies; viz. macedonicum, galbanum, lævigatum, gummiferum, rigidius. Greece, Barb. Cape.

547. Cuminum, or *Cummin.*

One ſpecies; viz. cyminum. Egypt, Ethiopia.—This umbelliferous plant reſembles fennel in appearance, but is much ſmaller. The ſeeds uſed in Britain are brought chiefly from Sicily and Malta. Cummin ſeeds have a bitteriſh warm taſte, accompanied with an aromatic flavour, not of the moſt agreeable kind. An eſſential oil is obtained from them by diſtillation, in which their activity is concentrated; and they are not unfrequently uſed externally, giving name both to a plaſter and cataplaſm in medical practice.

548. Oenanthe, or *Water Drop-wort.*

11 ſpecies; viz. * fiſtuloſa, *crocata, prolifera, globuloſa, peucedanifolia, * pimpinelloides, inebrians, tenuifolia, ferulacea, interrupta, exaltata. Europe, Carolina.

* O. ſending forth ſuckers; ſtem-leaves winged, thread-ſhaped, hollow.—Cows and horſes refuſe this plant, though, from experiments made on purpoſe, it does not appear to be in the leaſt degree noxious to the former. *fiſtuloſa.*

* O. all the leaves many-cleft, blunt, nearly equal.—The whole of this plant is poiſonous; and Dr Pulteney remarks, that the root is the moſt virulent of all the vegetable poiſons that Great Britain produces: many inſtances of its fatal effects are recorded. It is ſaid, that an infuſion of the root taken every morning, effected a cure in a very obſtinate cutaneous diſeaſe, but not without occaſioning very great diſturbances in the conſtitution. Some ſay, that the country people in Weſtmorland, apply a poultice of the herb to the ulcer which forms in the fore-part of the cleft of the hoof in horned cattle, and is called the *foul.* Sheep eat it. Cows and horſes refuſe it. *crocata.*

549. Phellandrium.

Two ſpecies; * aquaticum, mutellina. Europe.

* P. ramifications of the leaves ſtraddling.—The ſeeds are recommended in intermittents, and are ſaid to be diuretic, antiſeptic, and expectorant: doſe from one to three drams daily. The leaves are ſometimes added to diſcutient cataplaſms. It is generally eſteemed a fatal poiſon to horſes, occaſioning them to become paralytic: but this effect is owing to an inſect (*curculio paraplecticus*), which generally inhabits within the ſtems. The uſual antidote is pig-dung. In the winter, the roots and ſtems diſſected by the influence of the weather, afford a very curious ſkeleton or net-work. Horſes, ſheep, and goats eat it. Swine are not fond of it. Cows refuſe it. *Chryſomela phellandria*, and the *gilt leptura*, are found upon the roots, and the *curculio paraplecticus* within the ſtems. *aquaticum.*

550.

550. Cicuta, or *Water-Hemlock.*

Three ſpecies; viz. * viroſa, bulbifera, maculata.—Europe, N. America.

viroſa. C. umbels oppoſite the leaves; leaf-ſtalks bordered, blunt.—This is one of the rankeſt of our vegetable poiſons. Numerous inſtances are recorded of its fatality to the human ſpecies. Early in the ſpring, when it grows in the water, cows often eat it, and are killed by it; but, as the ſummer advances, and its ſcent becomes ſtronger, they carefully avoid it. Though a certain and fatal poiſon to cows, goats devour it greedily, and with impunity. Horſes and ſheep eat it with ſafety.

551. Æthusa or *Fools-parſley.*

Four ſpecies; viz. * cynapium, bunius, * meum, fatua. Europe.

cynapium. * Æ. all the leaves alike; fruit nearly globular.—This plant, from its reſemblance to common parſley, has ſometimes been miſtaken for it, and when eaten, it occaſions ſickneſs. If the curled-leaved parſley only was cultivated in our gardens, no ſuch miſtakes would happen. Cows, horſes, ſheep, and ſwine eat it. It is noxious to geeſe.

meum. * Æ. all the leaves divided into many briſtle-ſhaped ſegments; involucrum 1 leaf; fruit egg-oblong, tapering at each end.—Linnæus ſays, that the radical fibres of this plant form the baſis of the *calculus ægragopila.* The roots and ſeeds are aromatic and acrid. They have been uſed as ſtomachics and carminatives. They are ſometimes given to cure tertians; and there is no doubt but they will often anſwer as well as pepper, and other acrid aromatics.

552. Coriandrum, or *Coriander.*

Two ſpecies; viz. * ſativum, teſticulatum. S. of Eur.

ſativum. * C. fruit globular.—The leaves have a very ſtrong and diſagreeable ſcent. The ſeeds are grateful to the taſte, and incruſted with ſugar are ſold by the confectioners, under the name of coriander comfits. The Edinburgh college uſe them as correctors in the bitter infuſion, and the preparations of ſenna; nothing ſo effectually covering the diſagreeable taſte of that medicine. They have been conſidered as ſuſpicious, if not deleterious; but ſix drams of them have been taken at once, without any remarkable effect.

553 Scandix, or *Shepherds-needle.*

11 ſpecies.; viz. * odorata, * pecten, chilenſis, * cerefolium, * anthriſcus, auſtralis, nodoſa, trichoſperma, infeſta, grandiflora, procumbens. Eur. Virginia, Chili.

odorata. * S. ſeeds furrowed: angular.—The ſeeds are uſed in the north of England, for poliſhing and perfuming oak floors and furniture.

cerefolium. * S. ſeeds gloſſy, cylindrical and beaked; umbels lateral, nearly ſitting.—It is cultivated in our gardens as a pot-herb, and for ſalads. It is ſlightly aromatic and aperient. Cows are extremely fond of it. Sheep and goats eat it. Horſes refuſe it.

554. Chærophyllum, or *Wild Chervil.*

11 ſpecies; viz. * ſylveſtre, bulboſum, ariſtatum, * temulum, capenſe, ſcabrum, hirſutum, aromaticum, coloratum, aureum, arboreſcens. Eur. Virginia. Japan.

ſylveſtre. * C. ſtem ſmoothiſh, ſcored, a little ſwoln at the knots. The roots eaten as parſnips, have been found poiſonous. The umbels afford an indifferent yellow dye; the leaves and ſtems a beautiful green. Its preſence indicates a fruitful ſoil. Neither horſes, ſheep, or goats, are fond of it. Swine refuſe it. Rabbits are fond of it. In ſome parts of the kingdom, in times of ſcarcity, it is uſed as a pot-herb. Cows are ſo fond of it; that, when a paſture is over-run with it, as is often the caſe about Dudley, they always turn them in to eat it up.

555. Imperatoria, or *Maſter-wort.*

One ſpecies; viz. oſtruthium. Alps of Auſtria, Switzerland.—Root warm and aromatic, a ſudorific, diuretic, and ſialagogue; recommended in dropſy, debilities of the ſtomach and bowels; and an infuſion of it in wine is ſaid to have cured quartans that have reſiſted the bark. When chewed, it excites a copious flow of ſaliva, exciting a warm and not diſagreeable ſenſation in the gums, and frequently curing the rheumatic toothach.

556. Seseli, or *Hart-wort of Marſeilles.*

15 ſpecies; viz. filifolium, pimpinelloides, montanum, ſtriatum, glaucum, ariſtatum, annuum, chærophylloides, ammoides, tortuoſum, turbith, hippomarathrum, pyrenæum, ſaxifragum, elatum. Germany, S. Europe.

557. Thapsia, or *Deadly Carrot.*

Five ſpecies; viz. villoſa, fœtida, aſclepium, garganica, trifoliata. France, Spain, Portugal, Lev. Virginia.

558. Pastinaca, or *Parſnip.*

Three ſpecies; viz. lucida, ſativa, opopanax. South of Europe.

ſativa. P. leaves ſimply winged.—The roots, when cultivated, are ſweeter than carrots, and are much uſed by thoſe who abſtain from animal food in Lent; they are highly nutritious. In the north of Ireland, they are brewed inſtead of malt, with hops, and fermented with yeaſt. The liquor thus obtained, is agreeable. The ſeeds contain an eſſential oil, and will often cure intermittent fevers. Hogs are fond of the roots, and quickly grow fat with them. See Agriculture *Index.*

559. Smyrnium, or *Alexanders.*

Seven ſpecies; viz. perfoliatum, ægyptiacum, laterale, * oluſatrum, apiifolium, aureum, integerrimum. Italy, Crete, Egypt, N. America.

oluſatrum. S. ſtem-leaves growing by threes on leaf-ſtalks, ſerrated.—It was formerly cultivated in our gardens, but its place is now better ſupplied by celery. It is boiled, and greedily eaten by ſailors returning from long voyages, who happen to land at the ſouth-weſt corner of Angleſea.

560. Anethum, or *Dill.*

Three ſpecies; viz. graveolens, ſegetum, * fœniculum. Germany, Spain, Portugal.

foeniculum * A. leaves with many diviſions, hair-like; ſeeds egg-oblong, tapering at each end, not bordered.—The tender buds are uſeful in ſalads. The leaves, boiled, are uſed in ſauce for ſeveral kinds of fiſh, and eaten raw with pickled fiſh. In Italy the ſtalks are blanched as a winter ſalad. The ſeeds abound with an eſſential oil, which is carminative and diuretic, but not heating. The *papilio machaon* feeds upon it.

561. Carum, or *Caraways.*

Two ſpecies; viz. * carui, ſimplex. Europe.

carui. * C. The young roots, are ſaid to be better eating than parſnips; the tender leaves may be boiled with pot-herbs. The ſeeds are uſed in cakes. Incruſted with ſugar,

gar, they are called caraway comfits, and are diſtilled with ſpirituous liquors, for the ſake of the flavour they afford. The ſeeds were formerly recommended by Dioſcorides to pale-faced girls, and in more modern days their uſe is not forgotten.—They are no deſpicable remedy in tertian agues. They abound with an eſſential oil, which is antiſpaſmodic, and carminative. Sheep, goats, and ſwine, eat it. Cows and horſes are not fond of it.

562. PIMPINELLA, or *Burnet Saxifrage.*

Ten ſpecies; viz. * ſaxifraga, nigra, * magna, diſſecta, glauca, capenſis, peregrina, aniſum, dichotoma, * dioica. Europe, Egypt.

magna. * P. leaves uniform, winged; leafets ſpear-ſhaped, irregularly ſerrated; floral leaves wing-cleft.—This and the ſaxifraga partake nearly of the ſame qualities. The root is very acrid, burning the mouth like pepper. It affords a blue oil. Its acrimony hath occaſioned it to be uſed to cure the toothach, and to cleanſe the ſkin from freckles. It is chewed to promote the ſecretion of ſaliva, and is uſed in gargles for diſſolving viſcid mucus in the throat. In Germany it is preſcribed in the aſthma and dropſy. The *papilio machaon* is found upon both ſpecies.

563. APIUM, or *Parſley*,

Two ſpecies; viz. petroſelinum, * graveolens. Sardinia, Carolina.

graveolens * A. ſtem-leaves wedge-ſhaped.—The root in its wild ſtate (when it grows near water) is fetid, acrid, and noxious; but when cultivated in dry ground it loſes theſe properties, and the root and lower part of the leaf-ſtalks and ſtem, blanched by covering them up with earth, are eaten raw, boiled in ſoups, or ſtewed. In this latter ſtate it is called *celery*. They are ſaid to be hurtful to people ſubject to nervous complaints. They are certainly good antiſcorbutics. The ſeeds yield an eſſential oil. Sheep and goats eat it; cows are not fond of it; horſes refuſe it.

564. ÆGOPODIUM, or *Gout-weed.*

One ſpecies; viz.

podagraria * A. upper leaves three together; lower ones in triple threes.—The leaves may be eaten early in the ſpring with other pot-herbs. Cows, ſheep, and goats eat it; horſes are not fond of it. Europe.

ORDER III. TRIGYNIA.

565. SEMICARPUS.

One ſpecies; viz. anacardium. Ceylon.

566. RHUS, or *Sumach*, or *Poiſon-tree.*

33 ſpecies; viz. coriaria, tiphynum, javanicum, glabrum, elegans, vernix, ſuccedanium, ſemialatum, copallinum, alatum, pauciflorum, metopium, digitatum, cirrhiflorum, tridentatum, radicans, toxicodendron, aromaticum, ſuaveolens, dentatum, ſinuatum, cuneifolium, inciſum, tomentoſum, villoſum, pubeſcens, viminale, anguſtifolium, roſmarinifolium, lævigatum, lucidum, cotinus, aſtrum. S. Europe, Cape, China, N. Amer.

coriaria. R. with winged leaves, and leafets elliptical, bluntly toothed, woolly beneath. Called *common ſumach.*—This tree or ſhrub is cultivated in the ſouth of Europe on account of the culinary uſes of its fruits, and for the purpoſes of the dyers, &c. Among us it is met with only in the gardens of the curious. The ſeeds and berries are of a red colour, in ſhape round and flat. Both theſe and the leaves are moderately aſtringent, and have ſometimes been exhibited with this intention by medical practitioners; but they are not at preſent uſed.

copallinum. R. with winged entire leaves, with a membranaceous jointed leaf-ſtalk.—This tree grows in New Spain, and produces a reſin called *copal*, which is brought to us in irregular lumps, ſome tranſparent, of a yellow or brown colour; others ſemitranſparent and whitiſh. It is uſed for making a very pure and hard varniſh by painters. It has never come into uſe in medicine in this country, though it is introduced into ſome of the foreign pharmacopœias, and may be conſidered as an article deſerving attention.

567. VIBURNUM, or *Pliant Mealy-tree.*

23 ſpecies; viz. tinus, tinoides, villoſum, ſcandens, nudum, primifolium, davuricum, dentatum, plicatum, eroſum, * lantana, tomentoſum, hirtum, acerifolium, orientale, * opulus, dilatatum, macrophyllum, cuſpidatum, lentago, caſſinoides, nitidum, lævigatum. S. of Europe, N. America.

lantana. * V. leaves heart-ſhaped, ſerrated, veined, cottony underneath.—The bark of the root is uſed to make bird-lime. The berries are drying and aſtringent.

568. CASSINE, or *Caſhew-berry-buſh*, *South-Sea Tea.*

Four ſpecies; viz. capenſis, colpoon, barbara, maurocenia. C. of G. Hope.

569. SAMBUCUS, or *Elder-tree.*

Five ſpecies; viz. * ebulus, canadenſis, * nigra, japonica, racemoſa. Europe, China, N. America.

ebulus. * S. tufts with three diviſions; ſtipulæ leaf-like; ſtem herbaceous.—This plant has the ſame medical properties with the *S. nigra*, but in ſome reſpects more violent, and therefore leſs manageable: A dram and a half of the root is a ſtrong purge: The berries give out a violet colour: The green leaves drive away mice from granaries, and the Sileſians ſtrew them where their pigs lie, under a perſuaſion that they prevent ſome of the diſeaſes to which they are liable. Neither cows, goats, ſheep, horſes, or ſwine will eat it.

nigra. * S. tufts with five diviſions; leaves winged; leafets nearly egg-ſhaped, ſerrated; ſtem tree-like.—The whole plant has a narcotic ſmell; it is not well to ſleep under its ſhade. The wood is hard, tough, and yellow. It is commonly made into ſkewers for butchers; tops for angling-rods; and needles for weaving nets. It is not a bad wood to turn in the lathe. The inner green bark is purgative, and may be uſed with advantage where acrid purgatives are requiſite. In ſmaller doſes it is diuretic, and has done eminent ſervice in obſtinate glandular obſtructions, and in dropſies. If ſheep that have the rot are placed in a ſituation where they can get at the bark and the young ſhoots, they will ſoon cure themſelves. It is an ingredient in the black dye. The leaves are purgative like the bark, but more nauſeous. They are an ingredient in ſeveral cooling ointments. If turnip-cabbages, fruit-trees or corn, which are ſubject to blight from a variety of inſects are whipped with the green leaves and branches of elder, the inſects will not attack them. A decoction of the flowers taken internally, is ſaid to promote expectoration in pleuriſies. If the flowers are freſh gathered

gathered they looſen the belly. Externally they are uſed in fomentations to eaſe pain and abate inflammation. Many people uſe them to give a flavour to vinegar. They are fatal to turkies. A rob prepared from the berries is a gentle opener, and promotes perſpiration. The juice of the berries is employed to give a red colour to raiſin or ſugar wines. The berries are poiſonous to poultry. The pith being exceedingly light, is cut into balls uſed in electrical experiments. Sheep eat it; horſes, cows, and goats refuſe it. The *aphis ſambuci* and the *phalæna ambucaria* are found upon it.

570. SPATHELIA.
One ſpecies; viz. ſimplex. Jamaica.

571. STAPHYLEA, or *Bladder-nut*.
Three ſpecies; viz. occidentalis, pinnata, trifolia. S. Europe, Virginia, Jamaica.

572. TAMARIX, or *Tamariſk*.
Four ſpecies; viz. * gallica, ſongarica, germanica, articulata. Germany, France, Spain, Italy, Barbary.

573. XYLOPHYLLA, or *Love-flower*.
Seven ſpecies; viz. longifolia, latifolia, arbuſcula, falcata, anguſtifolia, montana, ramiflora. Siberia, Jamaica, Bahama iſles.

574. REICHELIA.
One ſpecies; viz. paluſtris.

575. SALMASIA.
One ſpecies; viz. racemoſa. Guiana.

576. TURNERA, or *Nettle-leaved Ciſtus*.
Nine ſpecies; viz. ulmifolia, pumilea, rupeſtris, fidoides, fruteſcens, rugoſa, ciſtoides, racemoſa, gujanenſis. Jamaica, Martinico, Guiana.

577. TELEPHIUM, or *True Orpine*.
Two ſpecies; viz. imperati, oppoſitifolium. S. of France, Italy, Barb.

578. CORRIGIOLA, or *Baſe Knot-graſs*.
Two ſpecies; viz. * littoralis, capenſis. Germany, France, Arabia.

579. PHARNACEUM.
14 ſpecies; viz. cerviana, lineare, teretifolium, microphyllum, marginatum, mollugo, glomeratum, ſerpyllifolium, quadrangulare, incanum, albens, dichotomum, diſtichum, cordifolium. Ruſſia, Spain, Aſia, Afr.

580. ALSINE, or *Chick-weed*.
Three ſpecies; viz. * media, ſegetalis, mucronata, S. Europe, Egypt.

581. DRYPIS.
One ſpecies; viz. ſpinoſa. Italy, Barbary.

582. BASELLA, or *Malabar Nightſhade*.
Five ſpecies; viz. rubra, alba, lucida, cordifolia, veſicaria. Eaſt Indies, China.

583. SAROTHRA, or *Baſe Gentian*.
One ſpecies; viz. gentianoides. Virginia, Penſylvania.

584. PORTULACARIA, or *Purſlane-tree*.
One ſpecies; viz. afra. Africa.

ORDER IV. TETRAGYNIA.

585. PARNASSIA, or *Graſs of Parnaſſus*.
One ſpecies; viz. * paluſtris. Europe.

586. EVOLVULUS.
Seven ſpecies; viz. mammilarius, gangeticus, emarginatus, alſinoides, hirſutus, linifolius, ſericeus. Eaſt Indies, Jamaica.

ORDER V. PENTAGYNIA.

587. ARALIA, or *Berry-bearing Angelica*.
10 ſpecies; viz. arborea, capitata, cordata, japonica, pentaphylla, ſeiodaphyllum, ſpinoſa, chinenſis, racemoſa, nudicaulis. China, W. Indies, N. America.

588. GLOSSOPETALUM.
Two ſpecies; viz. glabrum, tomentoſum. Guiana.

589. STATICE, *Thrift*, or *Sea-pink*.
37 ſpecies; viz. * armeria, juniperifolia, alliacea, cephalotes, graminifolia, * limonium, gmelini, ſcoparia, latifolia, oleæfolia, incana, auriculæfolia, cordata, ſcabra, tetragona, * reticulata, echiodes, ſpecioſa, tatarica, echinus, flexuoſa, purpurata, longifolia, minuta, pectinata, ſuffruticoſa, monopetala, axillaris, cylindrifolia, linifolia, aurea, ferulacea, pruinoſa, ſinuata, lobata, ſpicata, micronata. Europe, Barbary, Canary, Amer.
* S. ſtalk ſimple, with a head of flowers; leaves ſtrap-ſhaped.—It is much uſed in gardens as an edging for borders, and when in full bloſſom gives a glowing tinge to paſtures on the ſea coaſt. Horſes and goats eat it; ſheep are not fond of it. *armeria.*

590. LINUM, or *Flax*.
29 ſpecies; viz. * uſitatiſſimum, * perenne, viſcoſum, hirſutum, aquilinum, narbonenſe, reflexum, * tenuifolium, ſelaginoides, proſtratum, gallicum, maritinum, alpinum, auſtriacum, virginianum, flavum, monopetalum, ſtrictum, monogynum, ſuffruticoſum, arborcum, campanulatum, africanum, æthiopicum, nodiflorum, * catharticum, * radiola, quadrifolium, verticillatum. Europe, Africa, America.
* L. cal. and capſules dagger-pointed; petals ſcolloped; leaves ſpear-ſhaped; ſtem generally ſolitary.—This valuable plant originally came from thoſe parts of Egypt which are expoſed to the inundations of the Nile. The ſeeds yield, by expreſſion only, a large proportion of oil, which is an excellent pectoral, as is likewiſe the mucilaginous infuſion. They make an eaſy and uſeful poultice in caſes of external inflammation; and they are the food of ſeveral ſmall birds, After the oil is expreſſed, the remaining farinaceous part, called *oil-cake*, is given to oxen, who ſoon grow fat upon it. The oil itſelf differs in ſeveral reſpects from other expreſſed oils; it does not congeal in winter, nor does it form a ſolid ſoap with fixed alkaline ſalts; and it acts more powerfully as a menſtruum upon ſulphureous bodies. When heat is applied during the expreſſion it gets a yellowiſh colour, and a peculiar ſmell. In this ſtate it is uſed by the painters and the varniſhers. The fibres of the ſtem are manufactured into linen, and this linen, when worn to rags, is made into paper. *uſitatiſſimum.*
* L. leaves oppoſite, egg-ſpear-ſhaped, ſtem forked. Cor. pointed.—An infuſion of two drams or more of the dried plant is an excellent purge, and has been given with advantage in many obſtinate rheumatiſms. It frequently acts as a diuretic. Horſes, ſheep, and goats eat it. *catharticum.*

591.

591. Aldrovanda.
One ſpecies; viz. veſiculoſa. Italy, India.

592. Drosera, or *Sun-dew*.
10 ſpecies; viz. acaulis, * rotundifolia, cuneifolia, burmanni, * longifolia, capenſis, luſitanica, ciſtifolia, peltata, indica. Europe, Aſia, Africa, America.

rotundifolia. * D. ſtalks from the root; leaves circular.—The whole plant is acrid and ſufficiently cauſtic to erode the ſkin; but ſome ladies know how to mix the juice with milk, ſo as to make it an innocent and ſafe application to remove freckles and ſunburn. The juice that exſudes from it unmixed will deſtroy warts and corns. The plant has the ſame effect upon milk as the *pinguicula vulgaris*, and like that too is ſuppoſed to occaſion the rot in ſheep. The ſour coagulated milk of the Syrians, called *leban* or *leven*, is ſuppoſed to be at firſt prepared with ſome plant of this kind. The name *ſun-dew* ſeems to be derived from a very ſtriking circumſtance in the appearance of theſe plants; the leaves are fringed with hairs, ſupporting ſmall drops or globules of a pellucid liquor like dew, which continue even in the hotteſt part of the day and in the fulleſt expoſure to the ſun. Perhaps the acrimony of the plant reſides in this ſecreted liquor.

593. Gischia.
One ſpecies; viz. pharnacioides. Eaſt Indies.

594. Crassula, or *Leſſer Orpine*.
71 ſpecies; viz. coccinea, cymoſa, flava, pubeſcens, pruinoſa, ſcabra, corallina, veſtita, argentea, perfoliata, perforata, fruticuloſa, ramoſa, mollis, tetragona, muricata, imbricata, obvallata, cultrata, obliqua, ſpathulata, punctata, marginalis, cordata, lactea, arboreſcens, rupeſtris, pinnata, ſpinoſa, retroflexa, lineolata, centauroides, dichotoma, glomerata, pulchella, ſtrigoſa, muſcoſa, pyramidalis, columnaris, hemiſphærica, aleoides, capitella, cotyledonis, barbata, ciliata, thyrſiflora, ſpicata, ſubulata, alternifolia, rubens, ceſpitoſa, minima, moſchata, verticillaris, expanſa, dentata, nudicaulis, tecta, cephalophora, montana, turrita, alpeſtris, marginata, tomentoſi, crenulata, deltoidea, orbicularis, ſparſa, diffuſa, proſtrata, pellucida. Switzerland, Italy, Cape, China.

595. Mahernia.
Eight ſpecies, viz. verticillata, pinnata, pulchella, diffuſa, inciſa, glabrata, heterophylla, biſerrata. C. of G. Hope.

596. Commersonia.
One ſpecies; viz. echinata. Otaheite.

597. Sibbaldia.
Three ſpecies; viz. * procumbens, erecta, altaica. Siberia, Alps in Europe.

Order VI. DECAGYNIA.

598. Schefflera.
One ſpecies; viz. digita. South ſea iſles.

Order VII. POLYGYNIA.

599. Myosurus, or *Mouſe-tail*.
One ſpecies; viz. * minimus. Europe.

600. Zanthorhiza.
One ſpecies; viz. apiifolia.

In the claſs Pentandria are

325 Genera, including 2537 Species, of which 168 are found in Britain.

CLASSIS VI.
HEXANDRIA.

Ordo I. MONOGYNIA.

Sect. I. *Flores calyculati, calyce corollaque inſtructi, abſque ſpathis.*

602. Bromelia. Cor. 3-partita. Cal. 3-partitus, ſuperus. Bacca.
603. Pitcairnia. Cor. 3-partita. Cal. 3-partitus, ſemiſuperus. Capſula.
604. Tillandsia. Cor. 3-petala. Cal. 3-partitus, inferus. Sem. comoſa.
606. Burmannia. Cor. 3-petala. Cal. 1-phyllus, inferus, triquetro-alatus, coloratus.
607. Tradescantia. Cor. 3-petala. Cal. 3-phyllus, inferus. Filamenta barbata.
686. Stephania. Cor. 4-petala. Cal. 2-lobus. Germ. pedicellatum.

CLASS VI.
HEXANDRIA.

Order I. MONOGYNIA.

Sect. I. *Flowers double calyxed, furniſhed with a calyx and corolla, and without ſheathes,*

B. Cor. 3-partite. Cal. 3-partite, ſuperior. A berry.
P. Cor. 3-partite. Cal. 3-partite, half ſuperior. A capſule.
T. Cor. 3-petalous. Cal. 3-partite, inferior. Seeds hairy.
B. Cor. 3-petalous. Cal. 1 leaf, inferior, three-ſquare, winged, coloured.
T. Cor. 3-petals. Cal. 3-leaved, inferior. Filaments bearded.
S. Cor. 4 petals. Cal. 2-lobed. Germen on a pedicle.

690. Frankenia. Cor. 5-petala. Cal. 1-phyllus, inferus. Capſ. 1-locularis, polyſperma.

675. Cossignea. Cor. 5-petala. Cal. 5-partitus, Capſ. 3-locularis.

684. Loranthus. Cor. 6-partita. Cal. margo ſuperus. Bacca 1-ſperma.

687. Hillia. Cor. 6-fida. Cal. 6-phyllus, ſuperus. Fructus 2-locularis, polyſpermus.

685. Schradera. Cor. 6-fida. Cal. truncatus. Bacca polyſperma.

Duroia. Cor. 6-partita. Cal. truncatus. Pomum.

671. Richardia. Cor. 6-fida. Cal. 6-fidus, ſuperus. Sem. 3, nuda.

665. Tacca. Cor. 6-petala. Cal. 6-partitus. Bacca infera.

676. Barbacenia. Cor. 6-petala. Cal. 6-dentatus. Filamenta dentata. Capſula.

677. Berberis. Cor. 6-petala. Cal. 6-phyllus, inferus. Bacca 2 ſperma.

644. Leontice. Cor. 6-petala. Cal. 6-phyllus, inferus. Bacca inflata, ſupera.

679. Nandina. Cor. 6-petala. Cal. polyphyllus, imbricatus. Bacca 2-ſperma.

674. Prinos. Cor. 6-fida. Cal. 6-fidus, inferus. Bacca 6-ſperma.

678. Psathura. Cor. 6-fida. Cal. 6-dentatus. Pomum 6-loculare.

689. Canarina. Cor. 6-fida. Cal. 6-phyllus, ſuperus. Capſ. 6-locularis.

673. Achras. Cor. 12-fida. Cal. 6-phyllus, inferus. Bacca 12-ſperma.

683. Capura. Cor. 6-fida. Cal. nullus. Germen ſuperum. Bacca.

† *Chlora imperfoliata. Portlandia hexandra. Lythra, aliquot. Fumaria. Cucullaria.*

Sect. II. *Flores calyculati, calyce, corolla, ſpathiſque inſtructi.*

666. Corypha. Cor. 3-partita. Cal. 3-phyllus. Drupa.

667. Licuala. Cor. 3-partita. Cal. 3-partitus. Nectar. ſertiforme. Drupa.

608. Mnasium. Cor. 3-dentata. Cal. 3-partit. Spatha 2-valvis. Antheræ foliaceæ.

Sect. III. *Flores ſpathaceis glumacei.*

601. Urania. Cor. ſupera 3-petala. Spathæ alternæ.

610. Hæmanthus. Cor. ſupera, 6-partita. Involucrum polyphyllum, maximum.

613. Leucoium. Cor. ſupera, 6-petala, campanulata. Stamina æqualia.

614. Strumaria. Cor. 6-petala, plana.

612. Galanthus. Cor. ſupera, 6-petala. Nectar. campanulatum, extra ſtamina.

617. Pancratium. Cor. ſupera, 6-petala. Nectarium campanulatum, ſtaminibus terminatum.

622. Amaryllis. Cor. ſupera, 6-petala, irregularis. Stam. inæqualia, declinata.

618. Crinum. Cor. ſupera, 6-fida, baſi tubuloſa. Stam. diſtantia, fauci inſerta.

F. Cor. 3-petals. Cal. 1-leaf, inferior. Capſ. 1-cell, many ſeeds.

C. Cor. 5-petals. Cal. 5-partite. Capſ. 3-celled.

L. Cor. 6-partite. Cal. border ſuperior. Berry 1 ſeed.

H. Cor. 6-cleft. Cal. 6-leaved, ſuperior. Fruit 2 celled, many ſeeds.

S. Cor. 6-cleft. Cal. lopped. A berry with many ſeeds.

D. Cor. 6-partite. Cal. lopped. An apple.

R. Cor. 6-cleft. Cal. 6-cleft, ſuperior, 3 naked ſeeds.

T. Cor. 6-petals. Cal. 6-partite. Berry inferior.

B. Cor. 6-petals. Cal. 6-toothed. Filaments toothed. A Capſule.

B. Cor. 6-petals. Cal. 6-leaved, inferior. Berry 2-ſeeded.

L. Cor. 6-petals. Cal. 6-leaved, inferior. Berry inflated, ſuperior.

N. Cor. 6-petals. Cal. many leaved, tiled. Berry with 2 ſeeds.

P. Cor. 6-cleft. Cal. 6-cleft, inferior. Berry 6 ſeeds.

P. Cor. 6-cleft. Cal. 6-toothed. A 6-celled apple.

C. Cor. 6-cleft. Cal. 6-leaved, ſuperior. Capſ. 6-celled.

A. Cor. 12-cleft. Cal. 6-leafed, inferior. Berry 12-ſeeded.

C. Cor. 6-cleft. No calyx. Germen ſuperior, Berry.

Sect. II. *Double calyxed flowers, furniſhed with a corolla and ſheaths.*

C. Cor. 3-partite. Cal. 3-leaved. A drupe.

L. Cor. 3-partite. Cal. 3-partite. Nectary garland-ſhaped. A drupe.

M. Cor. 3-toothed. Cal. 3-partite. Sheath 2-valved. Anthers leafy.

Sect. III. *Flowers ſheathed huſked.*

U. Cor. ſuperior, 3-petaled. Sheathes alternate.

H. Cor. ſuperior, 6-partite. The involucrum many-leaved, very large.

L. Cor. ſuperior, 6-petaled, bell-ſhaped. Stamens equal.

S. Cor. 6-petaled, flat.

G. Cor. ſuperior, 6-petaled. Nectary bell-ſhaped, without the ſtamens.

P. Cor. ſuperior, 6-petaled. Nectary bell-ſhaped, ending with the ſtamens.

A. Cor. ſuperior, 6-petaled, irregular. The ſtamens unequal, bending.

C. Cor. ſuperior, 6-cleft, tubular at the baſe. Stamens diſtant, inſerted in the mouth.

621. Cyrtanthus. Cor. ſupera, 6-fida, clavata. Filamenta ſimplicia.
620. Eustephia. Cor. ſupera, 6-fida, tubuloſa. Filamenta tricuſpidata.
619. Agapanthus. Cor. infera, 6-fida, infundibuliformis, regularis.
609. Pontederia. Cor. infera, 6-fida, ringens.
624. Bulbocodium. Cor. infera, 6-petala; unguibus longiſſimis ſtaminiferis.
615. Tulbagia. Cor. infera, 6-petala; tribus inferioribus. Nectarium cylindricum extus petaliferum.
626. Allium. Cor. infera, 6-petala. Petala ovata, ſeſſilia.
636. Curculigo. Cor. infera, 6-petala. Styl. 3-partitus.
625. Aphyllanthes. Cor. infera, 6-petala. Spathæ dimidiatæ, glumoſæ.
611. Massonia. Cor. infera, 6-partita. Stem. nect. inſerta.
637. Hypoxis. Cor. ſupera, 6-petala. Spathæ glumaceæ.

Sect. IV. *Flores nudi.*

605. Xerophyta. Cor. 6-partita ſupera. Stigma clavatum.
661. Alstroemeria. Cor. ſupera, 6-petala, unguibus tubuloſis.
655. Lanaria. Cor. ſupera, 6-fida, ſubcampanulata.
662. Hemerocallis. Cor. infera, 6-partita. Stam. declinata.
660. Agave. Cor. ſupera, 6-fida, limbo erecto, filamentis brevior.
635. Gethyllis. Cor. ſupera, 6-partita. Bacca clavata, polyſperma.
659. Aloe. Cor. infera, 6-fida. Filam. receptaculo inſerta.
657. Aletris. Cor. infera, 6-fida, rugoſa. Stamina fauci inſerta.
656. Voltheimia. Cor. infera, 6-fida. Stamina corollæ baſi inſerta.
650. Polyanthes. Cor. infera, 6-fida, tubo curvato.
649. Convallaria. Cor. infera, 6-fida. Bacca triſperma.
648. Sanseviera. Cor. 6-partita, Bacca 1-ſperma.
652. Hyacinthus. Cor. infera, 6-fida, ſubcampanulata. Stamina receptaculo inſerta.
651. Drimia. Cor. infera, 6-fida, campanulata. Stamina tubo corollæ inſerta.
623. Millea. Cor. infera, 6-fida, infundibulif. Germen pedicellatum.
642. Asphodelus. Cor. infera, 6-partita. Nectarii valvulis 6 ſtaminiferis.
629. Eucomis. Cor. infera, 6-partita, perſiſtens. Filamenta nectario adnata.
642. Anthericum. Cor. infera, 6-petala, plana.
681. Enargea. Cor. infera, 6-petala, petalis alternè baſi biglanduloſis.
653. Phormium. Cor. infera, 6-petala, inæqualis. Capſ. triquetra.
654. Lachenalia. Cor. infera, 6-petala, inæqualis. Capſ. trialata.

C. Cor. ſuperior, 6-cleft, club-ſhaped. Filaments undivided.
E. Cor. ſuperior, 6-cleft, tubular. Filaments 3-pointed.
A. Cor. inferior, 6-cleft, funnel-ſhaped, regular.

P. Cor. inferior, 6-cleft, gaping.
B. Cor. inferior, 6-petaled, with very long claws bearing the ſtamens.
T. Cor. inferior, 6-petals; three inferior. A cylindrical nectary without, bearing the petals.
A. Cor. inferior, 6-petaled. Petals oval, ſitting.

C. Cor. inferior, 6-petaled. Styl. 3-partite.

A. Cor. inferior, 6-petaled. Sheaths extending half round, huſky.
M. Cor. inferior, 6-partite. Stamens inſerted in a nectary.
H. Cor. ſuperior, 6.petaled. Sheaths huſky.

Sect. IV. *Flowers naked.*

X. Cor. 6-partite ſuperior. Stigma club-ſhaped.

A. Cor. ſuperior, 6-petaled, with tubular claws.

L. Cor. ſuperior, 6-cleft, nearly bell-ſhaped.

H. Cor. inferior, 6-partite. Stamens bent.

A. Cor. ſuperior, 6-cleft, with an erect border ſhorter than the filaments.
G. Cor. ſuperior, 6-partite. Berry club-ſhaped, many ſeeded.
A. Cor. inferior, 6-cleft. Filaments inſerted in the receptacle.
A. Cor. inferior, 6-cleft, wrinkled. Stamens inſerted in the mouth.
V. Cor. inferior, 6-cleft. Stamens inſerted in the baſe of the corolla.
P. Cor. inferior, 6-cleft, with a crooked tube.

C. Cor. inferior, 6-cleft. Berry 3-ſeeded.

S. Cor. inferior, 6-partite. Berry 1-ſeeded.

H. Cor. inferior, 6-cleft, nearly bell-ſhaped. Stamens inſerted in the receptacle.
D. Cor. inferior, 6-cleft. Bell-ſhaped. Stamens inſerted in the tube of the corolla.
M. Cor. inferior, 6-cleft, funnel-ſhaped. Germen on a pedicle.
A. Cor. inferior, 6-cleft. Nectaries with 6 valves, bearing the ſtamens.
E. Cor. inferior, 6-partite, permanent. Filments connected with the nectary.
A. Cor. inferior, 6-petals, flat.
E. Cor. inferior, 6-petals, the petals alternately biglandular at the baſe.
P. Cor. inferior, 6-petals, unequal. Capſ. with 3 flat ſides.
L. Cor. inferior, 6-petals, unequal. Capſ. 3-winged.

* 639. Ornithogalum. Cor. infera, 6-petala. Filam. alternis basi dilatatis.

638. Eriospermum. Cor. infera, 6-petala. Filam. lanceolata. Sem. lanata.

* 640. Scilla. Cor. infera, 6-petala, decidua. Filam. filiformia.

641. Cyanella. Cor. infera, 6-petala; petalis exterioribus propendentibus.

682. Philesia. Cor. infera, 6-petala, tribus interioribus duplo longioribus.

680. Lindera. Cor. infera, 6-petala. Capſ. 2-locularis.

647. Dracæna. Cor. infera, 6-petala. Bacca 3-ſperma.

* 646. Asparagus. Cor. infera, 6-petala. Bacca 6-ſperma.

645. Pollia. Cor. infera, 6-petala. Bacca polyſperma.

631. Gloriosa. Cor. infera, 6-petala, reflexa, caudata.

630. Uvularia. Cor. infera, 6-petala, basi fovea nectarifera; erecta.

* 628. Fritillaria. Cor. infera, 6-petala, basi fovea nectarifera; ovata.

627. Lilium. Cor. infera, 6-petala; petalis basi canaliculato-tubulosis.

* 633. Tulipa. Cor. infera, 6-petala, campanulata ſtylus 0.

658. Yucca. Cor. infera, 6-petala, patens. Stylus 0.

634. Albuca. Cor. infera, 6-petala, 3 exterioribus patulis, 3 interioribus conniventibus. Stigma cinctum cuſpidibus 3.

Sect. V. *Flores incompleti.*

664. Orontium. Spadix multiflorus. Follic. 1-ſpermus.

* 663. Acorus. Spadix multiflorus. Capſ. 3-locularis.

669. Calamus. Cal. 6-phyllus. Peric. retrorſum imbricatum, 1-ſpermum.

* 670. Juncus. Cal. 6-phyllus. Capſ. 1-locularis.

668. Thrinax. Cal. 6-dentatus. Drupa.

* 691. Peplis. Cal. 12-fidus. Capſ. 2-locularis.

Sect. VI. *Gramina.*

693. Bambusa. Cal. 0. Cor. 2-valvis.

692. Gahnia. Cal. 1-valv. Cor. 2-valvis.

694. Ehrharta. Cal. 2-valv. Cor. duplex.

Ordo II. DIGYNIA.

679. Falkia. Cal. 5-partitus. Cor. 1-petala. Sem. 4.

698. Atraphaxis. Cal. 2-phyllus. Cor. 2-petala. Sem. compreſſum.

696. Nectris. Cal. 6-partit. Cor. 0. Capſ. 2, polyſpermæ.

695. Oryza. Gluma 1-flora. Cor. 2-glumis. Sem. 1, oblongum.

† *Leerſia hexandria. Ehrhartæ nonnullæ.*

* O. Cor. inferior, 6-petals. The alternate filaments dilated at the baſe.

E. Cor. inferior, 6-petals. Filaments ſpear-ſhaped. Seeds woolly.

* S. Cor. inferior, 6-petals, deciduous. Filam. thread-ſhaped.

C. Cor. inferior, 6-petals; outer petals hanging over.

P. Cor. inferior, 6-petals, the three inner of a double length.

L. Cor. inferior, 6-petals. Capſ. 2-celled.

D. Cor. inferior, 6-petals. A berry, 3-ſeeded.

* A. Cor. inferior, 6-petals. A berry, 6-ſeeded.

P. Cor. inferior, 6-petals. Berry many-ſeeded.

G. Cor. inferior, 6-petals, bent back, tailed.

U. Cor. inferior, 6-petals, with a honey-bearing hollow at the baſe, erect.

* F. Cor. inferior, 6-petals, with a honey-bearing hollow at the baſe, oval.

L. Cor. inferior, 6-petals, the petals tubular-channelled at the baſe.

* T. Cor. inferior, 6-petals, bell-ſhaped. No ſtyle.

Y. Cor. inferior, 6-petals, expanding. No ſtyle.

A. Cor. inferior, 6-petaled, the 3 outer open, the three inner converging. The ſtigma ſurrounded by 3 prickles.

Sect. V. *Incomplete flowers.*

O. Sheathed fruit-ſtalk, many-flowered. Air-bag 1-ſeeded.

* A. Sheathed fruitſtalk, many flowered. Capſ. 3-celled.

C. Cal. 6-leafed. Seed-veſſel tiled backwards. One ſeed.

* J. Cal. 6-leaved. Capſ. 1-celled.

T. Cal. 6-toothed. A drupe.

* P. Cal. 12-cleft. Capſ. 2-celled.

Sect. VI. *Graſſes.*

B. No cal. Cor. 2-valved.

G. Cal. 1-valved. Cor. 2-valved.

E. Cal. 2-valved. Cor. double.

Order II. DIGYNIA.

F. Cal. 5-partite. Cor. 1-petal. Seeds 4.

A. Cal. 2-leaved. Cor. 2-petaled. Seed compreſſed.

N. Cal. 6-partite. No cor. Capſ. 2, many ſeeded.

O. A huſk, 1-flowered. Cor. with 2 huſks. One oblong ſeed.

Ordo

Ordo III. TRIGYNIA.

Sect. I. *Flores inferi.*

703. Wurmbea. Cor. 6-fida, tubulosa.
* 707. Colchicum. Cal. spatha. Cor. 6-petaloidea.
704. Melanthium. Cal. o. Cor. 6-petala, petalis staminiferis.
705. Medeola. Cal. o. Cor. 6 petala. Bacca 3-cocca.
708. Helonias. Cal. o. Cor. 6-petala. Caps. 3-locul.
706. Trillium. Cal. 3-phyllus. Cor. 3-petala. Bacca 3-locularis.
* 702. Triglochin. Cal. 3-phyllus. Cor. tripetala. Caps. basi dehiscens.
* 669. Rumex. Cal. 3-phyllus. Cor. 3-petala. Sem. 1, triquetrum.
701. Scheuchzeria. Cal. 6-phyllus. Cor. o. Caps. 3, 1-spermæ.

† *Xylophylla latifolia.*

Sect. II. *Flores superi.*

700. Flagellaria. Cal. 6-phyllus. Cor. o. Pericarpium 1-spermum.

Ordo IV. HEXAGYNIA.

710. Damosonium. Spatha. Cal. 5-partit. Cor. 3-petala. Bacca 10-locularis.
709. Wendlandia. Cal. 6-phyl. Cor. 6-petala. Caps. 6, monospermæ.

Ordo V. POLYGYNIA.

* 711. Alisma. Cal. 3-phyllus. Cor. 3-petala. Pericarp. plura.

Order III. TRIGYNIA.

Sect. I. *Flowers inferior.*

W. Cor. 6-cleft, tubular.
* C. Cal. a sheath. Cor. 6-petaled.
M. No cal. Cor. 6-petaled, with petals bearing the stamens.
M. No cal. Cor. 6-petaled. A berry 3-celled.

H. No cal. Cor. 6-petaled. Caps. 3-celled.

T. Cal. 3-leaved. Cor. 3-petaled. Berry 3-celled.

* T. Cal. 3-leaved. Cor. 3-petalous. Caps. opening at the base.
* R. Cal. 3-leaved. Cor. 3-petaled. Seed 1, triangular.
S. Cal. 6-leaved. No cor. Caps. 3, 1-seeded.

Sect. II. *Flowers superior.*

F. Cal. 6-leafed. No cor. Seed-vessel with 1-seed.

Order IV. HEXAGYNIA.

D. A sheath. Cal. 5-partite. Cor. 3-petaled. Berry 10-celled.
W. Cal. 6-leaved. Cor. 6-petaled. Caps. 6, 1-seeded.

Order I. POLYGYNIA.

* A. Cal. 3-leaved. Cor. 3-petals. Several seed-vessels.

Order I. MONOGYNIA.

601. Urania.
One species; viz. specioſa. Isle of Madagascar.

602. Bromelia, or *Pine-apple, Ananas.*
10 species; viz. ananas, pinguin, karatas, lingulata, bracteata, paniculigera, chrysantha, nudicaulis, humilis, acanga. W. Indies, S. America.—The ananas is the most grateful of all the tropical fruits. It requires a very powerful heat for its cultivation in hot-houses.

603. Pitcairnia.
Three species; viz. bromeliæfolia, angustifolia, latifolia. Jamaica, Santa Cruz.

604. Tillandsia.
16 species; viz. utriculata, serrata, lingulata, tenuifolia, flexuosa, setacea, paniculata, fasciculata, nutans, polystachya, monostachya, pruinosa, canescens, angustifolia, recurvata, usneoides. North America, Jamaica.

605. Xerophyta.
One species; viz. pinifolia. Isle of Madagascar.

606. Burmannia.
One species; viz. districha biflora. Ceylon, Virginia.

607. Tradescantia, or *Virginian Spider-wort.*
17 species; viz. virginica, crassifolia, erecta, zanonia, discolor, malabarica, nervosa, divaricata, geniculata, monandra, multiflora, cordifolia, procumbens, axillaris, formosa, cristata, papilionacea. Virginia, Maryl. E. and W. Indies.

608. Mnasium.
One species; viz. paludosum. Guiana.

609. Pontederia.
Six species; viz. rotundifolia, azurea, vaginalis, limosa, cordata, hastata. East and West Indies.

610. Hæmanthus, or *Blood-flower.*
14 species; viz. coccineus, coarctatus, puniceus, multiflorus, tigrinus, quadrivalvis, pubescens, ciliaris, albiflos,

albiflos, toxicarius, lanceæfolius, carinatus, pumilis, ſpiralis. Africa.

611. Massonia.

Four ſpecies; viz. latifolia, anguſtifolia, undulata, echinata. Cape of Good Hope.

612. Galanthus, or *Snow-drop*.

One ſpecies; viz. * nivalis. South of Europe.

613. Leucoium, or *Greater Snow-drop*.

Three ſpecies; viz, * vernum, * æſtivum, autumnale. Germany, Switzerland, Italy, Cape.

614. Strumaria.

Six ſpecies; viz. linguæfolia, truncata, rubella, undulata, anguſtifolia, filifolia.

615. Tulbagia.

Two ſpecies; viz. alliacea, cepacea. Cape of Good Hope.

616. Narcissus, or *Daffodil*.

17 ſpecies; viz. * poeticus, incomparabilis, * pſeudonarciſſus, bicolor, minor, moſchatus, triandrus, orientalis, trilobus, odorus, * biflorus, calathinus, tazetta, dubius, bulbocodium, ſerotinus, jonquilla. South of Europe, Levant.

617. Pancratium, or *Sea-daffodil*.

11 ſpecies; zeylanicum, mexicanum, humile, caribæum, maritimum, fragrans, littorale, ſpecioſum, amœnum, illyricum, amboinenſe. S. Europe, America, E. and W. Indies.

618. Crinum, or *Aſphodel lily*.

Five ſpecies; viz. aſiaticum, americanum, erubeſcens, bracteatum, nervoſum. Aſia, Africa, America.

619. Agapanthus, or *African Blue-lily*.

Two ſpecies; viz. umbellatus, enſifolius. Cape of Good Hope.

620. Eustephia.

One ſpecies; viz. coccinea.

621. Cyrtanthus.

Three ſpecies; viz. anguſtifolius, ventricoſus, oblimus. Guiana.

622. Amaryllis, or *Lily-daffodil*.

38 ſpecies; viz. lutea, pumilio, bubiſpatha, tubiflora, atamaſco, maculata, chilenſis, clavata, formoſiſſima, reginæ, purpurea, linearis, equeſtris, reticulata, tatarica, belladonna, vittata, falcata, ornata, longifolia, montana, zeylanica, revoluta, latifolia, aurea, orientalis, ſarnienſis, marginata, curvifolia, undulata, radiata, humilis, flexuoſa, radula, ſtriata, criſpa, ſtellaris, caſpia. S. Europe, Cape, E. Indies, America.

623. Millea.

One ſpecies; viz. biflora.

624. Bulbocodium, or *Mountain-ſaffron*.

One ſpecies; viz. vernum. Spain.

625. Aphyllanthes.

One ſpecies; viz. monſpelienſis. Montpellier.

626. Allium, or *Garlick*.

53 ſpecies; viz. * ampeloprafum, porrum, lineare, ſuaveolens, deflexum, rotundum, victorialis, ſubhirſutum, magicum, obliquum, ramoſum, tataricum, roſeum, * ſativum, ſcorodoprafum, * arenarium, * carinatum, ſphærocephalon, parviflorum, pallaſii, deſcendens, moſchatum, flavum, pallens, paniculatum, * vineale, * oleraceum, nutans, aſcalonicum, ſeneſcens, illyricum, odorum, inodorum, anguloſum, ſtriatum, narciſſiflorum, pedemontanum, nigrum, canadenſe, * urſinum, cluſianum, triquetrum, cepa, moly, tricoccum, fiſtuloſum, * ſchoenoprafum, fibiricum, ſtellerianum, capillare, tenuiſſimum, gracile, chamæ-moly. Europe, N. America, Jamaica.

* A. umbel globular; ſtamens 3-pointed, petals rough on the heel.—This is eaten along with other pot-herbs. It communicates its flavour to the milk and butter of cows that eat it. *ampeloprafum.*

* A. filaments undivided; leaves ſemi-cylindrical, rough furrowed underneath; (leaves not rough.)—The tender leaves are very commonly boiled in ſoups, or fried with other herbs. Cows, goats, ſheep, and ſwine, eat it. *oleraceum.*

* A. ſtalk 3-ſquare; leaves ſpear-ſhaped on leaf-ſtalks; umbel flat-topped.—An infuſion of this plant in brandy is eſteemed a good remedy for the gravel. Other plants growing near it do not flouriſh. Cows eat it in the ſpring when graſs is ſcarce; but it communicates an offenſive flavour to the milk and butter. *urſinum.*

A.—The roots of this plant, which is the proper garlick, are of an irregularly roundiſh ſhape, with ſeveral fibres at the bottom; each root is compoſed of a number of leſſer bulbs, called *cloves of garlick*, encloſed in one common membranaceous coat, and eaſily ſeparated from each other. All the parts of this plant, but more eſpecially the roots, have a ſtrong offenſive ſmell, and an acrimonious, almoſt cauſtic, taſte. The root applied to the ſkin inflames and often exulcerates the part. Its ſmell is extremely penetrating and diffuſive. When the root is applied to the feet, its ſcent is ſoon diſcoverable in the breath; and when taken internally its ſmell is communicated to the urine, or the matter of an iſſue, and perſpires through the pores of the ſkin. *ſativum.*

This pungent root warms and ſtimulates the ſolids, and attenuates tenacious juices. Hence in cold leucophlegmatic habits, it proves a powerful expectorant diuretic, and, if the patient be kept warm, ſudorific; it has alſo been by ſome ſuppoſed to be an emmenagogue. In catarrhous diſorders of the breaſt, flatulent colics, hyſterical and other diſeaſes, proceeding from laxities of the ſolids, it has generally good effects; it has likewiſe been found ſerviceable in many hydropic caſes. Sydenham relates, that he has ſeen the dropſy cured by the uſe of garlick alone; he recommends it chiefly as a warm ſtrengthening medicine in the beginning of the diſeaſe.

Garlick is with ſome alſo a favourite remedy in the cure of intermittents; and it has been ſaid to have ſometimes ſucceeded in obſtinate quartans after the Peruvian bark had failed, particularly when taken to the extent of one or two cloves daily in a glaſs of brandy or other ſpirits. The liberal uſe of garlick, however, is apt to occaſion headachs, flatulencies, thirſt, febrile heats, inflammatory diſtempers, and ſometimes diſcharges of blood from the hæmorrhoidal veſſels. In hot bilious conſtitutions, where there is already a degree of irritation, and where there is reaſon to ſuſpect an unſound ſtate of the viſcera, this ſtimulating medicine is manifeſtly improper, and never fails to aggravate the diſtemper.

The moſt commodious form of taking garlick, a medicine to moſt people not a little unpleaſant, is that

of a bolus or pill. Infuſions in ſpirit, wine, vinegar, and water, although containing the whole of its virtues, are ſo acrimonious as to be unfit for general uſe. A ſyrup and oxymel of it were formerly kept in the ſhops; but it does not now enter any officinal preparation in our pharmacopœias; and it is proper that even the pills ſhould always be an extemporaneous preſcription, as they ſuffer much from keeping.

Garlick made into an ointment with oils, &c. &c. applied externally, is ſaid to reſolve and diſcuſs cold tumours, and has been by ſome greatly eſteemed in cutaneous diſeaſes. It has likewiſe ſometimes been employed as a repellent. When applied under the form of a poultice to the pubes, it has ſometimes proved effectual in producing a diſcharge of urine, when retention has ariſen from want of a due action of the bladder; and ſome have recommended, in certain caſes of deafneſs, the introduction of a ſingle clove, wrapt in thin muſlin or gauze, into the meatus auditorius or paſſage of the ear. Sydenham aſſures us, that among all the ſubſtances which occaſion a derivation or revulſion from the head, none operates more powerfully than garlick applied to the ſoles of the feet; hence he was led to make uſe of it in the confluent ſmallpox. About the eighth day after the face began to ſwell, the root cut in pieces, and tied in a linen cloth, was applied to the ſoles, and renewed twice a-day till all danger was over.

The roots of the *allium cepa*, or *onion*, are conſidered rather as articles of food than of medicine. They are ſuppoſed to afford little nouriſhment, and when eaten liberally in their raw ſtate, produce flatulencies, occaſion thirſt, headachs, and troubleſome dreams. In cold phlegmatic habits, where viſcid mucus abounds, they doubtleſs have their uſe; as by their ſtimulating quality they tend to excite appetite, attenuate thick juices, and promote their expulſion: by ſome they are ſtrongly recommended in ſuppreſſions of urine, and in dropſies. The chief medicinal uſe of onions in the preſent practice is in external applications, boiled as a cataplaſm, for ſuppurating tumours.

627. Lilium, or *Lily*.

16 ſpecies; viz. cordifolium, longiflorum, candidum, japonicum, lancifolium, bulbiferum, cateſbæi, ſpecioſum, pomponium, chalcedonicum, ſuperbum, martagon, canadenſe, maculatum, kamſchatcenſe, philadelphicum. Europe, Japan, N. America.—The *Lilium candidum*, or *white lily*, is cultivated in gardens more for its beauty than utility. The mucilaginous root is uſed by ſome as a poultice; but it poſſeſſes no advantage over the poultices formed of vegetable farinæ.

628. Fritillaria, or *Crown-imperial, Fritillary*.

Six ſpecies; viz. imperalis, perſica, verticillata, pyrenaica, * meleagris, latifolia. Auſt. Pyren. Italy, Perſ.

629. Eucomis.

Five ſpecies; viz. nana, bifolia, regia, undulata, punctata. C. of G. Hope.

630. Uvularia.

Six ſpecies; viz. amplexifolia, hirta, lanceolata, perfoliata, ſeſſilifolia, cirrhoſa. Germany, N. Amer. Jap.

631. Gloriosa, or *Superb Lily*.

Two ſpecies; viz. ſuperba, ſimplex. Guiana, E. Indies.

632. Erythronium, or *Dogs-tooth Violet*.

One ſpecies; viz. dens canis. Siberia, Italy, Virg. Carolina.

633. Tulipa, or *Tulip*.

Five ſpecies; viz. * ſylveſtris, ſuaveolens, geſneriana, biflora, breyniana. S. Eur. Levant, Cape.

634. Albuca, or *Baſe Star of Bethlehem*.

14 ſpecies; viz. altiſſima, major, flaccida, minor, viridiflora, coarctata, faſtigiata, candata, ſetoſa, aurea, abyſſinica, fragrans, viſcoſa, ſpiralis. C. of G. Hope.

635. Gethyllis.

Five ſpecies; viz. ſpiralis, ciliaris, villoſa, plicata, lanceolata. C. of G. Hope.

636. Curculigo.

One ſpecies; viz. orchioides.

637. Hypoxis, or *Baſe Star-flower*.

15 ſpecies; viz. erecta, ſobolifera, villoſa, decumbens, obliqua, aquatica, minuta, alba, ovata, veratrifolia, ſtellata, ſerrata, juncea, faſcicularis, ſeſſilis. N. Amer. Jamaica, Cape, Japan.

638. Eriospermum.

Three ſpecies; viz. latifolium, lanceæfolium, parvifolium.

639. Ornithogalum, or *Star of Bethlehem*.

43 ſpecies; viz. uniflorum, ſtriatum, bulbiferum, ſpathaceum, bohemicum, * luteum, minimum, circinatum, paradoxum, niveum, * umbellatum, * pyrenaicum, ſtachyoides, lacteum, ovatum, ciliatum, crenulatum, piloſum, revolutum, conicum, narbonenſe, latifolium, altiſſimum, ſcilloides, longebracteatum, japonicum, comoſum, pyramidale, tenellum, odoratum, ſuaveolens, ſecundum, fuſcatum, barbatum, polyphyllum, juncifolium, rupeſtre, arabicum, thyrſoides, aureum, coarctatum, candatum, nutans. Eur. Egypt, Madeira, Cape.

* O. ſtalk angular, 2-leaved; fruitſtalks in an unbranched umbel.—The bulbous roots of all the ſpecies are nutritious and wholeſome, and thoſe of this ſpecies have been employed for food in a ſcarcity of proviſion. Horſes, goats, and ſheep eat it; ſwine are not fond of it; cows refuſe it. *luteum.*

640. Scilla or *Squill*.

16 ſpecies; viz. maritima, lilio-hyacinthus, italica, tetraphylla, peruviana, japonica, amœna, præcox, campanulata, * bifolia, * verna, luſitanica, orientalis, hyacinthoides, * autumnalis, unifolia. Eur. Barb. Madeira, Japan.

S. flowers naked; floral leaves bent backwards as if broken.—This is the ſquill or ſea-onion well known in medicine. It is a kind of onion growing ſpontaneouſly upon dry ſandy ſhores in Spain and the Levant, from whence the root is annually brought into Europe. It ſhould be choſen plump, ſound, freſh, and full of clammy juice: ſome have preferred the red ſort, others the white, though neither deſerves the preference to the other. The only difference perceivable between them is that of the colour, and hence both may be uſed promiſcuouſly. This root is to the taſte very nauſeous, intenſely bitter, and acrimonious. Much handled it ulcerates the ſkin. With regard to its medical *maritima.*

dical virtues, it powerfully ſtimulates the ſolids and attenuates viſcid juices; and by theſe qualities promotes expectoration, urine, and, if the patient be kept warm, ſweat: if the doſe be conſiderable it proves emetic, and ſometimes purgative. The principal uſe of this medicine is where the *primæ viæ* abound with mucous matter, and the lungs are oppreſſed by tenacious phlegm. Dr Wagner, in his clinical obſervations, recommends it given along with nitre in hydropical ſwellings, and in the nephritis; and mentions ſeveral cures that he performed by giving from four to ten grains of the powder for a doſe, mixed with a double quantity of nitre: he ſays, that thus managed, it almoſt always operates as a diuretic, though ſometimes it vomits or purges. In dropſy, dried ſquills are often combined with mercury. The moſt commodious form for the taking of ſquills, unleſs when deſigned as an emetic, is that of a bolus or pill: liquid forms are to moſt people too offenſive, though theſe may be rendered leſs diſagreeable both to the palate and ſtomach by the addition of aromatic diſtilled waters. This root yields the whole of its virtues both to aqueous and to vinous menſtrua, and likewiſe to vegetable acids. Its officinal preparations are a conſerve of dried ſquills, a ſyrup, and vinegar, an oxymel, and pills.

641. CYANELLA.

Four ſpecies; viz. capenſis, orchidiformis, lutea, alba. C. of G. Hope.

642. ASPHODELUS, or *Aſphodel*, or *Kings-ſpear*.

Seven ſpecies; viz. luteus, creticus, ramoſus, albus, fiſtuloſus, altaicus, liburnicus. Auſtria, S. Europe.

643. ANTHERICUM, or *Spider-wort*.

55 ſpecies; viz. * ferotinum, fragrans, filifolium, flexifolium, filiforme, exuviatum, elongatum, græcum, planifolium, ſquameum, comoſum, floribundum, revolutum, ramoſum, elatum, falcatum, contortum, veſpertinum, graminifolium, japonicum, longifolium, hirſutum, adenanthera, reflexum, piloſum, undulatum, triflorum, * canaliculatum, albucoides, liliago, liliaſtrum, ſpirale, fruteſcens, roſtratum, alooides, nutans, incurvum, latifolium, pugoniforme, præmoiſum, aſphodeloides, longiſcapum, annuum, hiſpidum, muricatum, ciliatum, cauda felis, triquetrum, ſcabrum, cirrhatum, criſpum, * oſſifragum, phyſodes, puſillum, * calyculatum. Alps of Swed. S. Eur. Cape, Japan.

oſſifragum * A.—It is believed in Sweden to be noxious to ſheep, and has been ſuppoſed to ſoften the bones of animals that eat it. Cows and horſes eat it; ſheep and ſwine refuſe it.

644. LEONTICE, or *Lions Leaf*.

Five ſpecies; viz. chryſogonum, leontopetalum, veſicaria, altaica, thalietroides. Levant, N. America.

645. POLLIA.

One ſpecies; viz. japonica. Japan.

646. ASPARAGUS.

20 ſpecies; viz. * officinalis, declinatus, decumbens, flexuoſus, ſcandens, falcatus, racemoſus, retrofractus, æthiopicus, aſiaticus, albus, acutifolius, ſubulatus, dependens, horridus, aphyllus, lanceus, capenſis, ſarmentoſus, verticillaris. S. Eur. Aſia, Africa.

officinalis. * A. ſtem herbaceous, cylindrical, upright; leaves briſtle-ſhaped; leaf-ſcales ſolitary or in pairs; male and female flowers ſometimes on diſtinct plants.—The young ſhoots of this plant, in its cultivated ſtate, are very univerſally eſteemed for their flavour and nutritious qualities. They impart to the urine the ſcent of water in which they have been boiled. The *ſparagus chryſomela* lives upon it.

647. DRACÆNA, or *Dragon-tree*.

14 ſpecies; viz. draco, indiviſa, umbraculifera, auſtralis, cernua, ferrea, terminalis, marginata, ſtriata, undulata, erecta, enſifolia, borealis, graminifolia. Cape. E. Indies, China, N. America.

648. SANSEVIERA.

Three ſpecies; viz. guineenſis, zeylanica, lanuginoſa.

649. CONVALLARIA, or *Lily of the Valley*.

11 ſpecies; viz. * majalis, japonica, ſpicata, * verticillata, * polygonatum, * multiflora, latifolia, racemoſa, ſtellata, trifolia, bifolia. N. Eur. N. America, Japan.

* C. ſtalk naked, ſemi-cylindrical; flowers ſpiked, nodding.—The flowers are highly fragrant, but when dried are of a narcotic ſcent: reduced to powder, they excite ſneezing. An extract prepared from the flowers, or from the roots, partakes of the bitterneſs as well as of the purgative properties of aloes. The doſe from 20 to 30 grains. A beautiful and durable green colour may be prepared from the leaves by the aſſiſtance of lime. Sheep and goats eat it; horſes, cows, and ſwine, refuſe it. *majalis.*

* C. leaves alternate, embracing the ſtem; ſtem 2-edged; fruitſtalks axillary, moſtly 1-flowered.—In a ſcarcity of proviſions the roots have been made into bread. Sheep and goats eat it; horſes, cows, and ſwine refuſe it. *polygonatum.*

* C. leaves alternate embracing the ſtem; ſtem cylindrical: fruit-ſtalks axillary, many-flowered.—The young ſhoots are eaten by the Turks as aſparagus, and the roots have been made into bread as the *C. polygonatum*. Cows, goats, and ſheep eat it. *multiflora.*

650. POLYANTHUS, or *Tuberoſe*.

Two ſpecies; viz. tuberoſa, pygmæa. E. Indies.

651. DRIMIA.

Five ſpecies; viz. ciliaris, elata, puſilla, undulata, media.

652. HYACINTHUS, or *Hyacinth*.

13 ſpecies; viz. * non-ſcriptus, cernuus, amethyſtinus, orientalis, flexuoſus, corymboſus, convallarioides, brevifolius, romanus, muſcaris, comoſus, betryoides, racemoſus. S. Eur. Levant.

* H. bloſſoms tubular-bellſhaped, with ſix diviſions, ſegments rolled back; floral leaves in pairs.—The freſh roots are poiſonous: They may be converted into ſtarch. *Phalæna plantaginis* lives upon it. *non-ſcriptus.*

653. PHORMIUM.

One ſpecies; viz. tenax.

654. LACHENALIA.

24 ſpecies; viz. glaucina, orchioides, pallida, hyacinthoides, anguſtifolia, contaminata, viridis, ſerotina, puſilla, patula, fragrans, liliiflora, puſtulata, purpureo-coerulea, violacea, purpurea, lanceæfolia, unifolia, hirta, iſopetala, tricolor, rubida, punctata, pendula. Cape, New Zealand.

655. Lanaria.

One ſpecies; viz. plumoſa. C. of G. Hope.

656. Veltheimia.

Four ſpecies; viz. viridifolia, glauca, uvaria, pumila.

657. Aletris, or *Baſe Aloe.*

Two ſpecies; viz. farinoſa, fragrans. Afr. N. Amer. Ceylon, Japan.

658. Yucca, or *Adam's Needle.*

Four ſpecies; viz. glorioſa, aloifolia, draconis, filamentoſa. Amer.

659. Aloe, or *Aloe.*

17 ſpecies; viz. dichotoma, ſpicata, perfoliata, picta, ſinuata, humilis, arachnoides, margaritifera, verrucoſa, carinata, maculata, lingua, plicatilis, variegata, viſcoſa, ſpiralis, retuſa. Africa.

Theſe plants are chiefly or rather only valuable, on account of the medicinal virtues of their inſpiſſated juice. The ancients diſtinguiſhed two ſorts of aloes: The one was pure and of a yellowiſh colour inclining to a red, reſembling the colour of a liver, and thence named hepatic; the other was full of impurities, and hence ſuppoſed to be only the droſs of the better kind. At preſent various ſorts are met with in commerce, which are diſtinguiſhed from the place in which they are produced, or from their ſenſible qualities.

1. The Socotorine aloes, ſaid to be obtained from a variety of the *aloe perfoliata.* This is the pureſt ſort. It is brought from the iſland Socotora in the Indian ocean wrapt in ſkins. It is of a gloſſy ſurface, clear, and in ſome degree pellucid; in the lump, of a yellowiſh red colour, with a purple caſt; when reduced to powder, of a bright golden colour. It is hard and friable in the winter, and ſomewhat pliable in ſummer, and grows ſoft betwixt the fingers. Its taſte is bitter, accompanied with an aromatic flavour, but inſufficient to prevent its being diſagreeable; the ſmell is not very unpleaſant, and ſomewhat reſembles that of myrrh.

2. Barbadoes or hepatic aloes. Hepatic aloes is not ſo clear and bright as the foregoing ſort: it is alſo of a darker colour, more compact texture, and for the moſt part drier. Its ſmell is much ſtronger and more diſagreeable: the taſte intenſely bitter and nauſeous, with little or nothing of the fine aromatic flavour of the Socotorine. The beſt hepatic aloes comes from Barbadoes in large gourd ſhells: an inferior ſort of it (which is generally ſoft and clammy), is brought over in caſks.

3. Fetid, caballine, or *horſe aloes*, may eaſily be diſtinguiſhed from each of the foregoing, by its ſtrong rank ſmell; although in other reſpects it agrees pretty much with the hepatic, and is not unfrequently ſold in its ſtead. Sometimes the caballine aloes is prepared ſo pure and bright, as not to be diſtinguiſhed by the eye from the Socotorine; but its offenſive ſmell, of which it cannot be diveſted, readily betrays it. It has not now a place in almoſt any pharmacopœia, and is employed chiefly by farriers.

All the ſorts of aloes diſſolve in pure ſpirit, proof ſpirit, and proof ſpirit diluted with half its weight of water; the impurities only being left. They diſſolve alſo by the aſſiſtance of heat in water alone; but as the liquor grows cold, the reſinous part ſubſides, the gummy remaining united with the water. The hepatic aloes is found to contain more reſin, and leſs gum than the Socotorine, and this than the caballine. The reſins of all the ſorts, purified by ſpirit of wine, have little ſmell: that obtained from the Socotorine has ſcarce any perceptible taſte; that of the hepatic, a ſlight bitteriſh reliſh; and the reſin of the caballine a little more of the aloetic flavour. The gummy extracts of all the ſorts are leſs diſagreeable than the crude aloes: the extract of Socotorine aloes has very little ſmell, and is in taſte not unpleaſant; that of the hepatic has a ſomewhat ſtronger ſmell, but is rather more agreeable in taſte than the extract of the Socotorine: the gum of the caballine retains a conſiderable ſhare of the peculiar rank ſmell of this ſort of aloes, but its taſte is not much more unpleaſant than that of the extracts made from the two other ſorts.

Aloes is a ſtimulating cathartic bitter: if given in ſo large a doſe as to purge effectually, it often occaſions an irritation about the anus, and ſometimes a diſcharge of blood. Small doſes of it, frequently repeated, not only cleanſe the *primæ viæ*, but likewiſe warm the habit, quicken the circulation, and promote the uterine and hemorrhoidal fluxes. This medicine is particularly ſerviceable in habitual coſtiveneſs, to perſons of a phlegmatic temperament and ſedentary life, and where the ſtomach is oppreſſed and weakened. In dry bilious habits, aloes prove injurious, immoderately heating the body and inflaming the bowels.

The juice is likewiſe, on account of its bitterneſs, ſuppoſed to kill worms, either taken internally, or applied in plaſters to the umbilical region. It is alſo celebrated for reſtraining external hæmorrhagies, and cleanſing and healing wounds and ulcers.

The ancients gave aloes in much larger doſes than is cuſtomary at preſent. Dioſcorides orders half a dram or a dram for gently looſening the belly; and three drams where intended to have the full effect of a cathartic. But modern practice rarely exceeds a ſcruple, and limits the greateſt doſe to two ſcruples. For the common purpoſes of this medicine ten or twelve grains ſuffice; taken in theſe or leſs quantities, it acts as a gentle ſtimulating eccoprotic, capable of removing, if duly continued, very obſtinate obſtructions. Aloes are much leſs frequently uſed to operate as a purgative than merely to obviate coſtiveneſs: and indeed their purgative effect is not increaſed in proportion to the quantity that is taken. Perhaps the chief objection to aloes, in caſes of habitual coſtiveneſs, is the tendency which they have to induce and augment hæmorrhoidal affections; and with thoſe liable to ſuch complaints they can ſeldom be employed. Their purgative effect ſeems chiefly to depend on their proving a ſtimulus to the rectum.

Some are of opinion that the purgative virtue of aloes reſides entirely in its reſin: but experience has ſhown that the pure reſin has little or no purgative quality; and that the gummy part, ſeparated from the reſinous, acts more powerfully than the crude aloes. If the aloes indeed be made to undergo long coction in the preparation of the gummy extract, its cathartic power will be conſiderably leſſened, not from the ſeparation of the reſin, but from an alteration made in the juice

juice itſelf by the heat. The ſtrongeſt vegetable cathartics become mild by a like treatment, without any remarkable ſeparation of their parts.

Socotorine aloes, as already obſerved, contain more gummy matter than the hepatic; and hence are likewiſe found to purge more, and with greater irritation. The firſt ſort therefore is moſt proper where a ſtimulus is required, as for promoting or exciting the menſtrual flux; whilſt the latter is better calculated to act as a common purge. It is ſuppoſed that the vulnerary and balſamic virtues of this juice reſide chiefly in the reſin, and hence the hepatic aloes, which is moſt reſinous, is moſt ſerviceable in external application.

Aloes enter many of the officinal preparations and compoſitions, particularly different pills and tinctures; and according to the particular purpoſes for which theſe are intended, ſometimes the Barbadoes, ſometimes the Socotorine aloes are the moſt proper.

660. AGAVE, or *Common American Aloe.*
Seven ſpecies; viz. americana, vivipara, virginica, cubenſis, lurida, tuberoſa, fœtida. America.

661. ALSTROEMERIA.
Six ſpecies; viz. pelegrina, puichella, ligtu, ſalſilla, ovata, multiflora. Peru, Lima.

662. HEMEROCALLIS, or *Day-lily.*
Four ſpecies; viz. flava, fulva, lancifolia, japonica. Siberia, Hungary, Levant, Japan.

663. ACORUS, or *Sweet-ſmelling Ruſh.*
Two ſpecies; viz. calamus, gramineus. Europe, India.

alamus. * A. floral leaf very much longer than the ſpike.—The root powdered might ſupply the place of our foreign ſpices. It is our only native truly aromatic plant. The powder of the root has cured agues, when the Peruvian bark has failed. The roots have a ſtrong aromatic ſmell, and a warm pungent bitteriſh taſte. The flavour is greatly improved by drying. They are commonly imported from the Levant, but thoſe of our own growth are full as good. The Turks candy the roots, and think they are a preſervative againſt contagion. Neither horſes, cows, goats, ſheep, or ſwine will eat it.

664. ORONTIUM, or *Floating Arum.*
Two ſpecies; viz. aquaticum, japonicum. N. America, Japan.

665. TACCA.
One ſpecies; viz. pinnatifida. E. Indies, Otaheite.

666. CORYPHA, or *Mountain Palm.*
Two ſpecies; viz. umbraculifera, rotundifolia. Eaſt Indies, Carolina.

667. LICUALA.
One ſpecies; viz. ſpinoſa. Africa, Amboyna.

668. THRINAX, or *Small Jamaica Fan-palm.*
One ſpecies; viz. parviflora. Jamaica, Hiſpaniola.

669. CALAMUS.
Eight ſpecies; viz. rotang, verus, draco, niger, viminalis, rudentum, equeſtris, zalacca. India.

670. JUNCUS, or *Ruſh.*
40 ſpecies; viz. * acutus, * conglomeratus, effuſus, glaucus, * inflexus, arcticus, * filiformis, capillaceus, grandiflorus, magellanicus, rubens, * trifidus, * ſquarroſus, capitatus, capenſis, punctorius, nodoſus, * articulatus, ſylvaticus, ſubverticillatus, tenageja, * bulboſus, tenuis, * bufonius, cephalotes, ſtygius, jacquini, * biglumis, * triglumis, * piloſus, maximus, ſpadiceus, luteus, parviflorus, ferratus, albidus, niveus, * campeſtris, ſudeticus, * ſpicatus. Europe, Cape, N. America.

* J. ſtraw ſtiff and ſtraight; panicle lateral, looſe; flowers egg-ſhaped, blunt, 3 ſtamens in each.—Ruſhes are ſometimes uſed to make little baſkets. The pith of this ſpecies is uſed inſtead of cotton to make the wick of ruſh lights. Horſes and goats eat it. *effuſus.*

* J. ſtraw rigid; leaves like briſtles; panicle terminating, leafleſs.—Horſes eat it. The leaves lying cloſe to the ground elude the ſtroke of the ſcythe. It indicates a barren ſoil. *ſquarroſus.*

671. RICHARDIA.
One ſpecies; viz. ſcabra. Vera Cruz.

672. DUROIA.
One ſpecies; viz. eriopila. Surinam.

673. ACHRAS, or *Sapota.*
Three ſpecies; viz. diſſecta, mammoſa, ſapota. W. Indies, S. America.

674. PRINOS, or *Winter-berry.*
Seven ſpecies; viz. verticillatus, montanus, dioicus, nitidus, glaber, lucidus, ſideroxyloides. N. America, Jamaica, Montſerr.

675. COSSIGNEA.
Two ſpecies; viz. triphylla, pinnata. India.

676. BARBACENIA.
One ſpecies; viz. braſilienſis.

677. BERBERIS, or *Barberry*, or *Pipperidge Buſh.*
Five ſpecies; viz. * vulgaris, ilicifolia, microphylla, cretica, ſibirica. Europe, Canada, Terra del Fuego.

B. fruitſtalks forming bunches; thorns 3 together.—The leaves are gratefully acid. The flowers are offenſive to the ſmell when near, but at a proper diſtance their odour is extremely fine. The berries are ſo very acid that birds will not eat them, but boiled with ſugar they form a moſt agreeable rob or jelly. They are uſed, likewiſe, as a dry ſweatmeat, and in ſugar plumbs. An infuſion of the bark in white wine is purgative. The roots boiled in lye dye wool yellow. In Poland they dye leather of a moſt beautiful yellow with the bark of the root. The inner bark of the ſtems dyes linen of a fine yellow, with the aſſiſtance of alum. This ſhrub ſhould never be permitted to grow in corn lands, for the ears of wheat that grow near it never fill, and its influence in this reſpect has been known to extend as far as 3 or 4 hundred yards acroſs a field. This very extraordinary fact well merits inveſtigation. *vulgaris.*

678. PSATHURA.
One ſpecies; viz. borbonica. Iſle of Bourbon.

679. NANDINA.
One ſpecies; viz. domeſtica. Japan.

680. LINDERA.
One ſpecies; viz. umbellata. Japan.

681. ENARGEA.
One ſpecies; viz. marginata. Terra del Fuego.

682. PHILESIA.
One ſpecies; viz. buxifolia. Straits of Magellan.

683. CAPURA.
One ſpecies; viz. purpurata. India.

684. LORANTHUS.
26 ſpecies; viz. ſcurrula, tetrapetalus, glaucus, biflorus, parvifolius, falcatus, uniflorus, europæus, longibracteatus, buddlejoides, nodoſus, elevatus, longiflorus, elaſticus, americanus, emarginatus, occidentalis, loniceroides, pedunculatus, ſeſſilis, marginatus, ſtelis, pauciflorus, braſilienſis, pentandrus, ſpicatus. Europe, E. Indies, Jamaica, America.

685. SCHRADERA.
Two ſpecies; viz. capitata, cephalotrs.

686. STEPHANIA.
One ſpecies; viz. cleomoides. Guiana.

687. HILLIA.
Two ſpecies; viz. longiflora, tetrandra. Jamaica, South America.

688. ISERTIA.
Two ſpecies; viz. coccinea, parviflora. Guiana.

689. CANARINA, or *Canary Bell-flower*.
One ſpecies; viz. campanula. Canary Iſles.

690. FRANKENIA, or *Sea-heath*.
Four ſpecies; viz. *lævis, nothria, hirſuta, *pulverulenta. Europe, Arabia.

691. PEPLIS, or *Water Purſlain*.
Two ſpecies; viz. *portula, indica. Europe.

692. GAHNIA.
Two ſpecies; viz. procera, ſchoenoides. New Zealand.

693. BAMBUSA.
Two ſpecies; viz. arundinacea, verticillata.

694. EHRHARTA.
Five ſpecies; viz. cartilaginea, bulboſa, longiflora, panicea, calycina. Africa.

ORDER II. DIGYNIA.

695. ORYZA, or *Rice*.
One ſpecies; viz. ſativa. E. and W. Indies, N. America.—Rice is the produce of many countries, particularly of the Eaſt Indies; but as uſed in Britain, it is brought chiefly from Carolina, where this plant is cultivated in large quantities. It is ſufficiently nutritious, and affords an uſeful food in diarrhœas, dyſenteries, and other diſorders from a thin acrimonious ſtate of the juices.

696. NECTRIS.
One ſpecies; viz. aquatica. Guiana.

697. FALKIA.
One ſpecies; viz. repens. Cape of Good Hope.

698. ATRAPHAXIS.
Two ſpecies; viz. ſpinoſa, undulata. Levant, Cape.

ORDER III. TRIGYNIA.

699. RUMEX, or *Dock*.
36 ſpecies; viz. patientia, *ſanguineus, ſpathulatus, verticillatus, britannica, *hydrolapathum, *criſpus, nemolapathum, perſicarioides, ægyptiacus, dentatus, *maritimus, divaricatus, *acutus, *obtuſifolius, *pulcher, bucephalophorus, aquaticus, lunaria, veſicarius, roſeus, tingitanus, ſcutatus, nervoſus, *digynus, lanceolatus, alpinus, ſpinoſus, tuberoſus, multifidus, *acetoſa, *acetoſella, aculeatus, luxurians, arifolius, bipinnatus. Europe, Egypt, Barbary.
* R. valves ſtrongly veined; leaves ſpear-ſhaped, acute, waved and curled at the edge.—In Norfolk this plant is the peſt of clover fields. The freſh roots bruiſed, and made into an ointment or decoction, cure the itch. The ſeeds have been given with advantage in the dyſentery. Cows, goats, and horſes refuſe it. *criſpus.*
* R. valves veinleſs; leaves oval-ſpear-ſhaped, uneven at the edges.—Cows and horſes refuſe it. It is infected by the *aphis rumicis*. The root is uſed by the dyers. It gives a great variety of ſhades, from ſtraw colour to a pretty fine olive, and a fine deep green to cloths which have been previouſly blued. *acutus.*
* R. leaves ſpear-ſhaped, ſmooth, acute, very entire, tapering at the baſe. It is a medicine of conſiderable efficacy, both externally applied as a waſh for putrid ſpongy gums, and internally in ſome ſpecies of ſcurvy. In rheumatic pains and chronical diſeaſes, owing to obſtructed viſcera, it is ſaid to be uſeful. The powdered root is one of the beſt things for cleaning the teeth. The root has ſometimes a reddiſh tinge, but ſoon changing to a yellowiſh brown when expoſed to the air. The *curculio lapathi* is found upon the leaves. *hydrolapathum.*
* R. leaves heart-oblong, bluntiſh, finely notched.—Fallow-deer eat this and the *R. acutus* with avidity, biting it cloſe to the root, ſo that it is very rare to ſee a dock growing in a park. *obtuſifolia.*
* R. leaves oblong, arrow-ſhaped.—The leaves are eaten in ſauces and in ſallads. The Laplanders uſe them to turn their milk ſour. In France they are cultivated for the uſe of the table, being introduced in ſoups, ragouts and fricaſſees. In ſome parts of Ireland they eat them plentifully with milk, alternately biting and ſupping. The Iriſh alſo eat them with fiſh, and other alcaleſcent food. The dried root gives out a beautiful red colour when boiled. Horſes, cows, goats, ſheep, and ſwine eat it. The *aphis acetoſæ* feeds upon it. *acetoſa.*

700. FLAGELLARIA.
One ſpecies; viz. indica. Eaſt Indies, Guiana.

701. SCHEUCHZERIA, or *Leſſer Flowering Ruſh*.
One ſpecies; viz. paluſtris. Lapland, Sweden, Helvetia.

702. TRIGLOCHIN, or *Arrow-headed Graſs*.
Three ſpecies; viz. *palluſtre, bulboſum, *maritimum. Europe.
* T. Capſule 3-celled, nearly ſtrap-ſhaped.—Cows are extremely fond of this plant. Horſes, ſheep, goats, and ſwine eat it. *paluſtre.*
* T. Capſule 6 celled, egg-ſhaped.—It is ſalt to the taſte; but horſes, goats, ſheep, and ſwine are very fond of it. *maritimum.*

703.

703. Wurmbea.
Three ſpecies; viz. pumila, campanulata, longiflora.

704. Melanthium.
14 ſpecies; viz. virginicum, fibiricum, lætum, capenſe, triquetrum, ciliatum, junceum, ſecundum, phalangioides, indicum, viride, uniflorum, eucomoides, pumilum. Siberia, Cape, N. America.

705. Medeola, or *Climbing African Aſparagus.*
Three ſpecies; viz. virginica, aſparagoides, anguſtifolia. Cape, Virginia.

706. Trillium, or *Three-leaved Nightſhade.*
One ſpecies; viz. ſeſſile. North America.

707. Colchicum, or *Meadow-ſaffron.*
Three ſpecies; viz. *autumnale, montanum, variegatum. South of Europe, Archipelago.

autumnale. * C. leaves flat, ſpear-ſhaped, upright.—This is one of thoſe plants which, upon the concurrent teſtimony of ages, was condemned as poiſonous; but Dr Storck of Vienna hath taught us that it is an uſeful medicine. The roots have a good deal of acrimony. An infuſion of them in vinegar, formed into a ſyrup by the addition of ſugar or honey, is found to be a very uſeful pectoral and diuretic; it ſeems in its virtues very much to reſemble ſquill, but is leſs nauſeous, and leſs acrimonious, though more ſedative. In a paſture in which were ſeveral horſes, and eaten down pretty bare, the graſs was cloſely cropped, even under the leaves, but not a leaf bitten.

708. Helonias.
Four ſpecies; viz. bullata, borealis, aſphodeloides, pumila. Pennſylvania, Virginia.

Order IV. HEXAGYNIA.

709. Wendlandia.
One ſpecies; viz. populifolia.

710. Damasonium.
One ſpecies; viz. indicum.

Order V. POLYGYNIA.

711. Alisma, or *Water-plantain.*
Ten ſpecies; viz. *plantago, flava, ſagittifolia, *damaſonium, cordifolia, parnaſſifolia, repens, *natans, *ranunculoides, ſubulata. Europe, N. America.

In the claſs Hexandria are

111 Genera, including 784 Species, of which 63 are found in Britain.

CLASSIS VII.
HEPTANDRIA.

Ordo I. MONOGYNIA.

Sect. I. *Flores completi.*

* 712. Trientalis. Cal. 7-phyllus. Cor. 7-partita, plana. Bacca 1-locularis, ficca.
713. Disandra. Cal. ſubſeptempartitus. Cor. rotata, ſubſeptempartita. Capſ. 2-locularis, polyſperma.
717. Æsculus. Cal. 5-dentatus. Cor. 5-petala, inæqualis. Capſ. 3-locularis, 2-ſperma.
718. Petrocarya. Cal. 5-fidus. Cor. 5-petala. Drupa carnoſa. Nux 2-locul.
716. Pancouia. Cal. 4 partitus. Cor. 4-petala criſpata. Stam. adſcendentia.
719. Jonesia. Cal. 2-phyllus. Cor. infundibuliformis. Legumen.

† *Pelargonium.*

Sect. II. *Flores incompleti.*

714. Pisonia. Cal. campanulatus, 5-fidus. Cor. 0. Bacca 1-ſperma.
715. Petiveria. Cal. 4-phyllus. Cor. 0. Stylus lateralis. Sem. 1.

CLASS VII.
HEPTANDRIA.

Order I. MONOGYNIA.

Sect. I. *Flores completi.*

* T. Cal. 7-leaved. Cor. 7-partite, flat. Berry 1-celled, dry.
D. Cal. nearly 7-partite. Cor. wheel-ſhaped, nearly 7-partite. Capſ. 2-celled, many-ſeeded.
Æ. Ca . 5-toothed. Cor. 5 petaled, unequal. Capſ. 3-celled, 2-ſeeded.
P. Cal. 5-cleft. Cor. 5 petals. A fleſhy drupe. Nut 2-celled.
P. Cal. 4-partite. Cor. 4-petaled, criſped. Stamens aſcending.
J. Cal. 2-leaved. Cor. funnel-ſhaped. A leguminous plant.

Sect. II. *Flowers incomplete.*

P. Cal. bell-ſhaped, 5-cleft. No cor. Berry 1-ſeeded.

P. Cal. 4-leaved. No cor. Style lateral. Seed 1.

720. Dracontium. Spatha cymbiformis. Spadix tectus. Cal. 0. Cor. 5-petala. Bacca.

721. Calla. Spatha ovata. Spadix tectus. Cal. 0. Cor. 0. Bacca.

722. Houttuynia. Spatha 4-phylla. Spadix tectus. Cal. 0. Cor. 0. Capſ. 3-locul. ?

Ordo II. DIGYNIA.

725. Limeum. Cal. 5-phyllus. Cor. 5-petala, æqualis. Capſ. 2-locularis, polyſperma.

Ordo III. TETRAGYNIA.

724. Astranthus. Cal. 0. Cor. hypocrateriform. 14-fida. Sem. 1.

725. Saururus. Cal. amentum. Cor. 0. Piſt. 4. Bacca 4, monoſpermæ.

Ordo IV. HEPTAGYNIA.

726. Septas. Cal. 7-partitus. Cor. 7-petala. Germina 7. Capſ. 7.

† *Phytolacca ſtricta.*

D. A boat-ſhaped ſheath. The ſheathed fruitſtalk covered. No cal. Cor. 5-petals. A berry.

C. An oval ſheath. Sheathed fruitſtalk covered. No cal. No cor. A berry.

H. ſheath 4-leaved. Sheathed fruitſtalk covered. No cal. No cor. Capſ. 3-celled.

Order II. DIGYNIA.

L. Cal. 5-leaved. Cor. 5-petals, equal. Capſ. 2-celled, many-ſeeded.

Order III. TETRAGYNIA.

A. No cal. Cor. ſalver-ſhaped, 14-cleft. Seed 1.

S. Cal. catkin. No cor. Piſtils 4. Berries 4, 1-ſeeded.

Order IV. HEPTAGYNIA.

S. Cal. 7-cleft. Cor. 7-petals. Germens 7. Capſ. 7.

Order I. MONOGYNIA.

712. Trientalis, or *Chickweed, Winter Green.*
One ſpecies; viz. * europæa. North of Europe.

713. Disandra.
One ſpecies; viz. proſtrata. Madeira.

714. Pisonia, or *Fringrido.*
Five ſpecies; viz. aculeata, ſubcordata, nigricans, coccinea, mitis. Weſt Indies.

715. Petiveria, or *Guinea Hen-weed.*
One ſpecies; viz. alliacea. Weſt Indies.

716. Pancovia.
One ſpecies; viz. bijuga.

717. Æsculus, or *Horſe-cheſnut.*
Three ſpecies, viz. hippocaſtanum, pavia, flava. N. of Aſia, America.

The fruit of this plant has been uſed as food for ſheep and poultry, and as ſoap for waſhing. It was much employed in powder as a ſternutatory by an itinerant oculiſt, and has been recommended by ſome others in certain ſtates of ophthalmia, headach, &c. in which errhines are indicated.

Its effects as a ſternutatory may alſo be obtained by uſing it under the form of infuſion or decoction drawn up into the noſtrils; and it is entirely with a view to its errhine power that it is now introduced into the Pharmacopœia of the Edinburgh college. But beſides this, the bark has alſo been repreſented by ſome as a cure for intermittent fevers, and it is probably with this intention, that this part of the hippocaſtanum is introduced as an official article in the Pharmacopœia Roſſica.

718. Petrocarya.
Two ſpecies; viz. montana, campeſtris. Guiana.

719. Jonesia.
One ſpecies; viz. pinnata.

720. Dracontium, or *Dragon's-head.*
Six ſpecies; viz. polyphyllum, ſpinoſum, fœtidum, kamſchatcenſe, lanceæfolium, pertuſum. Ceylon, W. Indies, America.

721. Calla, or *Ethiopian Arum.*
Three ſpecies; viz. æthiopica, paluſtris, orientalis. Europe, Cape.

722. Houttuynia.
One ſpecies; viz. cordata. Japan.

Order II. DIGYNIA.

723. Limeum.
Three ſpecies; viz. africanum, capenſe, æthiopicum. C. of G. Hope.

Order III. TETRAGYNIA.

724. Astranthus.
One ſpecies; viz. cochinchinenſis.

725. Saururus, or *Lizard's Tail.*
One ſpecies; viz. cernuus. Virginia.

Order IV. HEPTAGYNIA.

726. Septas.
One ſpecies; viz. capenſis. C. of G. Hope.

In the claſs Heptandria are

15 Genera, which include 31 Species. Of theſe only one is found in Britain.

CLASSIS

CLASSIS VIII.

OCTANDRIA.

Ordo I. MONOGYNIA.

Sect. I. *Flores completi.*

743. Mimusops. Cor. 8-petala. Cal. 8-phyllus, inferus. Drupa.

745. Cupania. Cor. 5-petala. Cal. 5-phyllus. Capſ. 3-locularis, loculis monoſpermis. Sem. arillatum.

765. Dimocarpus. Cor. 5-petala. Cal. 5-dentatus. Baccæ 2, monoſpermæ.

727. Tropæolum. Cor. 5-petala. Cal. 5-fidus, inferus, calcaratus. Nuces 3.

779. Bæckea. Cor. 5-petala. Cal. 5-fidus, ſuperus. Capſ. 4 locularis.

747. Ephielis. Cor. 5-petala. Cal. 5-partitus. Capſ. 1-locul. 2-ſperma.

748. Molinæa. Cor. 5-petala. Cal. 5-partitus. Capſ. 3-locul. 3-valvis.

742. Honckenya. Cor. 5-petala. Cal. 5-phyllus. Nectar. ſtaminiformia. Capſ. echinata.

751. Hagenia. Cor. 5-petala. Cal. 2-phyllus. Nectar. 5-phyllum.

766. Memecylon. Cor. 4-petala. Cal. integerrimus, ſuperus.

734. Combretum. Cor. 4-petala. Cal. 5-dentatus, ſuperus. Sem. 4.

738. Roxburghia. Cor. 4-petala. Cal. 4-phyllus inferus. Antheræ nectario inſertæ. Capſ. 2-valvis.

* 732. Epilobium. Cor. 4-petala. Cal. 4-fidus, tubuloſus, ſuperus. Capſ. 4-locularis. Sem. comoſa.

731. Gaura. Cor. 4-petala. Cal. 4-fidus, tubuloſus, ſuperus. Nux 1-ſperma.

730. Oenothera. Cor. 4-petala. Cal. 4-fidus, tubuloſus, ſuperus. Capſ. 4-locularis. Anther. lineares.

735. Vitmannia. Cor. 4-petala. Cal. 4-fidus, inferus. Nux 1-ſperma.

729. Rhexia. Cor. 4-petala. Cal. 4-fidus. Capſ. 4-locularis, ſupera. Anth. arcuatæ.

728. Osbeckia. Cor. 4-petala. Cal. 4-fidus. Capſ. 4-locularis, infera. Anth. roſtratæ.

737. Tetratheca. Cor. 4-petala. Cal. 4-fidus. Antheræ 4-loculares. Capſ. 2-locularis.

736. Grislea. Cor. 4 petala. Cal. 4-dentatus, inferus. Capſ. 1-locularis.

750. Koebreuteria. Cor. 4-petala, nectario cylindrico. Cal. 4-phyllus. Capſ. 3-locularis.

752. Persoonia. Cor. 4-petala, nectario cylindrico. Cal. 4-partitus. Capſ. 1-locul. polyſperma.

753. Guarea. Cor. 4-petala, nectario cylindrico. Cal. 4-dentatus, inferus. Capſ. 4-locularis, 4-valvis. Sem. ſolitaria.

CLASS VIII.

OCTANDRIA.

Order I. MONOGYNIA.

Sect. I. *Flowers complete.*

M. Cor. 8-petaled. Cal. 8-leafed, inferior. A drupe.

C. Cor. 5-petaled. Cal. 5-leafed. Capſ. 3-celled, 1 ſeed in each cell. Seed coated.

D. Cor. 5-petaled. Cal. 5-toothed. Berries 2, 1-ſeeded.

T. Cor. 5 petals. Cal. 5-cleft, inferior, having a ſpur. Nuts 3.

B. Cor. 5 petals. Cal. 5-cleft, ſuperior. Capſ. 4-celled.

E. Cor. 5 petals. Cal. 5-partite. Capſ. 1-celled, 2-ſeeded.

M. Cor. 5 petals. Cal. 5-partite. Capſ. 3-celled, with 3 valves.

H. Cor. 5-petaled. Cal. 5-leafed. Nectaries in the form of ſtamens. Capſ. prickly.

H. Cor. 5-petaled. Cal. 2-leafed. Nectary 5-leafed.

M. Cor. 4-petaled. Cal. very entire, ſuperior.

C. Cor. 4-petaled. Cal. 5-toothed, ſuperior. Seeds 4.

R. Cor. 4 petals. Cal. 4-leafed, inferior. Anthers inſerted in the nectary. Capſ. with 2 valves.

* E. Cor. 4 petals. Cal. 4-cleft, tubular, ſuperior. Capſ. 4-celled. Seeds hairy.

G. Cor. 4-petaled. Cal. 4-cleft, tubular, ſuperior. Nut, with one ſeed.

O. Cor. or 4-petaled. Cal. 4-cleft, tubular above. Capſ. 4-celled. Anthers ſtrap-ſhaped.

V. Cor. 4-petaled. Cal. 4-cleft, beneath. Nut 1-ſeeded.

R. Cor. 4-petaled. Cal. 4-cleft. Capſ. 4-celled, above. Anthers bowed.

O. Cor. 4-petaled. Cal. 4-cleft. Capſ. 4-celled, beneath or inferior. Anthers having a beak.

T. Cor. 4-petaled. Cal. 4-cleft. Anthers 4-celled. Capſ. 2-celled.

G. Cor. 4-petaled. Cal. 4-toothed, inferior. Capſ. 1-celled.

K. Cor. 4-petaled, with a cylindrical nectary. Cal. 4-leafed. Capſ. 3-celled.

P. Cor. 4-petaled, with a cylindrical nectary. Cal. 4-partite. Capſ. 1-celled, many-ſeeded.

G. Cor. 4-petaled, with a cylindrical nectary. Cal. 4-toothed, inferior. Capſ. 4-celled, 4-valved. Seeds ſolitary.

741. Correa. Cor. 4-petala. Cal. 4 dentatus. Capſ. 4-locul. loculis 1-ſpermis.

733. Antichorus. Cor. 4-petala. Cal. 4-phyllus, inferus. Capſ. 4-locul. 4-valvis, polyſperma.

740. Allophylus. Cor. 4-petala. Cal. 4-phyllus, inferus. Stigma 4-fidum.

739. Ornitrophe. Cor. 4-petala. Cal. 4-phyllus, inferus. Styl. 2-fidus. Baccæ 2, monoſpermæ.

744. Jambolifera. Cor. 4-petala. Cal. 4-dentatus, inferus. Filamenta planiuſcula. Drupa.

746. Xylocarpus. Cor. 4-petala. Cal. 4-dentatus, inferus. Nect. 8-fidum. Drupa ſicca.

757. Ximenia. Cor. 4-petala. Cal. 4-fidus. Nect. 0. Drupa 1-ſperma.

763. Lawsonia. Cor. 4-petala. Cal. 4-fidus, inferus. Bacca 4-locularis.

749. Melicocca. Cor. 4-petala refracta. Cal. 4-partitus. Drupa corticoſa. Stigma peltatum, anceps.

755. Amyris. Cor. 4-petala. Cal. 4-dentatus, inferus. Bacca 1-ſperma.

764. Melicope. Cor. 4-petala. Cal. 4-partitus. Capſ. 4, monoſpermæ.

775. Gnidia. Cor. 4-petala. Cal. 4-fidus, corollifer. Nux 1-ſperma.

758. Fuschia. Cor. 4-petala. Cal. 4-fidus corollif. Bacca 4-locularis, polyſperma.

754. Hedwigia. Cor. 4-fida. Cal. 4-dentatus. Capſ. tricocca.

760. Michauxia. Cor. 8-partita. Cal. 16-partitus. Capſ. 8-locularis.

* 759. Chlora. Cor. 8-fida. Cal. 8-phyllus, inferus. Capſ. 1-locul. 2-valvis, polyſperma.

* 768. Vaccinium. Cor. 1-petala. Cal. 4-dentatus, ſuperus. Filam. receptaculi. Bacca.

769. Menziesia. Cal. repandus inferus. Cor. 1-petala. Filam. receptaculi. Capſula.

* 770. Erica. Cor. 1-petala. Cal. 4-phyllus, inferus. Filam. receptaculi. Capſula.

His ſimillima notanda quæ ad claſſes diverſas pertinent. Bixophora Mangle. Æſculus Pavia. Monotropa Hypopithys. Ruta graveolens. Juſſiææ nonnullæ ſpecies. Portulaca quadrifida. Portulaca meridiana. Capparides duæ. Dais octandra. Ammania octandra. Fagara octandra. Melaſtomæ nonnullæ ſpecies. Trichilia pallida acuminata. Gilibertia ovata, heterophylla. Elais. Cleome juncea.

Sect. II. *Flores incompleti.*

771. Ophira. Cal. 0. Involucr. 2-valve, triflorum. Cor. 4-petala ſupera. Bacca 1-locularis.

772. Grubbia. Cal. 0. Involucr. 2-phyll. triflorum. Cor. 4-petala infera.

767. Buginuillæa. Cal. 0. Cor. tubuloſa ſubintegra. Stam. incluſa.

778. Lachnæa. Cal. 4-fidus, corollinus, inæqualis. Stam. exſerta.

774. Dirca. Cal. climbis, corollinus, inæqualis. Stam. exſerta.

* 773. Daphne. Cal. 4-fidus, corollinus, æqualis. Stam. incluſa. Drupa pulpoſa, monoſperma.

777. Passerina. Cal. 4-fidus, corollinus, æqualis. Stam. ſupra corollam.

C. Cor. 4-petaled. Cal. 4-toothed. Capſ. 4-celled, with 1-ſeeded cells.

A. Cor. 4-petaled. Cal. 4-leafed, inferior. Capſ. 4-celled, 4-valved, many-ſeeded.

A. Cor. 4-petaled. Cal. 4-leafed, inferior. Stigma 4-cleft.

O. Cor. 4-petaled. Cal. 4-leafed. Style 2-cleft. Berries 2, one-ſeeded.

J. Cor. 4-petaled. Cal. 4-toothed, inferior. Filaments flattened. A drupe.

X. Cor. 4-petaled. Cal. 4-toothed, inferior. Nectary 8-cleft. A dry drupe.

X. Cor. 4-petaled. Cal. 4-cleft. No nectary. A 1-ſeeded drupe.

L. Cor. 4-petaled. Cal. 4-cleft, inferior. Berry four-celled.

M. Cor. 4-petaled, bent back as if broken. Cal. 4-partite. Drupe barky. Stigma target-ſhaped, two-edged.

A. Cor. 4-petaled. Cal. 4-toothed, inferior. Berry 1-ſeeded.

M. Cor. 4-petaled. Cal. 4-partite. Capſ. 4, one-ſeeded.

G. Cor. 4-petaled. Cal. 4-cleft, bearing the corolla. A nut, 1-ſeeded.

F. Cor. 4-petaled. Cal. 4-cleft, bearing the bloſſom. Berry 4-celled, many-ſeeded.

H. Cor. 4-cleft. Cal. 4-toothed. Capſ. 3-celled.

M. Cor. 8-partite. Cal. 16-partite. Capſ. 8-celled.

* C. Cor. 8-cleft. Cal. 8 leafed, inferior. Capſ. 1-celled, 2-valved, many-ſeeded.

* V. Cor. 1-petaled. Cal. 4-toothed, ſuperior. Filam. of the receptacle. Berry.

M. Cal. ſerpentine beneath. Cor. 1-petaled. Filaments of the receptacle. Capſule.

* E. Cor. 1-petaled. Cal. 4-leafed, inferior. Filaments of the receptacle. Capſule.

Sect. II. *Flowers incomplete.*

O. No cal. Involucrum 2-valved, 3-flowered. Cor. 4-petaled, ſuperior. Berry 1-celled.

G. No cal. Involucr. 2-leafed, 3-flowered. Cor. 4-petaled, inferior.

B. No cal. Cor. tubular, nearly entire. Stamens encloſed.

L. Cal. 4-cleft, bloſſom-like, unequal. Stamens protruding.

D. Cal. not bordered, bloſſom-like, unequal. Stamens protruding.

* D. Cal. 4-cleft, bloſſom-like, equal. Stamens encloſed. A drupe, pulpy, 1-ſeeded.

P. Cal. 4-cleft, bloſſom-like, equal. Stamens above the corolla.

776. Stellera. Cal. 4-fidus, corollinus, æqualis. Stam. inclusa. Nux.

761. Dodonæa. Cal. 4-phyllus. Cor. o. Capſ. 3-locularis.

762. Valentinia. Cal. 5-partitus. Cor. o. Capſ. baccata, 4-ſperma.

756. Cadrota. Cal. 6-partitus. Cor. o.

Ordo II. DIGYNIA.

783. Codia. Cor. 4-petala. Cal. 4-phyllus. Involucrum 4-phyllum.

782. Weinmannia. Cor. 4-petala. Cal. 4-phyllus. Capſ. 2-locularis, 2-roſtris.

784. Moehringia. Cor. 4-petala. Cal. 4-phyllus. Capſ. 1-locularis.

780. Schmiedelia. Cor. 4-petala. Cal. 2-phyllus. Pericarp. 2, pedicellata.

781. Galenia. Cor. o. Cal. 4-fidus. Capſ. 2-locularis, 2-ſperma.

† *Chryſoplenium. Polygonum Penſylvanicum.*

Ordo III. TRIGYNIA.

788. Seriana. Cor. 4 petala. Cal. 4-phyllus. Samaræ 3.

787. Paullinia. Cor. 4-petala. Cal. 4-phyllus. Capſ. 3-locularis, 1-ſperma.

789. Cardiospermum. Cor. 4-petala. Cal. 4-phyllus. Capſ. 3-locul. 1-ſperma.

791. Ponæa. Cor. 4-petala. Cal. 4-partitus. Capſ. 3-locul. 3-ſperma.

790. Sapindus. Cor. 4-petala. Cal. 4-phyllus. Bacca 3-cocca, 1-ſperma.

786. Coccoloba. Cor. o. Cal. 5-partitus. Bacca calycina, 1-ſperma.

* 785. Polygonum. Cor. o. Cal. 5-partitus. Sem. 1, nudum.

Ordo IV. TETRAGYNIA.

* 794. Adoxa. Cor. 4. f. 5-fida, ſupera. Cal. 2-phyllus. Bacca 4 f. 5-ſperma.

792. Verea. Cor. 4-fida. Cal. 4-fidus. Capſ. 4, polyſpermæ.

796. Halloragis. Cor. 4-petala. Cal. 4-fidus. Drupa ſicca, 4-locularis.

* 795. Elatine. Cor. 4-petala. Cal. 4-phyllus. Capſ. 4-locularis.

797. Forskolea. Cor. 8-petala. Cal. 4-phyllus. Sem. 4.

† *Petiveria alliacea. Myriophyllum verticillatum.*

S. Cal. 4-cleft, bloſſom-like, equal. Stamens encloſed. A nut.

D. Cal. 4-leafed. No cor. Capſ. 3-celled.

V. Cal. 5-partite. No cor. Capſ. berried, 4-ſeeded.

C. Cal. 6-partite. No cor.

Order II. DIGYNIA.

C. Cor. 4-petaled. Cal. 4-leafed. Involucrum 4-leafed.

W. Cor. 4-petaled. Cal. 4-leafed. Capſ. 2-celled, with 2 beaks.

M. Cor. 4-petaled. Cal. 4-leafed. Capſ. 1-celled.

S. Cor. 4-petaled. Cal. 2-leafed. Seed-veſſels 2, with pedicles.

G. No cor. Cal. 4-cleft. Capſ. 2-celled, 2-ſeeded.

Order III. TRIGYNIA.

S. Cor. 4-petaled. Cal. 4-leafed. Seed-veſſels 3.

P. Cor. 4-petaled. Cal. 4-leafed. Capſ. 3-celled, 1-ſeeded.

C. Cor. 4-petaled. Cal. 4-leafed. Capſ. 3-celled, 1-ſeeded.

P. Cor. 4-petaled. Cal. 4-partite. Capſ. 3-celled, 3-ſeeded.

S. Cor. 4-petaled. Cal. 4-leafed. Berry 3-celled, 1-ſeeded.

C. No cor. Cal. 5-partite. Berry cup-like, 1-ſeeded.

* P. No cor. Cal. 5-partite. Seed 1, naked.

Order IV. TETRAGYNIA.

* A. Cor. 4 or 5-cleft, ſuperior. Cal. 2-leafed. Berry 4 or 5-ſeeded.

V. Cor. 4-cleft. Cal. 4-cleft. Capſ. many-ſeeded.

H. Cor. 4-petaled. Cal. 4-cleft. A drupe, dry, 4-celled.

* E. Cor. 4-petaled. Cal. 4-leafed. Capſ. 4-celled.

F. Cor. 8-petaled. Cal. 8-leafed. Seeds 4.

Order I. MONOGYNIA.

727. Tropæolum, or *Indian Creſs.*
Five ſpecies; viz. minus, majus, hybridum, peregrinum, pentaphyllum. Peru, Lima.

728. Osbechia, or *Gold-roſe Feather.*
Two ſpecies; viz. chinenſis, zeylanica. Ceylon, China.

729. Rhexia, or *Soap-wood.*
17 ſpecies; viz. virginica, mariana, trichotoma, bivalvis,

valvis, trivalvis, juſſiæoides, hypericoides, glutinoſa, aciſanthera, glomerata, longifolia aſpera, inconſtans, latifolia, villoſa, aquatica, uniflora. N. America, Jamaica, Braſil.

730. Oenothera, or *Tree-primroſe.*

15 ſpecies; viz. biennis, grandiflora, parviflora, muricata, longiflora, molliſſima, nocturna, villoſa, odorata, ſinuata, tetraptera, fruticoſa, pumila, roſea, purpurea. America.

731. Gaura, or *Virginian Looſe-ſtrife.*

Three ſpecies; viz. biennis, fruticoſa, mutabilis. Virginia, Pennſylvania.

732. Epilobium, or *Willow-herb.*

12 ſpecies; viz. * anguſtifolium, anguſtiſſimum, latifolium, * hirſutum, pubeſcens, villoſum, * montanum, glabellum, rotundifolium, * tetragonum, * paluſtre, * alpinum. North of Europe.

anguſtifolium. * E. leaves ſcattered, ſtrap-ſpear-ſhaped; bloſſoms irregular.—Goats are extremely fond of this plant. Cows and ſheep eat it. Horſes and ſwine refuſe it. The *phalæna porcellus* and *ſphinx elpenor* are found upon it. The ſuckers of the root are eatable. An infuſion of the plant has an intoxicating property, and the Kamtſchatcadales brew a ſort of ale from the pith, and from the ale make vinegar. The down of the ſeeds alſo, mixed with cotton or fur, has been manufactured into ſtockings and other articles of clothing.

hirſutum. * E. leaves egg-ſpear-ſhaped, hairy, half embracing the ſtem; ſtem very much branched and hairy.—The top-ſhoots have a delicate fragrance, reſembling ſcalded codlings (whence one of its names), but ſo tranſitory, that before they have been gathered five minutes, it is no longer perceptible. Horſes, ſheep, and goats, eat it. Cows are not fond of it. Swine refuſe it.

733. Antichorus.

One ſpecies; viz. depreſſus. Arabia.

734. Combretum.

Five ſpecies; viz. laxum, ſecundum, purpureum, decandrum, alternifolium. America.

735. Vitmannia.

One ſpecies; viz. elliptica.

736. Grislea.

Two ſpecies; viz. ſecunda, tomentoſa. America.

737. Tetratheca.

One ſpecies; viz. pincea.

738. Roxburghia.

One ſpecies; viz. glorioſoides.

739. Ornitrophe.

Six ſpecies; viz. integrifolia, ſerrata, cobbe, cominia, occidentalis, rigida. Iſle of Bourbon.

740. Allophylus.

One ſpecies; viz. zeylanicus. Ceyl. Jam. Hiſpan.

741. Correa.

One ſpecies; viz. alba.

742. Honckenya.

One ſpecies; viz. ficifolia.

743. Mimusops.

Four ſpecies; viz. elengi, hexandra, kanhi, imbricaria. Arabia, India.

744. Jambolifera.

One ſpecies; viz. pedunculata.

745. Cupania.

Three ſpecies; viz. tomentoſa, glabra, ſaponarioides. Coromandel, W. Indies.

746. Xylocarpus.

One ſpecies; viz. granatum. Ceylon, E. Indies.

747. Ephielis.

One ſpecies; viz. fraxinea. Guiana.

748. Molinæa.

Three ſpecies; viz. lævis, caneſcens, alternifolia.

749. Melicocca.

One ſpecies; viz. bijuga. Jamaica.

750. Koelreuteria.

One ſpecies; viz. paniculata. China.

751. Hagenia.

One ſpecies; viz. abyſſinica. Abyſſinia.

752. Persoonia.

One ſpecies; viz. gaureoides.

753. Gaurea.

One ſpecies; viz. trichilioides.

754. Hedwigia.

One ſpecies; viz. balſamifera. Hiſpaniola.

755. Amyris, or *Shrubby Sweetwood.*

19 ſpecies; viz. polygama, elemifera, ſylvatica, maritima, kataf, gileadenſis, opobalſamum, enneandra, heterophylla, gujanenſis, ambroſiaca, decandra, altiſſima, toxifera, protium, dentata, aniſata, zeylanica, balſamifera. E. Indies, Carolina, Jamaica.

The *A. elemifera* produces a reſin, which is brought from the Spaniſh W. Indies, and ſometimes from the E. Indies, in large roundiſh cakes, generally wrapped up in flag leaves. The beſt ſort is ſoftiſh, ſomewhat tranſparent, of a pale, whitiſh yellow colour, inclining a little to green; of a ſtrong, not unpleaſant ſmell. It almoſt totally diſſolves in pure ſpirit, and ſends over ſome part of its fragrance along with this menſtruum in diſtillation: diſtilled with water it yields a conſiderable quantity of pale-coloured, thin, fragrant eſſential oil. This reſin gives name to one of the officinal unguents, and is at preſent ſcarce any otherwiſe made uſe of; though it is certainly preferable for internal purpoſes to ſome others, which are held in greater eſteem.

The fruit of the *amyris gileadenſis* is the product of the tree that yields the opobalſam, or balſam of Gilead, It is about the ſize of a pea, of a whitiſh colour, encloſed in a dark-brown wrinkled bark. This fruit, when in perfection, has a pleaſant warm glowing taſte, and a fragrant ſmell, reſembling that of the opobalſam itſelf. It is very rarely found in the ſhops; and ſuch as we now and then do meet with, has almoſt entirely loſt its ſmell and taſte. It had formerly a place in the mithridate and theriaca formulæ, now baniſhed from our pharmacopœias; but even then the college permitted cubebs to be employed as a ſubſtitute for the carpobalſamum, which could ſeldom be procured; and it is probably on this account that it has now no place in our liſts.

756. Cedrota.

One ſpecies; viz. longifolia. Guiana.

757. XIMENIA.

Three ſpecies; viz. americana, elliptica, inermis. Weſt Indies, Guiana.

758. FUSCHIA.

Four ſpecies; viz. triphylla, coccinea, excorticata, multiflora. Jam. Chili, New Zealand.

759. CHLORA, or *Yellow Centaury*.

Five ſpecies; viz. *perfoliata, quadrifolia, dodecandra, ſeſſilis, imperfoliata. S. Eur. Lev. Virginia.

760. MICHAUXIA.

One ſpecies; viz. campanuloides. Levant.

761. DODONÆA.

Three ſpecies; viz. viſcoſa, triquetra, anguſtifolia. Tropical climates, Cape.

762. VALENTINIA.

One ſpecies; viz. iliciſolia. Cuba, Hiſpaniola.

763. LAWSONIA.

Four ſpecies; viz. inermis, purpurea, acronychia, ſpinoſa. Egypt, Eaſt Indies.

764. MELICOPE.

One ſpecies; viz. ternata. South ſea iſles.

765. DIMOCARPUS.

One ſpecies; viz. litchia.

766. MEMECYLON.

Four ſpecies; viz. capitellatum, tinctorium, grande, cordatum. Ceylon.

767. BUGINVILLÆA.

One ſpecies; viz. ſpectabilis. Brazil.

768. VACCINIUM, or *Bill-berry*, or *Whortle-berry*.

27 ſpecies; viz. *myrtillus, pallidum, hirtum, ſtamineum, *uliginoſum, album, mucronatum, diffuſum, anguſtifolium, corymboſum, bracteatum, ciliatum, fuſcatum, frondoſum, venuſtum, liguſtrinum, reſinoſum, amoenum, virgatum, tenellum, arctoſtaphyllos, meridionale, cereum, *vitis-idæa, *oxycoccus, hiſpidulum, macrocarpon. N. Europe, Levant, N. America, Jamaica.

myrtillus. * V. fruit-ſtalks 1-flowered; leaves ſerrated, egg-ſhaped; ſtem angular.—The berries of this plant are very acceptable to children, either eaten by themſelves, or with milk, or in tarts. The moor game live upon them in the autumn. The juice ſtains paper or linen purple. Goats eat it. Sheep are not fond of it. Horſes and cows refuſe it.

uliginoſum. * V. fruit-ſtalks 1-flowered; leaves very entire, inverſely egg-ſhaped, blunt, ſmooth.—Children are ſaid ſometimes to eat the berries; but in large quantities they occaſion dizzineſs and a ſlight headach, eſpecially when full grown, and quite ripe. Many vintners in France are ſaid to make uſe of the juice to colour their white wines red. Horſes, cows, ſheep, and goats, eat it. Swine refuſe it.

vitis-idæa. * V. bunches terminating, nodding; leaves inverſely egg ſhaped; edge very entire, and rolled back, dotted underneath.—The berries are acid, and not very grateful; but they are eaten by the Finlanders, and by the country people in Sweden, and are ſent in large quantities from W. Bothnia to Stockholm for pickling. They are alſo made into tarts, rob, and jelly. Goats eat it. Cows, ſheep, and horſes, refuſe it.

oxycoccos. V. fruit-ſtalks ſingle or in pairs; leaves egg-ſhaped, very entire, edges rolled back; ſtem thread-ſhaped, trailing, not hairy.—The berries made into tarts, are much eſteemed; but, on account of a peculiar flavour, are diſliked by ſome. They may be kept ſeveral years if wiped clean; and then cloſely corked in dry bottles, or the bottles may be filled with water.—At Longtown in Cumberland, 20 or 30l.'s worth are ſold by the poor people each market day, for five or ſix weeks together. The moſt general name, cranberry, probably originated from the fruitſtalks being crooked at the top, and before the expanſion of the bloſſom, reſembling the neck and head of a crane.

769. MENZIESIA.

One ſpecies; viz. ferruginea.

770. ERICA, or *Heath*.

137 ſpecies; viz. glutinoſa, lutea, paniculata, depreſſa, halicacaba, monſoniana, diſcolor, denſifolia, cruenta, nigrita, phylicoides, regerminans, urceolaris, marifolia, planifolia, hirta, bicolor, articularis, viridi-purpurea, pubeſcens, perſoluta, gracilis, ſtrigoſa, caffra, arborea, ſtricta, florida, mucoſa, pitulifera, amoena, *tetralix, inflata, gilva, abietina, verticillata, patterſonia, mammoſa, empetrifolia, ſpicata, octophylla, faſcicularis, obliqua, *vulgaris, gnaphaloides, corifolia, calycina, triflora, ſcoparia, bergiana, formoſa, rubens, incarnata, *cinerea, auſtralis, ramentacea, quadriflora, lateralis, margaritacea, baccans, pendula, phyſodes, cernua, retorta, *daboecia, tenuifolia, albens, bracteata, thunbergii, tetragona, umbellata, nudiflora, petiolata, bryantha, ſtelleriana, fucata, axillaris, imbricata, ſexfaria, melanthera, leucanthera, taxifolia, ſpumoſa, capitata, bruniades, paſſerina, totta, abſynthioides, ciliaris, cœrulea, hiſpidula, petiverii, bankſii, ſebana, monadelphia, plukenetii, verſicolor, perſpicua, aitoni, cephalotes, pulchella, longifolia, veſtita, pinea, lœa, coccinea, purpurea, concinna, grandiflora, cylindrica, curviflora, ſimpliciflora, tubiflora, lanata, procera, conſpicua, glanduloſa, tranſparens, cerinthoides, ſparrmanni, maſſoni, ventricoſa, ampullacea, faſtigiata, incurva, globoſa, comoſa, denticulata, muſcari, viſcaria, pyramidalis, mediterranea, multiflora, herbacea, purpuraſcens, *vagans, cubica, racemoſa. Europe, Madeira, Cape.

vulgaris. * E. leaves arrow-ſhaped.—This plant, but little regarded in happier climates, is made ſubſervient to a great variety of purpoſes, in the bleak and barren highlands of Scotland. The poorer inhabitants make walls for their cottages, with alternate layers of heath, and a kind of mortar made of black earth and ſtraw, the woody roots of the heath being placed in the centre, the tops externally and internally. They make their beds of it, by placing the roots downwards, and the tops only being uppermoſt, they are ſufficiently ſoft to ſleep upon. Cabins are thatched with it. In the iſland of Ilay, ale is frequently made by brewing one part malt and two parts of the young tops of heath; ſometimes they add hops. It is ſaid, that this liquor was much uſed by the Picts. Woollen cloth boiled in alum water, and afterwards in a ſtrong decoction of the tops of heath, comes out a fine orange colour. The ſtalks and tops will tan leather. In England beſoms are made of it, and faggots to burn in ovens, or to fill up drains that are to be covered over. Sheep and goats will ſometimes eat the tender ſhoots, but they are not fond of them. Bees extract a great deal of honey from the-

the flowers; but where heath abounds, the honey has a reddish cast.

771. Ophira.
One species; viz. ſtricta.—Africa.

772. Grubbia.
One species; viz. roſmarinifolia. C. of G. Hope.

773. Daphne, or *Mezereon, Spurge-laurel.*
30 ſpecies; viz. *mezereum, thymelæa, dioica, calycina, pubeſcens, vermiculata, villoſa, tarton-raira, nitida, alpina, *laureola, pontica, pendula, lagetto, polyſtachya, monoſtachya, tinifolia, gnidium, indica, fœtida, rotundifolia, odora, occidentalis, cneorum, altaica, ſquarroſa, glomerata, oleoides, ſericea, collina.—Europe, China, Japan, W. Indies.

mezereum. * D. flowers ſitting on the ſtem, moſtly three together; leaves ſpear-ſhaped, deciduous; berries globular.—An ointment prepared from the bark or the berries, has been ſucceſsfully applied to ill-conditioned ulcers. The whole plant is very corroſive; ſix of the berries will kill a wolf. A woman gave 12 grains of the berries to her daughter, who had a quartan ague; ſhe vomited blood, and died immediately.—A decoction made of two drams of the cortical part of the root, boiled in three pints of water till one pint is waſted, and this quantity drank daily, is found very efficacious in reſolving venereal nodes, and other indurations of the perioſteum. It is ſaid to have been once given, in a caſe of difficulty in ſwallowing, ſeemingly occaſioned by a paralytic affection. The patient was directed to chew a thin ſlice of the root, as often as ſhe could bear to do it; and in about two months, ſhe recovered her power of ſwallowing. This woman bore the diſagreeable irritation, and the ulcerations its acrimony occaſioned in her mouth, with great reſolution; but ſhe had been reduced to ſkin and bone, and for three years before, had ſuffered extremely from hunger, without being able to ſatisfy her appetite, for ſhe ſwallowed liquids very imperfectly, and ſolids not at all. This complaint came on after lying-in.

laureola. * D. bunches of about five flowers; axillary leaves ſpear-ſhaped, ſmooth.—Very happy effects have been experienced from this plant in rheumatic fevers. It operates as a briſk and rather ſevere purgative. It is an efficacious medicine in worm caſes; and upon many accounts deſerves to be better known to phyſicians; but in leſs ſkillful hands, it would be dangerous, as it is poſſeſſed of conſiderable acrimony. The whole plant has the ſame qualities, but the bark of the root is the ſtrongeſt. Dr Alſton fixes the outſide doſe at ten grains.

774. Dirca, or *Leather-wood.*
One ſpecies; viz. paluſtris. Virginia.

775. Gnidia.
16 ſpecies; viz. pinifolia, radiata, filamentoſa, carinata, ſcabra, ſimplex, capitata, lævigata, biflora, racemoſa, tomentoſa, argentea, imbricata, ſericea, oppoſitifolia, daphnæfolia. Cape, Madagaſcar.

776. Stellera, or *German Groundſel.*
Two ſpecies; viz. paſſerina, chamæiaſme. Eur.

777. Passerina, or *Sparrow-wort.*
16 ſpecies; viz. filiformis, hirſuta, ericoides, nervoſa, cephalophora, capitata, orientalis, ciliata, uniflora, grandiflora, caneſcens, ſpicata, laxa, ſtricta, anthylloides, pentandra. C. of G. Hope.

778. Lachnæa.
Two ſpecies; viz. eriocephala, conglomerata. C. of G. Hope.

779. Bæchea.
Two ſpecies; viz. fruteſcens, denſifolia. China.

Order II. DIGYNIA.

780. Schmiedelia.
One ſpecies; viz. racemoſa. E. Indies.

781. Galenia, or *Cape Jeſſamine.*
Two ſpecies; viz. africana, procumbens.

782. Weinmannia.
Six ſpecies; viz. glabra, hirta, tomentoſa, trifoliata, racemoſa, parviflora. Cape, Jamaica, New Zealand.

783. Codia.
One ſpecies; viz. montana. New Caledonia.

784. Moehringia, or *Mountain Chickweed.*
One ſpecies; viz. muſcoſa. Alps, S. of Eur.

Order III. TRIGYNIA.

785. Polygonum, or *Knot-graſs.*
43 ſpecies; viz. fruteſcens, grandiflorum, *biſtorta, *viviparum, virginianum, lapathifolium, *amphibium, ocreatum, *hydropiper, filiforme, tinctorium, *minus, *perſicaria, incanum, glabrum, barbatum, tomentoſum, orientale, penſylvanicum, maritimum, *aviculare, bellardi, ſetoſum, erectum, articulatum, divaricatum, alpinum, undulatum, ſericeum, ſerratum, corymboſum, chinenſe, ſagittatum, arifolium, craſſifolium, perfoliatum tartaricum, emarginatum, *fagopyrum, *convolvulus, dumetorum, ſcandens, multiflorum. Eur. E. Indies, China, N. Amer.

* P. flowers with cloven piſtils; ſtipulæ ſomewhat fringed; leaves ſpear-ſhaped.—The whole plant has an acrid burning taſte. It cures little aphthous ulcers in the mouth: It dyes wool yellow. The aſhes of this plant, mixed with ſoft ſoap, is a noſtrum in a few hands for diſſolving the ſtone in the bladder; but it may be reaſonably queſtioned, whether it has any advantage over other ſemi-cauſtic preparations of the vegetable alkali. Its acrimony riſes in diſtillation, and the diſtilled water drank to the amount of two or three half pints daily, has been found very effectual in ſome nephritic caſes. Horſes, cows, goats, ſheep, and ſwine, refuſe it. *hydropiper*

* P. ſtyles 2; ſpikes egg-oblong; leaves ſpear-ſhaped; ſtipulæ fringed.—Its taſte is ſlightly acid and aſtringent. Woollen cloth, dipped in a ſolution of alum, obtains a yellow colour from this plant. Goats, ſheep, and horſes, eat it; cows and ſwine refuſe it. *perſicaria.*

* P. leaves egg ſhaped, extended at the baſe along the leaf-ſtalks.—The root is one of the ſtrongeſt vegetable aſtringents. The young ſhoots are eaten in herb-pudding in the north of England; and about Mancheſter they are ſubſtituted for greens, under the name of patience dock. *biſtorta.*

* P.

viviparum. * P. leaves ſpear-ſhaped; ſpike terminating.—Plants cultivated for four years in a garden, conſtantly produced perfect ſeeds in July, and flowered as conſtantly a ſecond time in September. Theſe latter germs vegetated on the ſtem.

aviculare. * P. flowers axillary; leaves ſpear-ſhaped, ſtem trailing.—The ſeeds are uſeful for every purpoſe in which thoſe of the next ſpecies are employed. Great numbers of ſmall birds feed upon them. Cows, goats, ſheep, horſes, and ſwine eat it. The ſtubbles in Sweden are purpled over with this plant. It affords nouriſhment to the *chryſomela polygoni*.

fagopyrum * P. leaves heart-arrow ſhaped; ſtem nearly upright, without prickles; angles of the ſeeds equal.—This plant is very impatient of cold, dying at the very firſt attack of froſt. The ſeeds furniſh a nutritious meal, which is not apt to turn acid upon the ſtomach. It is made into thin cakes in ſome parts of England called *Crumpits*. It is uſual with farmers to ſow a crop of buckwheat, and to plough it under when fully grown as a manure to the land. The ſeeds are excellent food for poultry. Sheep that eat this plant become unhealthful. As it flowers late in the ſummer, M. du Hamel, in his obſervations upon the management of bees, adviſes to move the hives in the autumn to a ſituation where plenty of this plant is ſown. Cows, goats, and ſheep, eat it; ſwine and horſes refuſe it.

convolvulus. * P. leaves heart-ſhaped; ſtem twining, angular; flowers blunted.—The ſeeds of this plant are quite as good for uſe as thoſe of the preceding ſpecies, are produced in greater quantity, and the plant bears cold better. Cows and goats eat it; ſheep, ſwine, and horſes, refuſe it. The *phalæna lubricipeda* is found upon ſeveral of the ſpecies.

786. Coccoloba, or *Sea-ſide Grape.*
13 ſpecies; viz. uvifera, auſtralis, pubeſcens, diverſifolia, flaveſcens, excoriata, nivea, punctata, obtuſifolia, microſtachya, emarginata, barbadenſis, tenuifolia. W. Indies, S. America.

787. Paullinia, or *Supple-jack.*
14 ſpecies; viz. nodoſa, curuvu, carthaginenſis, caribæa, curaſſavica, barbadenſis, polyphylla, tetragona, veſpertilio, pinnata, tomentoſa, cauliflora, japonica, diverſifolia. E. and W. Indies, Japan, S. America.

788. Seriana.
10 ſpecies; viz. ſinuata, divaricata, caracaſana, racemoſa, ſpectabilis, mexicana, anguſtifolia, lupulina, lucida, triternata.

789. Cardiospermum, or *Heart-pea.*
Four ſpecies; viz. halicacabum, hirſutum, corindum, grandiflorum. E. and W. Indies, Brazil.

790. Sapindus, or *Soap-berry.*
10 ſpecies; viz. ſaponaria, longifolius, ſpinoſus, laurifolius, emarginatus, rubiginoſus, tetraphyllus, rigidus, arboreſcens, fruteſcens. E. and W. Indies, China.

791. Ponæa.
One ſpecies; viz. ſaponarioides. Guiana.

Order IV. TETRAGYNIA.

792. Verea.
One ſpecies; viz. crenata.

793. Paris, or *True Love*, or *One-berry.*
One ſpecies; viz.
* P. cal. 4-leaved; petals 4, narrower; berry 4-celled.—The leaves and berries are ſaid to partake of the properties of opium. The juice of the berries is uſeful in inflammations of the eyes. Linnæus ſays the roots will vomit as well as ipecacuanha, but it muſt be given in a double quantity. Europe. *quadrifolia*

794. Adoxa, or *Moſchatel.*
One ſpecies; viz. * moſchatellina. Europe.

795. Elatine, or *Water-wort.*
Two ſpecies; viz. hydropiper, * alſinaſtrum. Eur.

796. Haloragis.
Two ſpecies; viz. cercodia, proſtrata. New Zealand, New Caledonia.

797. Forskolea.
Three ſpecies; viz. tenaciſſima, candida, anguſtifolia. Egypt, Teneriffe, Cape.

In the claſs Octandria are

70 Genera, including 493 Species, of which 30 are found in Britain.

CLASSIS IX.

ENNEANDRIA.

Ordo I. MONOGYNIA.

798. Laurus. Cal. 0. Cor. 6-petala, calycina. Bacca 1-ſperma. Nectarii glandulæ biſetæ.

800. Panke. Cal. 4-fidus. Cor. 4-fida. Capſ. monoſperma.

799. Anacardium. Cal. 5-partitus. Cor. 5-petala. Stamine decimo caſtrato. Nux receptaculo carnoſo.

CLASS IX.

ENNEANDRIA.

Order I. MONOGYNIA.

L. No cal. Cor. 6-petaled, cup or calyx-like. A berry, 1-ſeeded. The glands of the nectary briſtled.
P. Cal. 4-cleft. Cor. 4-cleft. Capſ. 1-ſeeded.

A. Cal. 5-partite. Cor. 5-petaled. The 10th ſtamen without an anther. A nut with a fleſhy receptacle.

801. Plegorhiza. Cal. 0. Cor. 1-petala. Capſ. 1-locul. 1-ſperma.

P. No cal. Cor. 1-petaled. Capſ. 1-celled, 1-ſeeded.

802. Cassyta. Cal. 0. Cor. 6-partita, calycina. Bacca 1-ſperma. Nectarii glandulæ truncatæ.

C. No cal. Cor. 6-partite, cup-like. Berry 1-ſeeded. The glands of the nectary lopped.

† *Anacardium ſtamine decimo caſtrato. Amyris enneandra. Browncea enneandra. Gardenia Thunbergia.*

Ordo II. TRIGYNIA.

803. Rheum. Cal. 0. Cor. 6-fida. Sem. 1, triquetrum.

R. No cal. Cor. 6-cleft. Seed 1, triangular.

Ordo III. HEXAGYNIA.

804. Butomus. Cal. 0. Cor. 6-petala. Capſ. 6, polyſpermæ.

B. No cal. Cor. 6-petaled. Capſ. 6, many-ſeeded.

Order I. MONOGYNIA.

798. Laurus, or *Bay-tree.*

34 ſpecies; viz. cinnamomum, caſſia, camphora, culilaban, montana, chloroxylon, glauca, pedunculata, cauſtica, nobilis, indica, fœtens, perſica, borbonia, martinicenſis, exaltata, alpigena, triandra, ſanguinea, ſurinamenſis, hexandra, ſalicifolia, coriacea, leucoxylon, membranacea, patens, parviflora, pendula, floribunda, lucida, umbellata, æſtivalis, benzoin, ſaſſafras. Of theſe we ſhall take notice of the following, as of conſiderable importance.

1. The nobilis, or evergreen bay tree, is a native of Italy, and hath an upright trunk branching on every ſide from the bottom upward; with ſpear-ſhaped, nervous, ſtiff, evergreen leaves, three inches long and two broad; and ſmall, yellowiſh, quadrifid, dicœcious flowers, ſucceeded by red berries in autumn and winter. Of theſe ſpecies there are varieties, with broad, narrow, ſtriped, or waved leaves. 2. The æſtivalis, or deciduous bay, grows naturally in North America. It riſes, with an upright ſtem, covered with a purpliſh bark; having oblong, oval, acuminated, veined, deciduous leaves, two or three inches long, and half as broad, growing oppoſite; with ſmall white flowers, ſucceeded by red berries. 3. The benzoin, or benjamin tree, is alſo a native of North America; grows 15 or 20 feet high, divided into a very branchy head; with oval, acute, deciduous leaves, three or four inches long, and half as broad; and ſmall yellowiſh flowers, not ſucceeded by berries in this country. 4. The ſaſſafras is a native of the ſame country. It hath a ſhrub-like ſtraight ſtem, garniſhed with both oval and three-lobed, ſhining, deciduous leaves, of different ſizes, from three to ſix inches long, and near as broad, with ſmall yellowiſh flowers, ſucceeded by blackiſh berries, but not in this country. 5. The indica, or Indian bay tree, riſes with an upright ſtraight trunk, branching regularly 20 or 30 feet high: adorned with very large, ſpear-ſhaped, plane, nervous, evergreen leaves on reddiſh footſtalks; and bunches of ſmall whitiſh-green flowers, ſucceeded by large oval black berries which do not ripen in this country. 6. The borbonia, or Carolina red bay tree, riſes with an upright ſtraight ſtem, branching 15 or 20 feet high; with large, ſpear-ſhaped, evergreen leaves, tranſverſely veined; and long bunches of flowers on red footſtalks, ſucceeded by large blue berries ſitting in red cups. 7. The camphora, or camphire tree, grows naturally in the woods of the weſtern parts of Japan, and in the adjacent iſlands. The root ſmells ſtronger of camphire than any of the other parts, and yields it in greater plenty. The bark of the ſtalk is outwardly ſomewhat rough; but in the inner ſurface ſmooth and mucous, and therefore eaſily ſeparated from the wood, which is dry and of a white colour. The leaves ſtand upon ſlender footſtalks, have an entire undulated margin, running out into a point: have the upper ſurface of a lively and ſhining green, the lower herbaceous and ſilky; and are furniſhed with a few lateral nerves, which ſtretch archwiſe to the circumference, and frequently terminate in ſmall warts; a circumſtance peculiar to this ſpecies of laurus. The flowers are produced on the tops of footſtalks, which proceed from the armpits of the leaves; but not till the tree has attained conſiderable age and ſize. The flower-ſtalks are ſlender, branched at the top, and divided into very ſhort pedicles, each ſupporting a ſingle flower. Theſe flowers are white, and conſiſt of ſix petals, which are ſucceeded by a purple and ſhining berry of the ſize of a pea, and in figure ſomewhat top-ſhaped, It is compoſed of a ſoft pulpy ſubſtance that is purple, and has the taſte of cloves and camphire; and of a nucleus or kernel of the ſize of a pepper, that is covered with a black, ſhining, oily corticle, of an inſipid taſte. 8. The cinnamomum, or cinnamon tree, is a native of Ceylon. It hath a large root, and divides into ſeveral branches, covered with a bark, which on the outer ſide is of a greyiſh brown, and on the inſide has a reddiſh caſt. The wood of the roots is hard, white, and has no ſmell. The body of the tree, which grows to the height of 20 or 30 feet, is covered, as well as its numerous branches, with a bark which at firſt is green and afterwards red. The leaf is longer and narrower than the common bay tree; and it is three-nerved, the nerves vaniſhing towards the top. When firſt unfolded, it is of a flame colour: but after it has been for ſome time expoſed to the air, and grows dry, it changes to a deep green on the upper ſurface, and to

a lighter on the lower. The flowers are ſmall and white, and grow in large bunches at the extremity of the branches: they have an agreeable ſmell, ſomething like that of the lily of the valley. The fruit is ſhaped like an acorn, but is not ſo large. 9. The caſſia, or baſe cinnamon, has lanceolated leaves, triple-nerved. 10. The perſea, avocada pear tree, or alligator pear, riſes to a conſiderable height, with a ſtraight trunk, of which the bark and wood are of a grayiſh colour. The leaves are long, oval, pointed, of a ſubſtance like leather, and of a beautiful green colour. The flowers are produced in large knots or cluſters at the extremities of the branches, and conſiſt each of ſix petals diſpoſed in the form of a ſtar, and of a dirty white or yellow colour, with an agreeable odour, which diffuſes itſelf to a conſiderable diſtance. It is a native of the Weſt Indies. The perſea begins to bear two years and a half, or at moſt three years, after being planted; and, like moſt of the trees in warm climates, bears twice a year. The other ſpecies of this genus are poſſeſſed of no remarkable properties.

The firſt ſpecies are propagated by layers, or by the berries. In order to raiſe a quantity of theſe trees by layers, ſome ſtools ſhould be planted for the purpoſe; and after theſe are ſhot about a yard high, the branches muſt be brought down to the ground in the winter, all the preceding ſummer's ſhoots laid on it, and pegged down (being firſt ſlit in the joint), and the leaves taken off, which would otherwiſe be under ground. In one year's time theſe layers will have taken root; and in the ſpring they ſhould be taken up, and planted in the nurſery a foot aſunder, in rows two feet diſtance. After they are planted out, if the weather ſhould prove dry, they muſt be conſtantly watered; for without ſuch care, it is difficult to make this tree grow. After they have taken well to the ground, they will require no farther trouble than keeping them clean from weeds, and digging between the rows each winter, till they are finally planted out. 2. In order to raiſe this tree from the berries, they ought to hang on the trees till about January before they are gathered. A well ſheltered ſpot of ground for the ſeminary muſt be made choice of; and having the mould ſmooth and fine, they ſhould be ſown ſoon after they are gathered, in beds or drills, rather more than half an inch deep. Towards the cloſe of the ſpring the plants will come up, and during ſummer muſt be duly attended, by watering and weeding. In the winter following, their ſheltered ſituation muſt not be truſted to, to defend them from the froſt: Furze buſhes, or ſome ſuch things, ought to be ſtuck in rows between the beds or drills, to guard them from the black froſts. Indeed, without this precaution, if the winter ſhould prove very froſty, few of the young ſeedlings will be alive in ſpring. During the following ſummer, weeding and watering muſt be obſerved, and the winter after that they ſhould be defended with covering as before; for they will be ſtill in danger of being deſtroyed by ſevere froſts. In the enſuing ſpring, the ſtrongeſt may be taken out of the ſeed-beds, and planted in the nurſery way; though, if they have not by that time made good ſhoots, it will be adviſable to let them remain in their beds till the third ſpring; for a ſmall plant of this kind is with more difficulty made to grow than one which is larger. When they are planted in the nurſery, the diſtance which ſhould be allowed them is the ſame as the layers, a foot aſunder and two feet diſtance in the rows; and this will not be found too cloſe; for notwithſtanding the greateſt care is exerted in planting them in the nurſery, even making choice of rainy and cloudy weather, which muſt always be obſerved in ſetting them out, many of them will be loſt by being tranſplanted. After they are thus planted out in the nurſery, whether layers or ſeedlings, they muſt be ſtill watered in dry weather, kept free from weeds, and the rows dug between every winter. You will even find, that thoſe plants which ſuffer leaſt by being tranſplanted will have met with a check, which they will not recover in two or three years; and till they have acquired new ſtrength they ſhould not be taken from the nurſery; but when they appear to be good ſtiff plants, having the year before made a vigorous ſhoot, they will be then proper plants for planting out where they are to remain. Holes ſhould be got ready for their reception; and as ſoon as the firſt autumnal rains fall, the work ſhould be ſet about, eſpecially if the land be gravelly or dry; but if it be moiſt, the ſpring will do as well. Being now planted at one yard diſtance, they will make a poor progreſs for two or three years more; but after this, when they have overcome all theſe difficulties, they will grow very faſt, and arrive to be good trees in a few years. Although this tree flouriſhes beſt in old gardens, where the ſoil has been made rich and deep, and loves the ſhade, Hanbury tells us, "it thrives neverthelefs exceedingly well in our hotteſt gravels and ſands; and after it has ſurmounted the hardſhips of tranſplanting, will grow in ſuch ſituations extremely faſt, and arrive to a large bulk."

The propagation of the three next ſorts of trees may be performed two or three ways: 1. By the ſeeds. Theſe we receive, from the places where the trees grow naturally, in the ſpring. They ſhould be preſerved in ſand; and as ſoon as they arrive, ſhould be ſown in largiſh pots an inch deep. The ſoil for their reception ſhould be taken from a rich paſture at leaſt a year before, with the ſward. It ſhould alſo be laid in a heap, and frequently turned, until the ſward is grown rotten, and the whole appears well mixed and fine. If the paſture from whence it was taken near the ſurface is a ſandy loam, this is the beſt compoſt for theſe ſeeds; if not, a ſmall addition of drift or ſea ſand ſhould be added, and well mixed with the other mould. After filling the pots with this ſoil, the ſeeds ſhould be ſown an inch deep; and then they ſhould be plunged into common mould up to the rim. If the ſoil be naturally moiſt, it will keep them cooler, and be better; and if the place be well ſheltered and ſhaded, it will be better ſtill. Nothing more than weeding, which muſt be conſtantly obſerved during the ſummer, will be neceſſary; and in this ſtation they may remain until the March following: about the middle of which month, having prepared a good hot bed, the pots ſhould be taken up and plunged therein. Soon after the ſeeds will come up: and when the young plants have ſufficiently received the benefit of this bed, they ſhould be inured by degrees to the open air. Weeding and watering muſt be obſerved during the ſummer; and at the approach of the cold weather in the autumn, they ſhould be removed under a hotbed frame, or ſome

cover, to be protected from the frosts during the winter. In the spring, when this danger is over, they should resume their first station; namely, the pots should be plunged up to the rim, as when the seeds were first sown; and if this place be well sheltered, they may remain there all winter: if not, and severe frosts threaten, they should be taken up and placed under cover as before. After they have been thus managed three years from the seeds, they should be taken out of the pots with care, and planted in the nursery ground at small distances, where they may remain until they are strong enough to be finally set out. By sowing the seeds in pots, and assisting them by a hot-bed, a year at least is saved; for they hardly ever come up, when sown in a natural border, under two years from the seeds; nay, they have been known to remain three, and even some plants to come up the fourth year after sowing; which at once shows the preference of the former practice, and should caution all who have not such convenience, not to be too hasty in disturbing the beds when the seeds are sown in the natural ground; as, especially if they are not well preserved in mould or sand, these may be some years before they appear. Indeed, it is the long time we are in obtaining these plants, either by seeds, layers, &c. that makes them at present so very scarce amongst us. 2. These plants may also be increased by layers; but very slowly; for they will be two, and sometimes three, or even four years, before they have struck out good roots; though the benjamin tree is propagated the fastest by this method. The young twigs should be laid in the ground in the autumn; and it will be found that twisting the wire round the bud, so as in some degree to stop the progress of the sap, and taking away with a knife a little of the bark, is a more effectual method of obtaining good roots soon than by the slit or twisting, especially when practised on the sassafras tree. 3. Plants of these sorts are likewise sometimes obtained by suckers, which they will at all times throw out, and which may be often taken off with pretty good roots; but when they are weak, and with bad roots, they should be planted in pots, and assisted by a moderate heat in a bed: with such management they will be good plants by the autumn, and in the spring may be planted out anywhere. 4. Cuttings of these trees, when planted in a good bark bed, and duly watered, will also oftentimes grow. When this method is practised, and plants obtained, they must be inured by degrees to the open air, till they are hardy enough to be finally planted out.

The Indian bay, the camphire, the avocado, and the cinnamon tree, require the treatment common to greenhouse plants; the latter, however, is rather a stove plant in this country.—Of its culture or propagation in its native places, no particular account has been given by botanical writers; but it must now become an important consideration with us, since the island of Ceylon, where cinnamon chiefly grows, now belongs to Great Britain. Of the advantages promised by this acquisition we are indebted for the first accounts to Dr Wright in 1787; from whom also we learn that its propagation is very easy, and its culture requires little care, as more particularly noticed below. Since that time, some observations by Dr Dancer, relative to its cultivation, have appeared in the Transactions of the Society of Arts, &c. These observations confirm, without adding any thing essential to, the concise notice of Dr Wright. We are informed, that as the tree "puts out numerous side branches, with a dense foliage, from the very bottom of the trunk; this furnishes an opportunity of obtaining plenty of layers, and facilitates the propagation of the tree, as it does not perfect its seeds in any quantity under six or seven years; when it becomes so plentifully loaded, that a single tree is sufficient almost for a colony. It seems to delight in a loose moist soil, and to require a southern aspect; the trees, thus planted, flourishing better than others growing in loam, and not so well exposed to the sun. When healthy, it is (from layers) of pretty quick growth, reaching in *eight* years the height of fifteen or twenty feet, is very spreading, and furnished with numerous branches of a fit size for decortication. The seeds, however, are a long time in coming up, and the plants make small progress for the first year or two." It is added, that "the birds appear to be very fond of the berries, and will probably propagate this tree in the same way they do many others everywhere over the island; so that in a short time it will grow spontaneously, or without cultivation." The age for decortication, said above to be eight years, it will be observed, is different from that specified below for the trees in Ceylon.

Evelyn says, he has seen bay trees near 30 feet high, and almost two feet in diameter; and enumerates the bay amongst useful trees. Hanbury catches at this idea, and tells us in general terms, that "it will grow to 30 feet in height, with a trunk of two feet in diameter;" and accordingly he arranges it among his forest trees: he acknowledges, however, at the same time, that the wood is of little value. The bay is nevertheless a fine aromatic and a beautiful evergreen: It is said to be the true *laurus* or laurel of the ancients, with which they adorned the brows of their successful generals. Like the holly, box, and laurel, the bay will bear the shade and drip of taller trees; and it is upon the whole a very desirable, as being a very ornamental, evergreen.

The leaves and berries of this tree have a moderately strong aromatic smell, and a warm, bitterish, pungent taste: the berries are stronger in both respects than the leaves, and afford in distillation a larger quantity of essential aromatic oil; they yield also an almost insipid oil to the press, in consequence of which they prove unctuous in the mouth. They are warm carminatives, and sometimes exhibited in this intention against flatulent colics, and likewise in hysterical disorders. Their principal use in the present practice is in glysters, and some external applications. The deciduous bay, in a moist rich soil, in which it principally delights, will grow to be about 16 feet high; but in some soils, that are possessed of the opposite qualities, it will hardly arrive at half that height. The flowers are succeeded in May by large red berries, which never ripen in England: so that, notwithstanding the leaves in summer are very pretty, and the colour of the bark makes a variety in winter, it is principally the scarcity of this plant which makes it valuable.

The *benzoin* tree will grow to a much larger size than the other, and its branches are more numerous.

They

They are ſmooth, and of a fine light green colour. The leaves on their upper ſurface are ſmooth and of a fine light green colour, but their upper ſurface is venoſe, and of a whitiſh caſt. When bruiſed, they emit a fine fragrance. This tree was formerly miſtaken for that which produces the drug called *benzoin*; which is now known to be obtained from a ſpecies of ſtyrax.

The *ſaſſafras* will grow to nearly the height of the others, though the branches are not ſo numerous. Its bark is ſmooth, and of a red colour, which beautifully diſtinguiſhes it in winter; whilſt the fine ſhining green of its leaves conſtitutes its greateſt beauty in ſummer. In theſe, indeed, there is a variety, and a very extraordinary one. Some are large and of an oval figure; others are ſmaller, and of the ſame ſhape; whilſt others again are divided into three lobes, ſo as to reſemble the leaves of ſome ſorts of the fig tree. In America, the ſaſſafras generally ſtands ſingle in the woods, and along the fences round the fields. It flowers in May before the leaves come out; and being entirely covered with them, it is diſtinguiſhed at a great diſtance by their beautiful yellow colour.

The root of the ſaſſafras has a fragant ſmell, and a ſweetiſh, aromatic, ſubacrid taſte; the bark taſtes much ſtronger than any other part, and the ſmall twigs ſtronger than the large pieces. It is a warm aperient and corroborant, and frequently employed with good ſucceſs for purifying and ſweetening the blood and juices. For theſe purpoſes, infuſions made from the raſped root or bark may be drank as tea. In ſome conſtitutions indeed, ſuch liquors are, by their fragrance, apt, on firſt taking them, to affect the head; but in ſuch caſes they may be advantageouſly freed from their flavour by boiling. A decoction of ſaſſafras, boiled down to the conſiſtence of an extract, proves ſimply bitteriſh and ſubaſtringent. Hoffman aſſures us, that he has frequently given this extract to the quantity of a ſcruple at a time, with remarkable ſucceſs, for ſtrengthening the tone of the viſcera in cachexies; as alſo in the decline of intermittent fevers and in hypochondriacal ſpaſms. Saſſafras yields in diſtillation an extremely fragrant oil of a penetrating pungent taſte, ſo ponderous (notwithſtanding the lightneſs of the drug itſelf) as to ſink in water. Rectified ſpirit extracts the whole taſte and ſmell of ſaſſafras; and elevates nothing in evaporation: hence the ſpirituous extract proves the moſt elegant and efficacious preparation, as containing the virtue of the root entire.

The bark of this tree is uſed by the women in Pennſylvania and other parts of North America in dying worſted a fine laſting orange colour, which does not fade in the ſun. They uſe urine inſtead of alum in dying; and boil the dye in a braſs boiler, becauſe in an iron veſſel it does not yield ſo fine a colour. The wood is made uſe of for poſts belonging to the encloſures, for it is ſaid to laſt a long time in the ground: but it is likewiſe ſaid, that there is hardly any kind of wood which is more attacked by worms than this when it is expoſed to the air without cover; and that in a ſhort time it is quite worm-eaten through and through. On cutting ſome part of the ſaſſafras tree, or its ſhoots, and holding it to the noſe, it has a ſtrong but pleaſant ſmell. Some people peel the root, and boil the peel with the beer which they are brewing, becauſe they believe it wholeſome. For the ſame reaſon, the peel is put into brandy either whilſt it is diſtilling or after it is made. Profeſſor Kalm informs us, that a decoction of the root of ſaſſafras in water, drank every morning, is uſed with ſucceſs in the dropſy. When part of a wood is deſtined for cultivation, the ſaſſafras trees are commonly left upon it, becauſe they have a very thick foliage, and afford a cool ſhade to the cattle during the great heats. Some people get their bedpoſts made of ſaſſafras wood, in order to expel the bugs; for its ſtrong ſcent, it is ſaid, prevents thoſe vermine from ſettling in them. For two or three years together this has the deſired effect, or about as long as the wood keeps its ſtrong aromatic ſmell; but after that time it has been obſerved to loſe its effect. In Pennſylvania ſome people put chips of ſaſſafras into their cheſts, where they keep all ſorts of woollen ſtuffs, in order to expel the moths (or larvæ of caterpillars of moths or tinies) which commonly ſettle in them in ſummer. The root keeps its ſmell for a long while: Profeſſor Kalm ſaw one which had lain five or ſix years in the drawer of a table, and ſtill preſerved the ſtrength of its ſcent. The people alſo gather its flowers, and uſe them as tea.

The *perſea*, or *alligator pear-tree*, is cultivated univerſally in the Weſt Indies by all ranks of people. The fruit is pear-ſhaped, and from one to two pounds in weight. On removing a green ſkin or covering, we come to a yellow butyraceous ſubſtance; and in the heart find a large round ſeed or ſtone, which is unequal in the ſurface, and exceedingly hard and woody. This fruit is ripe in Auguſt and September, and conſtitutes one of the moſt agreeable articles of diet for ſix or eight weeks to the negroes. Theſe pears, with a little ſalt and a plantain or two, afford a hearty meal. They are alſo ſerved up at the tables of white people as choice fruit. When the pear is ripe, the yellow or eatable ſubſtance is firmer than butter, and taſtes ſomewhat like butter or marrow: hence it is called by ſome the *vegetable marrow*. But however excellent this fruit is when ripe, it is very dangerous when pulled and eaten before maturity. Dr Wright ſays, he has repeatedly known it to produce fever and dyſentery, which were removed with difficulty. The leaves of this tree and thoſe of the bead-vine or wild liquorice are made into pectoral decoctions by the common people. The large ſtone is uſed for marking linen. The cloth is tied or held over the ſtone, and the letters are pricked out by a needle through the cloth and into the ſeed. The ſtain is a reddiſh brown, which never waſhes out.—The buds of the alligator tree are ſaid to be uſed with ſucceſs in ptiſans againſt the venereal diſeaſe. An infuſion of them in water, drank in the morning faſting, is ſtrongly recommended for diſlodging coagulated blood in the ſtomach produced by a fall or a ſevere ſtroke on that important entrail. "The wild boars in the Eaſt Indies (ſays Labat) eat greedily of the mammees and avocado pears, which give their fleſh a luſcious and moſt agreeable ſavour."

Caſſia. The bark of this ſpecies is known in the ſhops by the name of *caſſia lignea*. This bark, which is imported from different parts of the Eaſt Indies and from China, has a very near reſemblance to the cinnamon; though diſtinguiſhable from it by being of a thicker

thicker and coarſer appearance, and by its breaking ſhort and ſmooth, while the cinnamon breaks fibrous and ſhivery. It reſembles cinnamon ſtill more exactly in its aromatic flavour than in its external appearance; and ſeems only to differ from it in being ſomewhat weaker, in abounding more with a viſcous mucilaginous matter, and in being leſs aſtringent. Accordingly, it has not only a place in the Edinburgh Pharmacopœia, but is alſo the baſis of a diſtilled water. It is perhaps ſurpriſing that the London College have given it no place in their liſts. But although it does not enter their Pharmacopœia, yet we may venture to aſſert, that it will not be neglected by the apothecaries. At preſent it is very common with many of them to ſubſtitute the caſſia in every caſe for the more expenſive article cinnamon: and indeed almoſt the whole of what is at preſent ſold under the title either of ſimple or ſpirituous cinnamon water is entirely prepared from caſſia; and not even entirely from the bark, but from a mixture of the bark and buds.

Cinnamon is the under bark of the *cinnamomum*. The beſt ſeaſon for ſeparating it from the outer bark, which is gray and rugged, is the ſpring, when the ſap flows in the greateſt abundance. It is cut into thin ſlices, and expoſed to the ſun, and curls up in drying. The old trees produce a coarſe kind of cinnamon; the ſpice is in perfection only when the trees are not older than three or four years. When the trunk has been ſtripped of its bark, it receives no further nouriſhment; but the root is ſtill alive, and continues to throw out freſh ſhoots. The fruit of the tree is ſhaped like an acorn, but is not ſo large. Its ſeed, when boiled in water, yields an oil which ſwims at top, and takes fire. If left to cool, it hardens into a white ſubſtance, of which candles are made, which have an agreeable ſmell, and are reſerved for the uſe of the king of Ceylon. The cinnamon is not reckoned excellent unleſs it be fine, ſmooth, brittle, thin, of a yellow colour inclining to red, fragrant, aromatic, and of a poignant, yet agreeable taſte. The connoiſſeurs give the preference to that, the pieces of which are long, but ſlender. That which comes to us is generally mixed with the caſſia bark; but this laſt is eaſily diſtinguiſhed. Cinnamon ſplinters in breaking, and has a roughneſs along with its aromatic flavour; while the caſſia breaks over ſmooth, and has a mucilaginous taſte. Cinnamon is a very elegant and uſeful aromatic, more grateful both to the palate and ſtomach than moſt other ſubſtances of this claſs. By its aſtringent quality it likewiſe corroborates the viſcera, and proves of great ſervice in ſeveral kinds of alvine fluxes, and immoderate diſcharges from the uterus.

The cinnamon plant, with other valuable ones, was taken in a French ſhip by Admiral Rodney in the laſt war, and preſented by him to the aſſembly of Jamaica. One of the trees was planted in the botanic garden in St Thomas in the Eaſt; the other by Hinton Eaſt, Eſq. in his noble garden at the foot of the Blue Mountains. From theſe parent trees ſome hundreds of young trees are already produced from layers and cuttings, and diſperſed to different parts of the country, in all which it thrives luxuriantly with little trouble: we may therefore hope it will ſoon be a valuable addition to our commerce. Upon comparing the parts of the tree with the deſcription and figure given by Burman and other botaniſts, it appears to be the real Ceylon cinnamon, and of the beſt kind, called by the natives *Raſle Coronde*: but the ſpecimens of bark taken put it out of all doubt, being, in the opinion of the beſt judges, of an equal, if not ſuperior, quality to any imported from India. The ſmalleſt bit of the bark, Dr Wright aſſures us, is quite a cordial. The cinnamon we have from Holland, he obſerves, is often inert, and gives room to ſuſpect that it has been ſubjected to a ſlight proceſs in diſtillation.

In regard to the trees growing in Jamaica, Dr Dancer informs us, in his paper already quoted, that "The beſt cinnamon bark, according to the different trials I have made, is taken from the ſmall branches, of about an inch diameter, the larger limbs not being ſo eaſily decorticated, and not yielding ſo good or ſo ſtrong a cinnamon. The ſmaller twigs, or thoſe that have not acquired a cineritious bark, are too full of ſap and mucilage, and have little *aroma*. It is the *liber*, or inner bark, that conſtitutes the cinnamon; from which the two external barks muſt be carefully and entirely ſeparated, or they vitiate the flavour of the cinnamon; to do which with dexterity, and to raiſe the bark from the wood, requires ſome practice. The bark being ſeparated, the ſmaller pieces are to be placed within the larger: which, by expoſure to the ſun or the air, preſently coil up, and require no further preparation. A dry ſeaſon is the proper one for taking the bark; as it is found to be weakened after long or heavy rains. Cinnamon, though more retentive of its virtues than any of the other ſpices, yet requires to be protected when taken, from the air and moiſture, by cloſe packing in cedar cheſts. The leaves of this tree, whether recent or dried, are ſo ſtrongly impregnated with an *aroma*, as to afford a good ſuccedaneum for the bark both in cookery and medicine. Diſtilled, they give an excellent ſimple and ſpirituous water, and an eſſential oil. Powdered, they are a good aromatic ſpecies, or mareſchal perfume."

Camphor, though ſolid, is the eſſential oil of the *laurus camphora*; and is obtained from it by diſtillation in the Eaſt Indies. (See the article CAMPHORA).—The tree is another of the captured plants given to the inhabitants of Jamaica; and, if cultivated with care, will alſo be an uſeful acquiſition.

The Abbé Groſier informs us, that in China ſome of theſe trees are found above 100 cubits in height, and ſo thick that 20 perſons cannot encloſe them. The tree is there called *tchang*; and it is ſaid that the trunk, when old, emits ſparks of fire, but of ſo ſubtle a nature as not even to injure the hair of thoſe who are near it. Common camphire coſts only a penny the ounce at Pe-king; but it is inferior to that of Borneo, in the judgment even of the Chineſe.

The manner in which ſome authors have ſpoken of camphire (the Abbé obſerves), gives us reaſon to conclude that they have been entirely ignorant of the proceſs employed to obtain this ſalutary gum. The camphire does not drop to the earth, like the gums of certain reſinous trees, which are preſerved by diſcharging that part of their ſubſtance which is too oily; neither does it diſtil from the top to the bottom of the tree through an inciſion made in it. The Chineſe would practiſe this method could it be employed with ſucceſs; for it is very common in China to make ſuch kind

kind of inciſions in reſinous trees. The method uſed by the Chineſe for obtaining camphire is as follows.—They take ſome branches freſh from the *tchang*, chop them very ſmall, and lay them to ſteep in ſpring water for three days and three nights. After they have been ſoaked in this manner, they are put into a kettle, where they are boiled for a certain time, during which they keep continually ſtirring them with a ſtick made of willow. When they perceive that the ſap of theſe ſmall chips adheres ſufficiently to the ſtick in the form of white froſt, they ſtrain the whole, taking care to throw away the dregs and refuſe. This juice is afterwards poured gently into a new earthen baſon well varniſhed, in which it is ſuffered to remain one night. Next morning it is found coagulated, and formed into a ſolid maſs. To purify this firſt preparation, they procure ſome earth from an old earthen wall, which, when pounded, and reduced to a very fine powder, they put into the bottom of a baſon made of red copper; over this layer of earth they ſpread a layer of camphire, and continue thus until they have laid four ſtrata. The laſt, which is of very fine earth, they cover up with the leaves of the plant *po-ho*, or penny-royal; and over the whole they place another baſon, joining it very cloſely to the former by means of a kind of red earth that cements their brims together. The baſon thus prepared is put over a fire, which, muſt be managed ſo as to keep up an equal heat: experience teaches them to obſerve the proper degree. But above all, they muſt be very attentive leſt the plaſter of fat earth which keeps the baſons together ſhould crack or fall off; otherwiſe the ſpirituous part would evaporate, and ruin the whole proceſs. When the baſons have been expoſed to the neceſſary heat, they are taken off and left to cool; after which they are ſeparated, and the ſublimated camphire is found adhering to the cover. If this operation be repeated two or three times, the camphire is found purer and in larger pieces. Whenever it is neceſſary to uſe any quantity of this ſubſtance, it is put between two earthen veſſels, the edges of which are ſurrounded with ſeveral bands of wet paper. Theſe veſſels are kept for about an hour over an equal and moderate fire; and when they are cool, the camphire is found in its utmoſt perfection and ready for uſe. This method of procuring camphire, even from the heart of the tree, may be practiſed in all ſeaſons of the year; which would not be the caſe (our author obſerves), were it extracted like other reſinous ſubſtances that only flow during a certain ſhort ſpace of time. Beſides, by lopping the branches of the camphire tree, leſs hurt is done to it than by making inciſions, which are always hazardous.

799. Anacardium, or *Caſhew-nut*, or *Acajou*.
One ſpecies; viz. occidentale. E. and W. Indies.

800. Panhe.
Two ſpecies; viz. tinctoria, ſonchifolia. Chili.

801. Plegorhiza.
One ſpecies; viz. adſtringens. Chili.

802. Cassyta.
Two ſpecies; viz. filiformis, corniculata. Egypt, E. Indies, S. America.

Order II. TRIGYNIA.

803. Rheum, or *Rhubarb*.
Eight ſpecies; viz. rhaponticum, undulatum, palmatum, compactum, tartaricum, ribes, hybridum, leucorrhizum. Siberia, Levant, Tartary, India, China.

The *rheum palmatum*, which is of the dock kind, grows ſpontaneouſly in China, and endures the colds of our own climate. Two ſorts of rhubarb are met with in the ſhops. The firſt is imported from Turkey and Ruſſia, in roundiſh pieces, freed from the bark, with a hole through the middle of each; they are externally of a yellow colour, and, on cutting, appear variegated with lively reddiſh ſtreaks. The other, which is leſs eſteemed, comes principally from China, in longiſh pieces, harder, heavier, and more compact than the foregoing. The firſt ſort, unleſs kept very dry, is apt to grow mouldy and worm-eaten; the ſecond is leſs ſubject to theſe inconveniences. Some of the more induſtrious artiſts are ſaid to fill up the worm holes with certain mixtures, and to colour the outſide of the damaged pieces with powder of the finer ſorts of rhubarb, and ſometimes with cheaper materials; this is often ſo nicely done, as effectually to impoſe upon the buyer, unleſs he very carefully examines each piece. The marks of good rhubarb are, that it be firm and ſolid, but not flinty; that it be eaſily pulverable, and appear, when powdered, of a fine bright yellow colour: that upon being chewed, it imparts to the ſpittle a ſaffron tinge, without proving ſlimy or mucilaginous in the mouth. Its taſte is ſubacrid, bitteriſh, and ſomewhat aſtringent; the ſmell lightly aromatic.

Rhubarb is a mild cathartic, which operates without violence or irritation, and may be given with ſafety even to pregnant women and to children. In ſome people, however, it always occaſions ſevere griping. Beſides it purgative quality, it is celebrated for an aſtringent one, by which it ſtrengthens the tone of the ſtomach and inteſtines, and proves uſeful in diarrhœa, and diſorders proceeding from a laxity of the fibres. Rhubarb, in ſubſtance, operates more powerfully as a cathartic than any of the preparations of it. Watery tinctures purge more than the ſpirituous ones; whilſt the latter contain, in greater proportion, the aromatic, aſtringent, and corroborating virtues of the rhubarb. The doſe, when intended as a purgative, is from a ſcruple to a dram or more.

The Turkey rhubarb is, among us, univerſally preferred to the Eaſt India ſort, though this laſt is, for ſome purpoſes, at leaſt equal to the other; it is manifeſtly more aſtringent, but has ſomewhat leſs of an aromatic flavour. Tinctures drawn from both, with rectified ſpirit, have nearly the ſame taſte; on diſtilling off the menſtruum, the extract left from the tincture of the Eaſt India rhubarb, proved conſiderably the ſtrongeſt. They are both the produce of the ſame climate, and probably the roots of the ſame plant, taken up at different times, or cured in a different manner.

Rhubarb is now raiſed in Britain equal to any that is imported.

The officinal preparations of this drug are a watery and

and a vinous infuſion, a ſimple and a compound tincture. It is alſo an ingredient in different compoſitions, ſuch as the *elixir ex aloe et rheo*, the *pilulæ ſtomachicæ*, and ſome others.

Order III. HEXAGYNIA.

804. Butomus, or *Flowering-ruſh*.
One ſpecies; viz. umbellatus.

* B.—Neither cows, horſes, ſheep, ſwine, or goats, will eat it. It is an ornament to the banks of our rivers and marſhy ditches. Europe. *umbellatus*

In the claſs Enneandria are

7 Genera, including 49 Species, of which one only is found in Britain.

CLASSIS X.

DECANDRIA.

Ordo I. MONOGYNIA.

Sect. I. *Flores polypetali, irregulares.*

805. Sophora. Cor. papilion. vexillo adſcendente. Lomentum moniliforme.

806. Podalyria. Cor. papilion. vexillo adſcendente. Legumen ventricoſum polyſpermum.

807. Pultenæa. Cor. papilion. Alæ vexillo breviores. Legumen diſpermum.

808. Anagyris. Cor. papilion. vexillo brevi recto. Carina alis longiore.

809. Cercis. Cor. papilion. alis vexilliformibus. Nect. gland. ſtyliformis, ſubgermine.

810. Bauhinia. Cor. patens, unguiculata, adſcendens. Petala lanceolata.

811. Hymenæa. Cor. ſubæqualis. Legum. lignoſum, pulpa farinoſa.

829. Myroxylon. Cor. petals ſupremo latiore. Legumen 1-ſpermum apice dilatatum.

812. Parkinsonia. Cor. petals infimo reniformi. Legum. teres, tortuoſum.

815. Cæsalpinia. Cor. petalo infimo pulchriore. Cal. laciniæ inæquales. Legum. compreſſum.

828. Toluifera. Cor. petalo infimo majore. Cal. companulatus.

813. Cassia. Cor. inæqualis. Anth. roſtratæ. Lomentum planum.

814. Cubæa. Cor. ſubæqualis, petalis 2 deflexis. Legumen coriaceum ventricoſum. Semina ſubreniformia.

816. Guilandina. Cor. ſubæqual. Calyci inſidens. Legum. rhombeum. Sem. oſſea.

817. Hyperanthera. Cor. ſubæqualis. Legumen 3-valve. Sem. alata.

837 Gærtnera. Cor. ſubæqualis. Cal. 4-partitus. Samara quadrialata.

851. Gomphia. Cor. ſubæqualis. Baccæ plures receptaculo magno inſertæ.

824. Dictamnus. Cor. patula. Filam. pulveracea. Capſ. 5, connexæ. Sem. arillata.

866. Rhodora. Cor. inæqualis tripetala. Cal. 5-dentatus. Capſ. 5-loculares.

CLASS X.

DECANDRIA.

Order I. MONOGYNIA.

Sect. I. *Flowers polypetalous, irregular.*

S. Cor. papilionaceous or butterfly-ſhaped. The ſtandard aſcending. The lomentum bracelet-ſhaped.

P. Cor. papilionaceous. The ſtandard aſcending. A leguminous plant, bellied, many-ſeeded.

P. Cor. papilionaceous. Wings ſhorter than the ſtandard. A leguminous plant, 2-ſeeded.

A. Cor. papilionaceous. A ſhort ſtraight ſtandard. The keel of the wing long.

C. Cor. papilionaceous; with ſtandard-ſhaped wings. The glands of the nectary ſtyle-ſhaped, under the germen.

B. Cor. expanding, clawed, aſcending. Petals ſpear-ſhaped.

H. Cor. nearly equal. Leguminous, woody, with a farinaceous pulp.

M. Cor. with the laſt leaf broader. Leguminous, 1-ſeeded, dilated at the extremity.

P. Cor. with the loweſt petal kidney-ſhaped. Leguminous, tapering, twiſted.

C. Cor. with the loweſt petal beautiful. Cal. unequal ſegments. Leguminous compreſſed.

T. Cor. loweſt leaf larger. Cal. bell-ſhaped.

C. Cor. unequal. Anthers beaked. Lomentum flat.

C. Cor. nearly equal, with 2 leaves bent downwards. Leguminous, bark-like, bellied. Seeds nearly kidney-ſhaped.

G. Cor. nearly equal, ſitting in the cal. Leguminous, diamond ſhaped. Seeds bony, i. e. ſhining.

H. Cor. nearly equal. Leguminous, 3-valved. Seeds winged.

G. Cor. nearly equal. Cal. 4-partite. Seed-veſſel 4-winged.

G. Cor nearly equal. Berries, ſeveral inſerted in a large receptacle.

D. Cor. open. Filaments duſty. Capſ. 5 connected. Seeds coated.

R. Cor. unequal, 3-petaled. Cal. 5-toothed. Capſ. 5 cells.

Sect.

Sect. II. *Flores polypetali, æquales.*

820. Cynometra. Cal. 4-phyllus; lacin. oppoſ. major. Legum. 1-ſpermum, carnoſum.

831. Prosopis. Cal. hæmiſphericus, 4-dentatus. Legum. polyſpermum.

818. Schotia. Cal. 5-fidus, æqualis. Legum. compreſſum, polyſpermum.

832. Cadia. Cal. 5-fidus. Petala obcordata. Legumen polyſpermum.

836. Adenanthera. Antheris glandula inſidens. Leg. compreſſum membranaceum.

830. Hæmatoxylon. Piſtilli ſtigma emarginatum. Legumen valvis navicularibus.

839. Gilibertia. Nectar. tubuloſum truncatum. Antheræ ſeſſiles. Capſ. 4-locularis.

840. Trichilia. Nectar. tubuloſum, 5-dentatum. Capſ. 3-locularis, 3-valvis. Sem. baccata.

841. Turræa. Nectar. tubuloſum, 10-dentatum, Capſ. 5-cocca. Sem. bina.

845. Melia. Nect. tubuloſum, 10-dentatum. Drupa nuce 10-loculari.

842. Sandoricum. Nect. tubuloſum, 10-dentatum. Drupa nucibus 5.

845. Swietenia. Nect. tubuloſum, 10-dentatum. Capſ. lignoſa, 5-valvis. Sem. imbricata, margine membranaceo.

819. Guaiacum. Cal. laciniæ 2 exteriores minores. Capſ. carnoſa, 3 ſ. 5-locularis, angulata.

827. Ruta. Germen punctis 10 melliferis. Capſ. 5-fida, 5-locularis, polyſperma.

848. Tribulus. Piſtilli ſtylus nullus. Capſ. 5, connexæ, polyſpermæ.

847. Fagonia. Cor. ungues calyci inſertæ. Capſ. 5-locularis, 10 valvis, 1-ſperma.

846. Zygophyllum. Nect. ſquamæ 10 ſtaminiferæ. Capſ. 5-locularis, polyſperma.

850. Zwingera. Capſ. 5, coriaceæ, non-dehiſcentes.

849. Quassia. Capſ. 5, bivalves, 1-ſpermæ, inſertæ receptaculo carnoſo.

861. Ceratopetalum. Cor. 5-petala, pinnatifida. Cal. 5-fidus, ſtaminiferus. Capſ. 2-locularis.

852. Thryallis. Cor. 5 petala. Capſ. tricocca.

835. Ekebergia. Cor. 4-petala. Bacca 5-ſperma.

857. Schousboea. Cor. 5-petala calyci inſerta. Bacca infera 5-gona monoſperma.

826. Petaloma. Cor. 5-petala inter calycis laciniias inſerta. Bacca 1-locularis.

853. Limonia. Cor. 5-petala. Bacca 3 ſperma.

844. Cookia. Cor. 5-petala. Pomum 5-loculare, loculis monoſpermis.

858. Heisteria. Cor. 5-petala. Drupa inſidens calyci colorato grandifacto.

859. Quisqualis. Cor. 5-petala, calyci inſidens filiformi.

* 854. Monotropa. Cal. corollinus, baſi gibbus. Capſ. 5-locularis, monoſperma.

* 872. Clethra. Piſtilli ſtigmata tria. Capſ. 3-locul. polyſperma.

* 873. Pyrola. Antheræ ſurſum bicornes, Capſ. 5-locularis, polyſperma.

865. Ledum. Cor. plana, 5-partita. Capſ. 5-locul. polyſperma.

Sect. II. *Flowers polypetalous, equal.*

C. Cal. 4-leaved; largeſt ſegments oppoſite. Leguminous, 1-ſeeded, fleſhy.

P. Cal. hemiſpherical, 4-toothed. Leguminous, many-ſeeded.

S. Cal. 5-cleft, equal. Leguminous, compreſſed, many-ſeeded.

C. Cal. 5-cleft. Petals heart-ſhaped reverſed. Leguminous, many-ſeeded.

A. Gland ſitting in the anthers. Leguminous, compreſſed, membranaceous.

H. Stigma of the piſtil notched at the end. Leguminous, with boat-ſhaped valves.

G. Nectary tubular-lopped. Anthers ſitting. Capſ. 4-celled.

T. Tubular nectary, 5-toothed. Capſ. 3-celled, 3-valved. Seeds berried.

T. Nectary tubular, 10-toothed. Capſ. 5-celled. Seeds double.

M. Nectary tubular, 10-toothed. Drupe with a 10-celled nut.

S. Nectary tubular, 10-toothed. Drupe with 5 nuts.

S. Nectary tubular, 10-toothed. Capſ. woody, 5-valved. Seeds tiled, with a membranous border.

G. Two outer ſegments of the cal. ſmall. Capſ. fleſhy, 3 or 5-celled, angular.

R. Germen with 10 honey-bearing points. Capſ. 5-cleft, 5-celled, many-ſeeded.

T. No ſtyle of the piſtil. Capſ. 5, connected, many-ſeeded.

F. Claws of the cor. inſerted in the cal. Capſ. 5-celled, 10 valved, 1-ſeeded.

Z. Nectary of 10 ſtamen-bearing ſcales. Capſ. 5-celled, many-ſeeded.

Z. Capſ. 5. bark-like, not gaping.

Q. Capſ. 5, 2-valved, 1-ſeeded, inſerted in a fleſhy receptacle.

C. Cor. 5-petaled, wing-cleft. Cal. 5-cleft, bearing the ſtamens. Capſ. 2-celled.

T. Cor. 5 petaled. Capſ. 3 celled.

E. Cor. 4-petaled. Berry 5-ſeeded.

S. Cor. 5-petals inſerted in the calyx. Berry inferior, 5-gon, 1-ſeeded.

P. Cor. 5-petals inſerted between the ſegments of the cal. Berry 1 celled.

L. Cor. 5-petaled. Berry 3 ſeeded.

C. Cor. 5-petaled. Apple 5-celled, with 1-ſeeded cells.

H. Cor. 5-petaled. Drupe ſitting in the cal. coloured, enlarged.

Q. Cor. 5-petaled, ſitting in a thread-ſhaped cal.

* M. Cal. corol-like, bulging at the baſe. Capſ. 5-celled, one-ſeeded.

* C. 3 ſtigmas of the piſtil. Capſ. 3-celled, many-ſeeded.

* P. Anthers 2 horned upwards. Capſ. 5-celled, many-ſeeded.

L. Cor. flat, 5-partite. Capſ. 5-celled, many-ſeeded.

855. Dionæa. Cal. 5-phyllus. Stigma fimbriatum. Capſ. 1-locularis. Sem. baſi capſulæ.

833. Murraya. Bacca 1-ſperma. Cor. 5-petala. Nectarium margine cingens germen.

834. Bergera. Bacca 2-ſperma. Cor. 5-petala. Stigma turbinatum.

862. Melastoma. Cor. calyci inſidens. Anther. refractæ. Bacca 5-locularis, calyce veſtita.

863. Meriania. Cor. calyci inſidens. Antheræ refractæ. Capſ. 5-locularis, diſſepimentis contrariis.

856. Jussieua. Cor. 4 ſ. 5-petala. Capſ. infera.

His confundenda ſunt Rhexiæ nonnullæ. Concocarpus racemoſa. Combretum decandrum, alternifolium. Jacquinia racemoſa. Amyris decandra. Gerania aliquot. Lythrum cordifolium, ciliatum. Melanium. Griſlea tomentoſa. Anacardium occidentale.

Sect. III. *Flores monopetali, æquales.*

822. Panzera. Petalum unicum laterale. Cal. 4-partitus. Legumen.

825. Nicandra. Cor. tubuloſa, 10-fida. Cal. 4-fidus, inæqualis. Bacca 3-locularis.

823. Codon. Cor. campanulata, 10-fida. Cal. 10-partitus. Capſ. polyſperma.

875. Inocarpus. Cor. tubuloſa, 5-fida. Cal. 2-fidus. Drupa 1-ſperma.

838. Strigilia. Cor. 5-fida. Nectar. 10-partitum. Fructus 6-locularis.

* 868. Andromeda. Cor. campanulata, rotunda. Capſ. 5-locularis.

867. Rhododendron. Cor. infundibilif. Stam. declinata. Capſ. 5-locularis.

864. Kalmia. Cor. limbo ſubtus, 4-corniculato. Capſ. 5-locularis.

869. Epigæa. Cal. exterior, 3-phyllus. Interior 5-phyllus. Capſ. 5-locularis.

870. Gualtheria. Cal. exterior, 2-phyllus. Interior 5-fidus. Capſ. 5-locul. calyce baccato.

* 871. Arbutus. Cor. ovata, baſi diaphana. Bacca 5-locularis.

874. Styrax. Cor. infundilif. Drupa diſperma.

Vaccinia nonnulla. Gardenia Thunbergia.

Sect. IV. *Flores apetali, ſeu incompleti.*

860. Dais. Cor. 1-petala. Involucr. 4-phyllum, multiflorum.

878. Aquilaria. Cal. 5-fidus. Nectar. 5-fidum, lobis bifidis. Capſ. 2-locularis, 2-valvis.

879. Augea. Cal. 5-partit. Nect. 10-dentatus. Capſ. 10-locul.

876. Samyda. Cal. 5-partitus. Nectar. 10-fidum, cingens germen ſtaminiferum. Capſ. baccata, unilocularis. 4-valvis.

877. Casearia. Cal. 5-phyllus. Nect. 5-phyllum, foliolis cum filamentis alternantibus. Capſ. baccata, 1-locul. 3-valvis.

881. Bucida. Cal. 5-partitus. Bacca 1-ſperma.

821. Crudia. Cal. 4-partitus. Cor. o. Samara orbiculata.

D. Cal. 5-leaved. Stigma fringed. Capſ. 1-celled. Seeds at the baſe of the capſ.

M. Berry 1-ſeeded. Cor. 5-petaled. Nectary ſurrounding the germen with a border.

B. Berry 2-ſeeded. Cor. 5-petaled. Stigma turbaned.

M. Cor. ſitting in the cal. Anthers bent back. Berry 2-celled, covered with a cal.

M. Cor. ſitting in the cal. Anthers bent back. Capſ. 5-celled, with partitions oppoſite.

J. Cor. 4 or 5-petaled. Capſ. inferior.

Sect. III. *Flowers 1-petalous, equal.*

P. One lateral petal. Cal. 4-partite. Leguminous.

N. Cor. tubular, 10-cleft. Cal. 4-cleft, unequal. Berry 3-celled.

C. Cor. bell-ſhaped, 10-cleft. Cal. 10-partite. Capſ. many-ſeeded.

I. Cor. tubular, 5-cleft. Cal. 2-cleft. Drupe 1-ſeeded.

S. Cor. 5-cleft. Nectary 10-partite. Fruit 6-celled.

* A. Cor. bell-ſhaped, round. Capſ. 5-celled.

R. Cor. funnel-ſhaped. Stamens bent downward. Capſ. 5-celled.

K. Cor. with a border beneath. Capſ. 5-celled.

E. Exterior cal. 3-leafed. Interior 5-leafed. Capſ. 5-celled.

G. Exterior cal. 2-leafed. Interior 5-cleft. Capſ. 5-celled, with a berried cal.

* A. Cor. oval, with a tranſparent baſe. Berry 5-celled.

S. Cor. funnel-ſhaped. Drupe 2-ſeeded.

Sect. IV. *Flowers without petals, or incomplete.*

D. Cor. 1-petaled. Involucrum 4-leafed, many-flowered.

A. Cal. 5-cleft. Nectary 5-cleft, with cleft lobes. Capſ. 2-celled, 2-valved.

A. Cal. 5-partite. Nectary 10-toothed. Capſ. 10-celled.

S. Cal. 5-partite. Nectary 10-cleft, ſurrounding a germen bearing the ſtamens. Capſ. berried, 1-celled, 4-valved.

C. Cal. 5-leafed. Nect. 5-leafed, leaflets alternating with the filaments. Capſ. berried, 1-celled, 3-valved.

B. Cal. 5-partite. Berry 1-ſeeded.

C. Cal. 4-partite. No cor. Seed-veſſel round and flat.

880. Copaifera. Cal. 0. Cor. 4-petala. Legumen 1-ſpermum.

Stellera chamæjaſme. Conocarpus racemoſa. Forſkolea.

Ordo II. DIGYNIA.

* 890. Scleranthus. Cor. 0. Cal. 5-fidus, inferus. Sem. 2.

885. Trianthema. Cor. 0. Capſ. circumſciſſa.

* 886. Chrysosplenium. Cor. 0. Cal. ſuperus. Capſ. 2-locularis, 2-roſtris.

882. Royena. Cor. 1-petala. Cal. ventricoſus. Capſ. 4-ſperma, 4-valvis.

883. Hydrangea. Cor. 5-petala. Cal. 5-fidus, ſuperus. Capſ. 2-locul. 2-roſtris, circumſciſſa.

* 887. Saxifraga. Cor. 5-petala. Cal. 5-partitus. Capſ. 1-locularis, 2-roſtris.

888. Tiarella. Cor. 5-petala. Cal. corolliferus. Capſ. bivalvis, altera majore.

889. Mitella. Cor. 5 petala. Cal. corolliferus. Capſ. bivalvis. Petala pectinata.

884. Cunonia. Cor. 5 petala. Cal. 5-phyllus. Capſ. 2-locularis, acuta.

891. Gypsophila. Cor. 5-petala. Cal. 5-partit. campanulatus. Capſ. 1-locul. globoſa.

* 892. Saponaria. Cor. 5-petala. Cal. tubuloſus, baſi nudus. Capſ. 1 locul. oblonga.

* 893. Dianthus. Cor. 5-petala. Cal. tubuloſus, baſi ſquamoſus. Capſ. 1-locul. oblonga.

Ordo III. TRIGYNIA.

900. Brunnichia. Capſ. 1-ſperma. Cor. 0. Cal. 5-fidus.

* 897. Arenaria. Capſ. 1-locul. Pet. integra, patentia.

* 896. Stellaria. Capſ. 1-locul. Pet. 2-partita, patentia.

899. Deutzia. Capſ. 3-locul. 3-roſtrata. Pet. integra.

* 894. Cucubalus. Capſ. 3-locul. Pet. bifida, fauce nuda.

* 895. Silene. Capſ. 3-locul. Pet. bifida, fauce coronata.

* 898. Cherleria. Capſ. 3-locul. Nectar. petaloidea calyce minora.

901. Garidella. Capſ. 3, diſtinctæ. Pet. calycina. Nectar. bilabiata.

906. Erythroxylon. Drupa 1-ſperma. Pet. baſi ſquama inſtructa.

902. Malpighia. Drupa 3-ſperma. Pet. 5, unguiculata. Cal. glanduloſus.

903. Banisteria. Samaræ 3, unialatæ. Pet. 5, unguiculata. Cal. glanduloſus.

904. Hiræa. Samaræ 3, alis binis oppoſitis ſ. ala circumdatæ. Pet. 5, unguiculata. Cal. eglanduloſus.

905. Triopteris. Samaræ 3, tri ſ. quadrialatæ. Pet. unguiculata. Cal. glanduloſus.

Tamaris Germanica.

C. No cal. Cor. 4-petaled. Leguminous, 1-ſeeded.

Order II. DIGYNIA.

* S. No cor. Cal. 5-cleft, inferior. Seeds 2.

T. No cor. Cal. cut round.

* C. No cor. Cal. ſuperior. Capſ. 2-celled, with 2 beaks.

R. Cor. 1-petaled. Cal. bulging. Capſ. 4-ſeeded, 4-valved.

H. Cor. 5-petaled. Cal. 5-cleft, ſuperior. Capſ. 2-celled, 2-beaked, cut round.

* S. Cor. 5-petaled. Cal. 5-partite. Capſ. 1-celled, 2-beaked.

T. Cor. 5-petaled. Cal. bearing the cor. Capſ. 2-valved, unequal valves.

M. Cor. 5-petaled. Cal. bearing the cor. Capſ. 2-valved. Petals comb-ſhaped.

C. Cor. 5-petaled. Cal. 5-leafed. Capſ. 2-celled, acute.

G. Cor. 5-petaled. Cal. 5-partite, bell-ſhaped. Capſ. 1-celled, globular.

* S. Cor. 5-petaled. Cal. tubular, naked at the baſe. Capſ. 1-celled, oblong.

* D. Cor. 5-petaled. Cal. tubular, ſcaly at the baſe. Capſ. 1-celled, oblong.

Order III. TRIGYNIA.

B. Capſ. 1-ſeeded. No cor. Cal. 5-cleft.

* A. Capſ. 1-celled. Petals entire, expanding.

* S. Capſ. 1-celled. Pet. 2-partite, expanding.

D. Capſ. 3-celled, 3-beaked. Petals entire.

* C. Capſ. 3-celled. Pet. 2-cleft, with a naked mouth.

* S. Capſ. 3-celled. Pet. 2-cleft, with a crowned mouth.

* C. Capſ. 3-celled. Nectary petal-like, leſs than the calyx.

G. 3 diſtinct capſules. Petals cup-like. Nectary 2-lipped.

E. Drupe 1-ſeeded. Pet. at the baſe, ſcaled.

M. Drupe 3-ſeeded. Petals 5, clawed. Cal. glandular.

B. Seed-veſſels 3, one-winged. Pet. 5, clawed. Cal. glandular.

H. Seed-veſſels 3, pairs oppoſite, or ſurrounded with a wing. Pet. 5, clawed. Cal. not glandular.

T. 2 ſeed-veſſels, 3 or 4-winged. Petals clawed. Cal. glandular.

Ordo IV. PENTAGYNIA.

911. Onestis. Capſ. 5, monoſpermæ. Cor. 5-petala.
* 912. Cotyledon. Capſ. 5 ad nectaria. Cor. 1-petala.
* 913. Sedum. Capſ. 5 ad nectaria. Cor. 5-petala.
914. Penthorum. Capſ. 5-loba. Cor. petala rariora.
915. Bergia. Capſ. 5-locul. 5-valvis; valvis horizontaliter deſcendentibus.
908. Ionquetia. Capſ. 1-locul. 5-ſperma. Pet. integra. Cal. 5-phyllus.
* 922. Spergula. Capſ. 1-locul. polyſperma. Pet. integra. Cal. 5-phyllus.
* 921. Cerastium. Capſ. 1-locul. Pet. 2-fida. Cal. 5-phyllus.
* 919. Agrostemma. Capſ. 1-locul. oblonga. Cal. tubuloſus, coriaceus.
* 920. Lychnis. Capſ. 3-locul. oblonga. Cal. tubuloſus, membranaceus.
* 918. Oxalis. Capſ. 5-locularis, angulata. Cor. baſi ſubcohærens.
910. Roberghia. Drupa nuce 1-loculari. Cal. 1-phyllus.
909. Spondias. Drupa nuce 5-loculari. Cal. 1-phyllus.
907. Averhoa. Pomum 5-loculare. Cal. 5-phyllus.
917. Grielum. Sem. 5-diſtincta mutica. Cor. 5-petala. Styli nulli.
916. Suriana. Sem. 5, ſubrotunda. Cor. 5-petala. Styli filiformes, laterales.

Adoxia. Coriaria. Gerania. Droſera Luſitanica.

Ordo V. DECAGYNIA.

923. Neurada. Cal. 5-partitus. Cor. 5-petala. Capſ. 10-cocca.
924. Phytolacca. Cal. 5-phyllus, corollinus. Cor. nulla. Bacca 10-cocca.

Order IV. PENTAGYNIA.

O. Capſ. 5, one-ſeeded. Cor. 5-petaled.

* C. Capſ. 5 to the nectaries. Cor. 1-petaled.

* S. Capſ. 5 to the nectaries. Cor. 5-petaled.
P. Capſ. 5-lobed. Petals rare.

B. Capſ. 5-celled, 5-valved, the valves horizontally deſcending.
I. Capſ. 1-celled, 5-ſeeded. Petals entire. Cal. 5-leafed.
* S. Capſ. 1-celled, many-ſeeded. Pet. entire. Cal. 5-leafed.
* C. Capſ. 1-celled. Pet. 2-cleft. Cal. 5-leafed.

* A. Capſ. 1-celled, oblong. Cal. tubular, bark-like.

* L. Capſ. 3-celled, oblong. Cal. tubular, membranaceous.
* O. Capſ. 5-celled, angular. Cor. adhering to the baſe beneath.
R. Drupe, with a 1-celled nut. Cal. 1-leafed.

S. Drupe, with a 5-celled nut. Cal. 1-leafed.

A. A 5-celled apple. Cal. 5-leafed.

G. 5 diſtinct awnleſs ſeeds. Cor. 5-petaled. No ſtyles.
S. Seeds 5, nearly round. Cor. 5-petaled.

Order V. DECAGYNIA.

N. Cal. 5-partite. Cor. 5-petaled. Capſ. 10-celled.
P. Cal. 5-leafed, corol-like. Cor. none. Berry 10-celled.

Order I. MONOGYNIA.

805. Sophora.
Nine ſpecies; viz. tetraptera, microphylla, flaveſcens, alopecuroides, tomentoſa, occidentalis, japonica, heptaphylla, monoſperma. Levant, Africa, W. Indies, New Zealand.

806. Podalyria.
15 ſpecies; viz. capenſis, aurea, argentea, geniſtoides, ternata, auſtralis, tinctoria, alba, lupinoides, trifoliata, calyptrata, biflora, myrtillifolia, hirſuta, buxifolia.

807. Pultenæa.
Six ſpecies; viz. ſtipularis, paleacea, binophylla, juncea, villoſa, daphnoides.

808. Anagyris, or *Stinking-bean Trefoil.*
One ſpecies; viz. fœtida. Spain, Italy.

809. Cercis, or *Judas-tree.*
Two ſpecies; viz. ſiliquaſtrum, canadenſis. S. Europe, Levant, N. America.

810. Bauhinia, or *Mountain Ebony.*
15 ſpecies; viz. ſcandens, parviflorum, racemoſa, aculeata, divaricata, aurita, porrecta, ungulata, variegata, candida, purpurea, tomentoſa, acuminata, gujaneſis, rubeſcens. Egypt, E. and W. Indies.

811. Hymenæa, or *Locuſt-tree.*
Three ſpecies; viz. courbaril, venoſa, verrucoſa. Weſt Indies.

812. Parkinsonia, or *Jeruſalem Thorn.*
One ſpecies; viz. aculeata. Weſt Indies.

813. Cassia, or *Wild Senna.*

59 ſpecies; viz. diphylla, abſus, viminea, bacillaris, tagera, tora, bicapſularis, emarginata, obtuſifolia, ſennoides, acuminata, corymboſa, longiſiliqua, falcata, ſervicea, occidentalis, planiſiliqua, patula, lineata, atomaria, piloſa, arboreſcens, ſenna, ruſcifolia, biflora, chinenſis, multiglanduloſa, hirſuta, tomentoſa, ſerpens, mexicana, anguſtifolia, liguſtrina, florida, ſtipulacea, alata, marilandica, faſtigiata, frondoſa, tenuiſſima, virgata, ſophera, bracteata, auriculata, brevifolia, mollis, javanica, grandis, nigricans, polyphylla, chamæcriſta, glanduloſa, mimoſoides, microphylla, flexuoſa, capenſis, fiſtula, nictitans, procumbens. Egypt, E. and W. Indies, America.

The fruit of the *caſſia fiſtula* is a cylindrical pod, ſcarcely an inch in diameter; a foot or more in length. The outſide is a hard brown bark: the inſide is divided by thin tranſverſe woody plates, covered with a ſoft black pulp, of a ſweetiſh taſte, with ſome degree of acrimony. There are two ſorts of this drug in the ſhops; one brought from the Eaſt Indies, the other from the Weſt: the canes or pods of the latter are generally large, rough, thick-rinded, and the pulp nauſeous; thoſe of the former are leſs, ſmoother, the pulp blacker, and of a ſweeter taſte: this ſort is preferred to the other. Such pods ſhould be choſen as are weighty, new, and do not make a rattling noiſe (from the ſeeds being looſe within them) when ſhaken. The pulp ſhould be of a bright ſhining black colour, and a ſweet taſte, not harſh, which happens from the fruit being gathered before it has grown fully ripe, or ſouriſh, which it is apt to turn upon keeping. It ſhould neither be very dry nor very moiſt, nor at all mouldy, which from its being kept in damp cellars, or moiſtened, in order to increaſe its weight, it is very ſubject to be. Greateſt part of the pulp diſſolves both in water and in rectified ſpirit, and may be extracted from the cane by either. The ſhops employ water, boiling the bruiſed pod therein, and afterwards evaporating the ſolution to a due conſiſtence.

The pulp of caſſia is a gentle laxative medicine, and frequently given, in a doſe of ſome drams, in coſtive habits. Some direct a doſe of two ounces or more as a cathartic, in inflammatory caſes, where the more acrid purgatives have no place; but in theſe large quantities it generally nauſcates the ſtomach, produces flatulencies, and ſometimes gripings of the bowels, eſpecially if the caſſia be not of a very good kind: theſe effects may be prevented by the addition of aromatics, and exhibiting it in a liquid form. Some ſay it does excellent ſervice in the painful tenſion of the belly, which ſometimes follows the imprudent uſe of antimonials; and that it may be advantantageouſly acuated with the more acrid purgatives or antimonial emetics, or employed to abate their force. Valliſnieri relates, that the purgative virtue of this medicine is remarkably promoted by manna: that a mixture of four drams of caſſia, and two of manna, purges as much as 12 drams of caſſia, or 32 of manna alone. Sennertus obſerves, that the urine is apt to be turned of a green colour, by the uſe of caſſia, and ſometimes, where a large quantity has been taken, blackiſh. This drug gives name to an officinal electuary, and is an ingredient alſo in another.

814. Cubæa.

Two ſpecies; viz. paniculata, trigona. Guiana.

815. Cæsalpinia, or *Braſiletto.*

Nine ſpecies; bijuga, pulcherrima, elata, coriaria, braſilienſis, echinata, ſappan, criſta, mimoſoides. E. and W. Indies.

816. Guilandina, or *Bonduc*, or *Nickar Tree.*

Five ſpecies; viz. bonduc, bonducella, nuga, paniculata, axillaris. E. and W. Indies.

817. Hyperanthera, or *Nephritic-wood.*

Four ſpecies; viz. decandra, moringa, ſemidecandra, cochinchinenſis. Egypt, Ceylon, N. America.

818. Schotia.

One ſpecies; viz. ſpecioſa. C. of G. Hope.

819. Guaiacum, or *Lignum-vitæ*, *Pockwood.*

Three ſpecies; viz. dubium, officinale, ſanctum. Africa, China, W. Indies.

The wood of the *guaiacum officinale* is very ponderous, of a cloſe compact texture; the outer part is of a yellow colour, the heart of a deep blackiſh green, or variegated with black, green, pale, and brown colours; the bark is thin, ſmooth, externally of a dark grayiſh hue: both have a lightly aromatic, bitteriſh, pungent taſte; the bark is ſomewhat the weakeſt. The reſin, which exudes from inciſions made in the trunk of the tree, is brought to us in irregular maſſes, uſually friable, of a duſky greeniſh, and ſometimes of a reddiſh caſt, with pieces of the wood among them: its taſte is more acrid and pungent than that of the wood or bark.

Their general virtues are thoſe of a warm ſtimulating medicine: they ſtrengthen the ſtomach and other viſcera; and remarkably promote the urinary and cuticular diſcharge. Hence, in cutaneous deſcdations, and other diſorders, proceeding from obſtructions of the excretory glands, and where ſluggiſh ſerous humours abound, they are eminently uſeful; rheumatic and other pains have often been relieved by them. They are alſo laxative. The reſin is the moſt active of theſe drugs; and the efficacy of the others depends upon the quantity of this part contained in them. The reſin is extracted from the wood in part by watery liquors, but much more effectually by ſpirituous ones. The watery extract of this wood kept in the ſhops, proves not only leſs in quantity, but conſiderably weaker, than one made with ſpirit. This laſt extract is of the ſame quality with the native reſin, and differs from that brought to us only in being purer. The gum or extracts, are given from a few grains to a ſcruple or half a dram; which laſt doſe proves, for the moſt part, conſiderably purgative. The officinal preparations of guaiacum are, an extract of the wood, a ſolution of the gum in rectified ſpirit of wine, and a ſolution in volatile ſpirit, and an empyreumatic oil diſtilled from the wood.

Guaiac, in form of decoction, has been ſaid to cure the venereal diſeaſe; and in this country it is frequently uſed as an adjuvant to mercury. The reſin, diſſolved in rum, or combined with water by means of mucilage or the yolk of eggs, or in the form of the volatile tincture or elixir, is much employed in gout and chronic rheumatiſm. The tincture or elixir has

been

been given to the extent of half an ounce twice a-day, and is ſometimes uſefully combined with laudanum.

820. Cynometra.

Two ſpecies; viz. cauliflora, ramiflora.

821. Crudia.

Two ſpecies; viz. ſpicata, aromatica. Guiana.

822. Panzera.

One ſpecies; viz. falcata. Carolina.

823. Codon.

One ſpecies; viz. royeni. C. of G. Hope.

824. Dictamnis, or *Fraxinella, White Dittany.*

One ſpecies; viz. albus. Germany, France, Italy.

The *dictamnus albus* grows wild in the mountainous parts of France, Italy, and Germany. From thence the cortical part of the root, in a dry ſtate, rolled up in little quills, is ſometimes brought to us. It is of a white colour, of a weak, not very agreeable ſmell, and of a durable bitter, lightly pungent taſte. It has been recommended as an alexipharmac, a tonic, and an anthelmintic; but it is very ſeldom uſed, and has no place in the London Pharmacopœia.

825. Nicandra.

One ſpecies; viz. amara. Guiana.

826. Petaloma.

Two ſpecies; viz. myrtilloides, muriri. Weſt Indies, Guiana.

827. Ruta, or *Rue.*

Seven ſpecies; viz. graveolens, montana, chalepenſis, pinnata, patavina, linifolia, fruticuloſa. S. Europe, Africa.

The *ruta graveolens* is a ſmall ſhrubby plant met with in gardens, where it flowers in June, and holds its green leaves all the winter. We frequently find in the markets a narrow-leaved ſort, which is cultivated by ſome, in preference to the other, on account of its leaves appearing variegated during the winter with white ſtreaks.

Rue has a ſtrong ungrateful ſmell, and a bitteriſh penetrating taſte. The leaves, when in full vigour, are extremely acrid, inſomuch as to inflame and bliſter the ſkin if much handled. With regard to their medicinal virtues, they are powerfully ſtimulating, attenuating, and detergent. And hence, in cold phlegmatic habits, they quicken the circulation, diſſolve tenacious juices, open obſtructions of the excretory glands, and promote the fluid ſecretions. The writers on the materia medica, in general, have entertained a very high opinion of the virtues of this plant. Boerhaave is full of its praiſes; particularly of the diſtilled oil and the diſtilled water, cohobated or re-diſtilled ſeveral times from freſh parcels of the herb: after ſomewhat extravagantly commending other waters prepared in this manner, he adds, with regard to that of rue, that the greateſt commendations he can beſtow upon it fall ſhort of its merit. "What medicine (ſays he) can be more efficacious for promoting ſweat and perſpiration, for the cure of the hyſteric paſſion and of epilepſies, and for expelling poiſon." Whatever ſervice rue may be of in the two laſt caſes, it undoubtedly has its uſe in the others: the cohobated water, however, is not the moſt efficacious preparation of it. An extract, made by rectified ſpirit, contains, in a ſmall compaſs, the whole virtues of the rue; this menſtruum taking up by infuſion all the pungency and flavour of the plant, and elevating nothing in diſtillation. With water its peculiar flavour and warmth ariſe; the bitterneſs, and a conſiderable ſhare of the pungency, remaining behind.

The only officinal preparation of rue now retained in our pharmacopœias is the extract; but it is an ingredient in the compound powder of myrrh and ſome other compoſitions.

828. Toluifera, or *Balſam of Tolu tree.*

One ſpecies; viz. balſamum. Carthagena.

The *toluifera balſamum* flows from a tree growing in Tolu in the Spaniſh Weſt Indies; from whence the balſam is brought to us in little gourd ſhells. It is of a yellowiſh brown colour inclining to red; in conſiſtence thick and tenacious: by age it grows hard and brittle, without ſuffering any great loſs of its more valuable parts. The ſmell of this balſam is extremely fragrant, ſomewhat reſembling that of lemons; its taſte warm and ſweetiſh, with little of the pungency, and nothing of the nauſeous reliſh, which accompany the other balſams. It has the ſame general virtues with the balſamum rahaſiri, but is much milder; and for ſome purpoſes, particularly as a corroborant in gleets and ſeminal weakneſſes, is ſuppoſed to be more efficacious.

829. Myroxylon, or *Balſam of Peru.*

Three ſpecies; viz. peruiferum, pedicellatum, fruteſcens. Mexico, Peru.

The *myroxylon peruiferum*, as brought to us, is nearly of the conſiſtence of thin honey, of a reddiſh brown colour, inclining to black, an agreeable aromatic ſmell, and a very hot biting taſte. Diſtilled with water, it yields a ſmall quantity of a fragrant eſſential oil of a reddiſh colour; and in a ſtrong fire, without addition, a yellowiſh red oil.

Balſam of Peru is a very warm aromatic medicine, conſiderably hotter and more acrid than copaiva. Its principal effects are to warm the habit, to ſtrengthen the nervous ſyſtem, and attenuate viſcid humours. Hence its uſe in ſome kinds of aſthmas, gonorrhœas, dyſenteries, ſuppreſſions of the uterine diſcharges, and other diſorders proceeding from a debility of the ſolids, or a ſluggiſhneſs or inactivity of the juices. It is alſo employed externally for cleanſing and healing wounds and ulcers, and ſometimes againſt palſies and rheumatic pains.

This balſam does not unite with water, milk, expreſſed oils, animal fats or wax; it may be mingled in the cold with this laſt, and likewiſe with the ſebaceous ſubſtance called *expreſſed oil of mace;* but if the mixture be afterwards liquefied by heat, the balſam ſeparates and falls to the bottom. It may be mixed with water into the form of an emulſion, after the ſame manner as the balſam of Copaiva. Alkaline lixivia diſſolve great part of it; and rectified ſpirit the whole.

It is an ingredient in ſeveral officinal compoſitions, in ſome of which it has rather a bad than a good effect.

There is another ſort of balſam of Peru of a white colour, and conſiderably more fragrant than the former. This is very rarely brought to us. It is ſaid to be the produce of the ſame plant which yields the common or black balſam, and to exude from inciſions made

made in the trunk; while the former is alleged to be obtained by boiling. Beſides the white, there is alſo a third kind, commonly called the *red* or *dry*. This is ſuppoſed to obtain a different ſtate from the white, merely in conſequence of the treatment to which it is ſubjected, after it is got from the tree. In its fragrance it in ſome degree approaches to the balſam of Gilead, held in ſo high eſteem among the eaſtern nations; but it is very rarely in uſe in Britain, and almoſt never to be met with in our ſhops.

830. HÆMATOXYLON, or *Logwood.*
One ſpecies; viz. campechianum. Campeachy, S. America.—This ſpecies is brought chiefly from Campeachy in the bay of Honduras. It is uſually in large logs, very compact and hard, of a red colour, and an aſtringent ſweet taſte. It has been for a long time uſed by the dyers, but not till very lately as a medicine; a decoction of it, and the extract, are in uſe in our hoſpitals, and ſaid to have proved very ſerviceable in diarrhœa. It frequently tinges the ſtools, and ſometimes the urine. The extract is now received into the ſhops, and it is found to be a very uſeful aſtringent.

831. PROSOPIS.
One ſpecies; viz. ſpicigera. India.

832. CADIA.
One ſpecies; viz. purpurea. Arabia.

833. MURRAYA.
One ſpecies; viz. exotica. E. Indies, New Guinea.

834. BERGERA.
One ſpecies; viz. koenigii.

835. EKEBERGIA.
One ſpecies; viz. capenſis. C. of G. Hope.

836. ADENANTHERA, or *Baſe Flower-fence.*
Three ſpecies; viz. pavonina, falcata, ſcandens. India.

837. GÆRTNERA.
One ſpecies; viz. racemoſa. India.

838. STRIGILIA.
One ſpecies; viz. racemoſa. Peru.

839. GILIBERTIA.
Four ſpecies; viz. decandra, ovata, heterophylla, oppoſitifolia. Iſles of Bourbon and Mauritius.

840. TRICHILIA.
12 ſpecies; viz. hirta, ſpondoides, emetica, glabra, pallida, moſchata, ſpectabilis, alliacea, heterophylla, trifoliata, nervoſa, ſpinoſa. Jamaica, Hiſpaniola, S. America.

841. TURRÆA.
Five ſpecies; viz. virens, pubeſcens, maculata, ſericea, lanceolata. Eaſt Indies.

842. SANDORICUM.
One ſpecies; viz. indicum. India.

843. SWIETENIA, or *Mahogany Tree.*
Three ſpecies; viz. mahogoni, febrifuga, chloroxylon. Weſt Indies.

844. COOKIA.
One ſpecies; punctata. New Holland, China.

845. MELIA, or *Bead-tree.*
Four ſpecies; viz. azedarach, ſempervivens, compoſita, azadirachtah. Spain, Syria, Eaſt Indies.

846. ZYGOPHYLLUM, or *Bean-caper.*
14 ſpecies; viz. ſimplex, cordifolium, labago, fœtidum, maculatum, coccineum, album, morgiana, microphyllum, ſeſſiliſolium, ſpinoſum, æſtuans, lanatum, arboreum. Syria, Cape, Caucaſus, South America.

847. FAGONIA.
Four ſpecies; viz. cretica, hiſpanica, arabica, indica. Spain, Crete, Arabia, India.

848. TRIBULUS, or *Caltrops.*
Four ſpecies; viz. maximus, lanuginoſus, terreſtris, ciſtoides. South Europe, Cape, Jamaica.

849. QUASSIA, or *Simarouba Bark.*
Three ſpecies; viz. amara, ſimaruba, excelſa. W. Indies, Cayenne, Guiana.

850. ZWINGERA.
One ſpecies; viz. amara. Guiana.

851. GOMPHIA.
Five ſpecies; viz. anguſtifolia, nitida, jabotapita, lævigata, laurifolia. Weſt Indies.

852. THRYALLIS.
One ſpecies; viz. braſilienſis. Brazil.

853. LIMONIA.
Eight ſpecies; viz. monophylla, trifoliata, acidiſſima, lucida, mauritiana, pentaphylla, madagaſcarenſis, minuta. Eaſt Indies.

854. MONOTROPA, or *Birds-neſt.*
Two ſpecies; viz. * hypopithys, uniflora. North Europe, North America.

855. DIONÆA, or *Venus's Fly-trap.*
One ſpecies; viz. muſcipula. North America.

856. JUSSIEUA. or *Tree-primroſe.*
12 ſpecies; viz. repens, tenella, linearis, linifolia, peruviana, hirta, pubeſcens, octovalvis, ſuffruticoſa, acuminata, inclinata, erecta. India, America.

857. SCHOUSBOEA.
One ſpecies; viz. coccinea. Martinico.

858. HEISTERIA.
One ſpecies; viz. coccinea. Martinico.

859. QUISQUALIS.
One ſpecies; viz. indica. India.

860. DAIS.
Three ſpecies; viz. conitifolia, diſperma, octandra. Cape, India.

861. CERATOPETALUM.
One ſpecies, viz. gummiferum.

862. MELASTOMA, or *American Gooſeberry.*
85 ſpecies; viz. calyptrata, crocea, patens, crenata, rigida, decuſſata, montana, procera, adſcendens, aſpera, ledifolia, ſtrigoſa, holoſericea, velutina, ſeſſilifolia, ramiflora, glabra, chryſophylla, quadrangularis, trinervia, repens, groſſularioides, parviflora, ſuccoſa, arboreſcens, longifolia, praſina, agreſtis, ſcandens, alata, flaveſcens, hirta, ſpicata, acinodendron, cymoſa, grandiflora, elegans, rufeſcens, rubra, majeta, heterophylla, phyſiphora, purpurea, argentea, elata, impetiolaris, fragilis, coriacea, groſſa, malabathrica, ſtrigilloſa, tamonea, albicans, capitata, ſplendens, lævigata, criſpata, hirſuta, microphylla, micrantha, capillaris, rubens, glabrata, glanduloſa, hirtella, triflora, octandra, divaricata, tetrandra, faſcicularis, anguſtifolia, purpuraſcens,

purafcens, alpina, verticillata, acuminata, lateriflora, elæagnoides, fcabrofa, virgata, umbrofa, hifpida, feffiliflora, pilofa, difcolor, coccinea. America, Weft Indies.

863. MERIANIA.

Two fpecies; viz. leucantha, purpurea.

864. KALMIA, or *Dwarf American Laurel.*

Four fpecies; viz. latifolia, anguftifolia, glauca, hirfuta. North America.

865. LEDUM, or *Marfh Ciftus.*

Three fpecies; viz. paluftre, latifolium, buxifolium. North Europe, North America.

866. RHODORA.

One fpecies; canadenfis. North America.

867. RHODODENDRON, or *Dwarf Rofe-bay.*

10 fpecies; viz. ferrugineum, dauricum, camtfchaticum, hirfutum, chamæciftus, caucaficum, chryfanthum, ponticum, maximum, punctatum. Siberia, Alps, Gibraltar, Levant, North America.

The *rhododendrum chryfanthum* is a native plant of Siberia, where a weak infufion of it is ufed as tea. The Siberians ufe a kind of decoction of it in rheumatifm and gout. They put about two drams of the dried fhrub in an earthen pot with about ten ounces of boiling water, keeping it near a boiling heat for a night, and this they take in the morning. It is faid to occafion heat, thirft, a degree of delirium, and a peculiar creeping-like fenfation in the parts affected. The ufe of liquids is not allowed during its operation, as this is apt to induce vomiting. In a few hours the pain and difagreeable fymptoms are relieved; and it is faid, two or three dofes generally complete the cure. The powder has alfo been ufed in dofes of a few grains.

Hitherto it has been fo little employed in Britain, that it has no place in the London Pharmacopœia: but in fome cafes, in which it has been ufed at Edinburgh, it has been productive of good effects; and accordingly it is now introduced into the Edinburgh Pharmacopœia, as well as into the *Pharmacopœia Roffica*, where it had firft a place.

868. ANDROMEDA, or *Bafe Heath.*

26 fpecies; viz. tetragona, ericoides, hypnoides, lycopodioides, empetrifolia, myrfinites, mariana, ferruginea, fafciculata, jamaicenfis, octandra, pulverulenta, * polifolia, falicifolia, buxifolia, japonica, paniculata, arborea, racemofa, cateſbæi, axillaris, coriacea, acuminata, rupeftris, anaftomofans, calyculata. North Europe, America, Cape, Jamaica.

869. EPIGÆA, or *Trailing Arbutus.*

Two fpecies; viz. repens, cordifolia. Virginia, Canada, Gual.

870. GUALTHERIA.

Two fpecies; viz. procumbens, antipoda.

871. ARBUTUS, or *Strawberry Tree.*

10 fpecies; viz.* unedo, laurifolia, andrachne, ferruginea, acadienfis, * alpina, * uva urfi, mucronata, microphylla, pumila. Europe, North America, Terra del Fuego.

unedo. * A. ftem tree-like: leaves fmooth, bluntly ferrated: panicle terminating; berries with many feeds.—It is a beautiful ornament to our fhrubberies, not only on account of its foliage and flowers, but of its fruit, which is pleafing to the eye, though not grateful to the tafte. The country people, however, in Ireland eat it, but always drink water after.

alpina. * A. ftems trailing: leaves wrinkled, fomewhat ferrated, and fringed with hairs.—The berries have fomething of the flavour of black currants, but they are not fo good. Goats refufe it.

uva urfi. * A. ftems trailing; leaves oblong egg-fhaped, very entire, veined like net-work underneath.—The berries of this plant are infipid, pulpy, and mealy. The plant is much ufed in Sweden, to dye an afh colour, and to tan leather. Half a dram of the powdered leaves, given every, or every other day, has been found ufeful in calculous cafes. It was firft ufed for this purpofe at Montpelier, and afterwards by Dr. De Haen at Vienna, who relates feveral cafes, in which it proved of the greateft fervice. Its fuccefs in England has been uncertain. Sometimes the patients found no relief, but thought their complaints rather aggravated than alleviated; while, in other calculous and nephritic cafes, the fymptoms have been almoft entirely removed. Perhaps, upon the whole, we fhall find it no better than other vegetable aftringents; fome of which have been long ufed by the country people in gravelly complaints, and with very great advantage, though hitherto unnoticed by the regular practitioners. Horfes, cows, goats, and fheep, refufe it.

872. CLETHRA.

Four fpecies; viz. aluifolia, paniculata, arborea, tinifolia. N. America, Jam. Madeira.

873. PYROLA, or *Winter-green.*

Six fpecies; viz. * rotundifolia, * minor, * fecunda, umbellata, maculata, * uniflora. N. Europe, Afia, America.

874. STYRAX, or *Storax-tree.*

Four fpecies; viz. officinale, grandifolium, benzoin, lævigatum. Italy, Levant, S. Carolina.

The *ſtyrax officinale* is an odoriferous refinous fubftance, exuding from a tree growing in the warmer climates.

It has been cuftomary to diftinguifh three forts of ftorax, though only one is ufually met with in the fhops.

1. *Styrax calamita*, or *ſtorax in the cane*; fo called from its having been formerly brought inclofed in reeds from Pamphylia. It is either in fmall diftinct tears, of a whitifh or reddifh colour, or in larger maffes compofed of fuch.

2. *Storax in the lump*, or *red ſtorax.* This is in maffes of a uniform texture, and yellowifh red or browniſh colour; though fometimes, likewife, interfperfed with a few whitifh grains. Of this fort, there has been fome lately to be met with in the fhops, under the name of *ſtorax in the tear.*

3. The common ftorax of the fhops, is in large maffes, conſiderably lighter and lefs compact than the foregoing; it appears upon examination, to be compofed of a refinous juice, mixed with faw-duft. For what purpofe this addition is made, it is difficult to fay; but it can fcarcely be fuppofed to be done with any fraudulent view, fince the faw-duft appears at fight. This common ftorax is much lefs efteemed than the two firft forts; though, when freed from the woody matter, it proves fuperior in point of fragrance to either of them.

Rectified

Rectified ſpirit, the common menſtruum of reſins, diſſolves the ſtorax, leaving the wood behind; nor does this tincture loſe conſiderably of its valuable parts, in being inſpiſſated to a ſolid conſiſtence; whilſt aqueous liquors elevate almoſt all the fragrancy of the ſtorax.

Storax is one of the moſt agreeable of the odoriferous reſins, and may be exhibited to great advantage in languors, and debilities of the nervous ſyſtem; it is not, however, much uſed in common practice.

875. INOCARPUS.

One ſpecies; viz. edulis. Otaheite.

876. SAMYDA.

Nine ſpecies; viz. nitida, macrophylla, multiflora, villoſa, glabrata, ſpineſcens, pubeſcens, ſerrulata, polyandra. Weſt Indies, S. America.

877. CASEARIA.

12 ſpecies; viz. ſpinoſa, nitida, ramiflora, hirta, parviflora, parvifolia, ſylveſtris, macrophylla, ſerrulata, elliptica, ovata, hirſuta. Jamaica, S. America.

878. AQUILARIA.

One ſpecies; viz. ovata. Weſt Indies.

879. AUGEA.

One ſpecies; viz. capenſis.

880. COPAIFERA, or *Balſam of Capivi tree.*

One ſpecies; viz. officinalis. Brazil, Antilles.

The tree which produces this balſam, is a native of the Spaniſh Weſt India iſlands, and of ſome parts of the continent of South America. It grows to a large ſize, and the balſamum copaiva flows, under the form of a reſinous juice, from inciſions made in the trunk.

The juice is clear and tranſparent, of a whitiſh or pale yellowiſh colour, an agreeable ſmell, and a bitteriſh pungent taſte. It is uſually about the conſiſtence of oil, or a little thicker; when long kept, it becomes nearly as thick as honey, retaining its clearneſs; but has not been obſerved to grow dry or ſolid, as moſt of the other reſinous juices do. We ſometimes meet with a thick ſort of balſam of copaiva, which is not at all tranſparent, or much leſs ſo than the foregoing, and generally has a portion of turbid watery liquor at the bottom. This ſort is probably either adulterated by the mixture of other ſubſtances, or has been extracted by coction from the bark and branches of the tree; its ſmell and taſte are much leſs pleaſant than thoſe of the genuine balſam.

Pure balſam of copaiva diſſolves entirely in rectified ſpirit, eſpecially if the menſtruum be previouſly alkalized; the ſolution has a very fragrant ſmell. Diſtilled with water, it yields a large quantity of a limpid eſſential oil, and in a ſtrong heat, without addition, a blue oil.

The balſam of copaiva is a uſeful corroborating detergent medicine, accompanied with a degree of irritation. It ſtrengthens the nervous ſyſtem, tends to looſen the belly; in large doſes proves purgative, promotes urine, and cleans and heals exulcerations in the urinary paſſages, which it is ſuppoſed to perform more effectually than any of the other balſams. Fuller obſerves, that it gives the urine an intenſely bitter taſte, but not a violet ſmell, as the turpentines do.

This balſam has been principally celebrated in gleets and the fluor albus, and externally as a vulnerary.—The author above-mentioned recommends it likewiſe in dyſenteries, in ſcorbutic cachexies, in diſeaſes of the breaſt and lungs, and in an acrimonious or putreſcent ſtate of the juices: he ſays, he has known very dangerous coughs, which manifeſtly threatened a conſumption, cured by the uſe of this balſam alone; and, that notwithſtanding its being hot and bitter, it has good effects, even in hectic caſes. Moſt phyſicians ſeem now, however, to conſider balſams and reſins too ſtimulant to be ventured on in phthiſical affections.

The doſe of this medicine rarely exceeds 20 or 30 drops, though ſome direct ſixty, or more. It may be conveniently taken in the form of an elæoſaccharum, or in that of an emulſion, into which it may be reduced by triturating it with almonds, or rather with a thick mucilage of gum arabic, till they are well incorporated, and then gradually adding a proper quantity of water.

881. BUCIDA.

Two ſpecies; viz. buceras, capitata. Jamaica.

ORDER II. DIGYNIA.

882. ROYENA, or *African Bladder-nut.*

Seven ſpecies; viz. lucida, villoſa, pallens, glabra, hirſuta, polyandra, anguſtifolia. C. of G. Hope.

883. HYDRANGEA.

Four ſpecies; viz. arboreſcens, hortenſis, radiata, quercifolia. Virginia, Carolina.

884. CUNONIA.

One ſpecies; viz. capenſis. C. of G. Hope.

885. TRIANTHEMA, or *Horſe Purſlain.*

Seven ſpecies; viz. monogyna, cryſtallina, pentandra, fruticoſa, humifuſa, anceps, decandra. Egypt, India, Jamaica.

886. CHRYSOSPLENIUM, or *Golden Saxifrage.*

Two ſpecies; viz. * alternifolium, * oppoſitifolium. N. Europe, Canada.

887. SAXIFRAGA, or *Saxifrage.*

49 ſpecies; viz. cotyledon, aizoon, mutata, penſylvanica, hieracifolia, androſacea, caeſia, burſeriana, ſedoides, tenella, bryſides, bronchealis, * ſtellaris, craſſifolia, * nivalis, bellardi, davurica, ſarmentoſa, punctata, * umbroſa, hirſuta, cuneifolia, geum, * oppoſitifolia, aſpera, * hirculus, * aizoides, autumnalis, rotundifolia, * granulata, bulbifera, * cernua, rivularis, geranioides, ajugifolia, fibirica, rupeſtris, * tridactylites, petræa, adſcendens, * moſchata, muſcoides, cæſpitoſa, tricuſpidata, cymbalaria, hederacea, orientalis, cuneata, * hypnoides.

888. TIARELLA, or *American Sanicle.*

Two ſpecies; viz. cordifolia, trifoliata. North of Aſia and America.

889. MITELLA, or *Baſe American Sanicle.*

Three ſpecies; viz. diphylla, cordifolia, nuda. N. of Aſia, America.

890. SCLERANTHUS, or *Knawel, German Knot-graſs.*

Three ſpecies; viz. * annuus, * perennis, * polycarpus. Europe.

* S. calyx, ſegments thornleſs, tapering to a point; open when the fruit is ripe.—The Swedes and Germans *annuus.*

are said to receive the vapour arising from a decoction of it into their mouths to cure the toothach. Goats and sheep eat it; cows refuse it.

perennis. * S. cal. segments blunt, closed when the fruit is ripe. —The Polish cochineal (*coccus polonicus*) is found upon the roots in the summer months.

891. Gypsophila.

13 species; viz. repens, prostrata, paniculata, viscosa, adscendens, altissima, arenaria, struthium, fastigiata, perfoliata, muralis, rigida, saxifraga. Europe.

892. Saponaria, or *Soap-wort.*

Nine species; viz. * officinalis, vaccaria, cretica, porrigens, illyrica, ocymoides, orientalis, lutea, bellidifolia. Europe.

The *saponaria officinalis* grows wild, though not very common, in low wet places, and by the sides of running waters; a double-flowered sort is frequent in our gardens. The leaves have a bitter not agreeable taste; agitated with water, they raise a saponaceous froth, which is said to have nearly the same effects with solutions of soap itself in taking out spots from clothes and the like. The roots taste sweetish, and somewhat pungent, and have a light smell like those of liquorice; digested in rectified spirit, they yield a strong tincture, which loses nothing of its taste or flavour in being inspissated to the consistence of an extract. This elegant root has not come much into practice among us, though it promises from its sensible qualities to be a medicine of considerable utility. It is much esteemed by the German physicians as an aperient, corroborant, and sudorific, and preferred by the college of Wirtemberg, by Stahl, Neumann and others, to sarsaparilla.

893. Dianthus, or *Pink, Carnation.*

32 species; viz. * barbatus, carthusianorum, atrorubens, ferrugineus, * armeria, japonicus, * prolifer, diminutus, * caryophyllus, sylvestris, pomeridianus, * deltoides, albens, crenatus, chinensis, monspeliacus, libanotis, plumarius, crinitus, superbus, attenuatus, purgens, virgineus, arenarius, repens, * caesius, cespitosus, scaber, alpinus, pumilus, arboreus, juniperinus. Europe, Cape, China, America.

Of the species called *caryophyllus*, or *clove july-flower*, a great variety is met with in our gardens; those made use of in medicine ought to be of a deep crimson colour and a pleasant aromatic smell, somewhat like that of cloves; many sorts have scarce any smell at all. The *caryophylla rubra* are said to be cardiac and alexipharmac. Simon Paulli relates that he has cured many malignant fevers by the use of a decoction of them, which he says powerfully promotes sweat and urine, without greatly irritating nature, and also raises the spirits and quenches thirst. At present the flowers are chiefly valued for their pleasant flavour, which is entirely lost even by light coction; hence the college direct the syrup, which is the only officinal preparation of them, to be made by infusion.

Ordo III. TRIGYNIA.

894. Cucubalus, or *Berry-bearing Chickweed.*

18 species; viz. * behen, fabarius, viscosus, stellatus, ægyptiacus, italicus, multiflorus, fruticulosus, tartaricus, sibiricus, catholicus, mollissimus, * otites, parviflorus, reflexus, saxifragus, spergulifolius, polygonoides. Europe, Egypt, North America.

* C. cal. nearly globular, smooth, with a net-work of *behen.* veins; leaves egg-spear-shaped, glaucous, smooth.—The leaves boiled have something of the flavour of pease, and proved of great use to the inhabitants of the island of Minorca in the year 1685, when a swarm of locusts had destroyed the harvest. The Gothlanders apply the leaves to erysipelatous eruptions.

895. Silene, or *Viscous Campion.*

56 species; viz. * anglica, lusitanica, * quinquevulnera, ciliata, sericea, nocturna, gallica, cerastoides, mutabilis, chlorantha, * nutans, amœna, paradoxa, fruticosa, bupleuroides, longiflora, gigantea, crassifolia, viridiflora, * conoidea, * conica, bellidifolia, dichotoma, vespertina, behen, stricta, pendula, baccifera, * maritima, procumbens, * noctiflora, ornata, undulata, virginica, antirrhina, sedoides, apetala, rubella, inaperta, clandestina, portensis, cretica, muscipula, polyphylla, * armeria, orchidea, ægyptiaca, catesbæi, cordifolia, chloræfolia, alpestris, rupestris, saxifraga, vallesia, pumila, * acaulis. Europe, Persia, Africa, N. America.

896. Stellaria, or *Greater Chickweed.*

17 species; viz. * nemorum, dichotoma, radians, bulbosa, * holostea, * graminea, palustris, crassifolia, alsine, undulata, * cerastoides, multicaulis, humifusa, biflora, grœnlandica, arenaria, scapigera. Europe, North America.

897. Arenaria, or *Sandwort.*

36 species; viz. * peploides, tetraquetra, biflora, lateriflora, * trinervia, ciliata, balearica, multicaulis, * serpillifolia, procumbens, polygonoides, triflora, montana, * rubra, * media, bavarica, gypsophiloides, cucubaloides, dianthoides, saxatilis, cæspitosa, * verna, hispida, verticillata, * juniperina, * tenuifolia, * laricifolia, recurva, lanceolata, striata, filifolia, fasciculata, austriaca, grandiflora, liniflora, gerardi. Europe.

898. Cherleria.

One species; viz. * sedoides. Alps of Austria, Switzerland.

899. Deutzia.

One species; viz. scabra. Japan.

900. Brunnichia.

One species; viz. cirrhosa. Bahama isles.

901. Garidella, or *Cretan Fennel-flower.*

One species; viz. nigellastrum. S. France, Italy, Crete.

902. Malpighia, or *Barbadoes Cherry.*

20 species; viz. glabra, biflora, pumicifolia, faginea, glandulosa, tuberculata, nitida, armeniaca, dubia, urens, angustifolia, canescens, crassifolia, spicata, altissima, verbascifolia, lucida, coriacea, aquifolia, coccifera. W. Indies, America.

903. Banisteria.

24 species; viz. angulosa, palmata, sagittata, auriculata, ciliata, emarginata, quapara, sinemariensis, purpurea, microphylla, chrysophylla, laurifolia, cœrulea, nitida, muricata, leona, sericea, ferruginea, longifolia, dichotoma, ovata, fulgens, heterophylla, brachiata. W. Indies, Guiana.

904. Hiræa.

Three species; viz. reclinata. odorata, pinnata. Carthagena.

905. Triopteris.

Eight ſpecies; viz. jamaicenſis, indica, ovata, rigida, acutifolia, acuminata, buxifolia, citrifolia. Jamaica, Hiſpaniola.

906. Erythroxylon.

12 ſpecies; viz. arcolatum, hypericifolium, buxifolium, ferrugineum, rufum, havanenſe, coca, ſideroxyloides, ſquamatum, macrophyllum, laurifolium, longifolium. Weſt Indies.

Ordo IV. PENTAGYNIA.

907. Averrhoa.

Two ſpecies; viz. bilimbi, carambola. India.

908. Joncquetia.

One ſpecies; viz. paniculata. Guiana.

909. Spondias, or *Hog-plum*.

Four ſpecies; viz. mombin, myrobalanus, mangifera, dulcis. Weſt Indies, South America.

910. Robergia.

One ſpecies; viz. fruteſcens. Guiana.

911. Cnestis.

Four ſpecies; viz. glabra, polyphylla, corniculata, trifolia. Iſle of Madagaſcar.

912. Cotyledon, or *Navel-wort*.

24 ſpecies; viz. orbiculata, paniculata, faſcicularis, cuneata, ſpuria, purpurea, teretifolia, cacalioides, reticulata, pupillaris, mamillaris, hemiſphærica, triflora, coccinea, malacophyllum, ſerrata, * umbilicus, * lutea, lanceolata, laciniata, alternans, nudicaulis, hiſpanica, viſcoſa. Sib. France, Spain, Cape, Eaſt Indies.

913. Sedum, or *Leſſer Houſeleek, Stonecrop*.

29 ſpecies; viz. verticillatum, * telephium, anacampſeros, divaricatum, aizoon, hybridum, populifolium, ſtellatum, alſinefolium, cepæa, libanoticum, * daſyphyllum, * reflexum, virens, * rupeſtre, ſaxatile, quadrifidum, hiſpanicum, lineare, coeruleum, * album, * acre, * ſexangulare, * anglicum, annuum, pubeſcens, * villoſum, atratum, nudum. Europe, Madeira, Japan.

telephium. * S. leaves flattiſh, ſerrated; corymbus leafy, ſtem upright.—A decoction of the leaves in milk is a forcible diuretic. It has been given with ſucceſs to cure the piles. Cows, goats, ſheep, and ſwine, eat it. Horſes refuſe it.

acre. * S. leaves nearly egg-ſhaped, growing to and ſitting, bulging, nearly upright, alternate; tuft with three diviſions.—This ſpecies of ſedum is a ſmall perennial, ſucculent, evergreen plant; growing in great abundance on the tops of walls and roofs of houſes. It has a faint ſmell, and at firſt an herbaceous taſte; but it afterwards ſhows conſiderable acrimony, exciting a ſenſe of biting heat in the mouth and fauces. In its recent ſtate it ſhows very active powers, proving emetic, purgative and diuretic. The expreſſed juice, taken to the quantity of a table ſpoonful, has been ſaid to prove a very draſtic medicine; but the plant in its dried ſtate ſhows little or no activity. In this country it is hardly employed, and has no place in our pharmacopœias. Its activity, however, points it out as a ſubject deſerving attention. Goats eat it; cows, horſes, ſheep, and ſwine, refuſe it.

rupeſtre. * S. leaves awl-ſhaped in five rows, crowded, looſe at the baſe; flowers in tufts.—Both this and the *S. reflexum* are cultivated in Holland and Germany, to mix with lettuces in ſallads. It is acrid to the taſte.

914. Penthorum.

One ſpecies; viz. ſedoides. Virginia.

915. Bergia.

Two ſpecies; viz. verticillata, glomerata. Cape of Good Hope.

916. Suriana.

One ſpecies; viz. maritima. Jamaica.

917. Grielum.

One ſpecies; viz. tenuifolium. Ethiopia.

918. Oxalis, or *Wood-ſorrel*.

93 ſpecies; viz. monophylla, lepida, roſtrata, aſinina, lanceæfolia, leporina, criſpa, fabæfolia, laburnifolia, ſanguinea, ambigua, undulata, fuſcata, glanduloſa, tricolor, rubro-flava, flaccida, exaltata, variabilis, grandiflora, ſulphurea, purpurea, breviſcapa, ſpecioſa, * acetoſella, magellanica, marginata, pulchella, obtuſa, lanata, truncatula, ſtrumoſa, punctata, luteola, macrogonya, fallax, tenella, minuta, puſilla, compreſſa, ſericea, megalorhiza, tetraphylla, violacea, caprina, cernua, dentata, livida, ciliaris, arcuata, linearis, cuneata, cuneifolia, glabra, bifida, filicaulis, longiflora, nutans, convexula, verſicolor, elongata, reclinata, polyphylla, tenuifolia, macroſtylis, hirta, tubiflora, ſecunda, multiflora, rubella, roſacea, repens, reptatrix, diſticha, incarnata, conorhiza, crenata, lateriflora, dillenii, ſtricta, * corniculata, plumieri, pentantha, rhombifolia, roſea, barrelieri, burmanni, tomentoſa, lupinifolia, pectinata, flabellifolia, flava, ſenſitiva. S. Europe, Cape, North America.

acetoſella. * O. ſtalk with one flower; leaves three together; leafets inverſely heart-ſhaped, hairy.—An infuſion of the leaves is an agreeable liquor in ardent fevers, and boiled with milk they make an agreeable whey. Sheep, goats, and ſwine eat it. Cows are not fond of it. Horſes refuſe it. The juice is gratefully acid. The London college directs a conſerve to be made of the leaves, beaten with thrice their weight of fine ſugar. The expreſſed juice depurated, properly evaporated, and ſet in a cool place, affords a cryſtalline acid ſalt in conſiderable quantity, which may be uſed whenever vegetable acids are wanted. It is employed to take iron moulds out of linen, and is ſold under the name of eſſential ſalt of lemons. We are lately aſſured that the leaves and ſtalks wrapped in a cabbage leaf, and macerated in warm aſhes until reduced to a pulp, have been ſucceſsfully applied to ſcrophulous ulcers. This poultice ſhould remain on the ſore for 24 hours, and be repeated four times. Afterwards the ulcer is to be dreſſed with a poultice made of the roots of the meadow-ſweet bruiſed, and mixed up with the ſcum of ſour butter-milk.

919. Agrostemma, or *Roſe Campion, Wild Lychnis*.

Four ſpecies; viz. * githago, coronaria, flos jovis, cœli-roſa. Europe.

920. Lychnis, or *Campion*.

11 ſpecies; viz. chalcedonica, * flos cuculis, coronata, quadridentata, * viſcaria, alpina, magellanica,

ſibirica, læta, * dioica, apetala. Ruſſia, Alps of Europe, China.

921. CERASTIUM, or *Mouſe-ear Chickweed.*

20 ſpecies; viz. perfoliatum, * vulgatum, anomalum, * viſcoſum, * ſemidecandrum, pentandrum, * arvenſe, lineare, dichotomum, longifolium, * alpinum, repens, ſtrictum, ſuffruticoſum, maximum, * aquaticum, dioicum, * latifolium, * tomentoſum, manticum. Europe.

922. SPERGULA, or *Spurrey.*

Seven ſpecies; viz. * arvenſis, pentandra, nodoſa, laricina, ſaginoides, * ſubulata, glabra. Europe.

arvenſis. * S. leaves in whirls; flowers with more than five ſtamens; ſtems thick at the joints.—Poultry are fond of the ſeeds; and the inhabitants of Finland and Norway make bread of them when their crops of corn fail. Experience ſhows it to be very nutritious to the cattle that eat it. Horſes, ſheep, goats, and ſwine eat it. Cows refuſe it.

ORDER V. DECAGYNIA.

923. NEURADA.

One ſpecies; viz. procumbens. Numidia, Egypt.

924. PHYTOLACCA, or *American Nightſhade.*

Six ſpecies; viz. octandra, ſtricta, abyſſinica, decandra, icoſandra, dioica. Eaſt Indies, Africa, America.

In the claſs Decandria are

119 Genera, which include 987 Species. Of theſe 84 are found in Britain.

CLASSIS XI.

DODECANDRIA (A).

ORDO I. MONOGYNIA.

927. BOCCONIA. Cor. o. Cal. 2-phyllus, inferus. Capſ. 2-valvis, 1-ſperma.

* 925. ASARUM. Cor. o. Cal. 3-fidus, ſuperus. Capſ. 6-locularis.

955. STERCULIA. Cor. o. Cal. 5-partit. Nectar. ſtaminiferum. Germen pedicellatum. Capſ. 5.

931. RHIZOPHORA. Cor. 4-partita. Cal. 4-partitus, inferus. Sem. 1, clavatum, receptaculo carnoſo.

938. GARCINIA. Cor. 4-petala. Cal. 4-phyllus, inferus. Bacca 8-ſperma, coronata.

943. CRATÆVA. Cor. 4-petala. Cal. 4-fidus, inferus. Bacca 2-locularis, pedicellata.

928. DODECAS. Cor. 4-petala. Cal. 4-fidus. Capſ. 1-locul. 4-valvis.

932. CRENÆA. Cor. 4-petala. Cal. 4-fidus. Capſ. 5-locularis, polyſperma.

939. HALESIA. Cor. 4-fida. Cal. 4-dentatus, ſuperus. Pericarp. 4-ſpermum, 4-angulatum.

933. APACTIS. Cor. 4-petala. Cal. o. Stam. 16.

926. TORNEX. Cor. 5-petala. Cal. o. Involucrum 4 ſ. 5-phyllum, 5-12-florum. Bacca 1-ſperma.

945. EURYA. Cor. 5-petal. Cal. duplex. Capſ. 5-locularis.

944. TRIUMFETTA. Cor. 5-petala. Cal. 5-phyllus, inferus. Capſ. 4-locul. 2-ſperma, muricata.

946. PEGANUM. Cor. 5-petala. Cal. 5-phyllus, inferus. Capſ. 3-locul. Stam. 15.

954. KLEINHOFIA. Cor. 5-petala. Cal. 5-phyll.

CLASS XI.

DODECANDRIA.

ORDER I. MONOGYNIA.

B. No cor. Cal. 2-leafed, inferior. Capſ. 2-valved, 1-ſeeded.

* A. No cor. Cal. 3-cleft, ſuperior. Capſ. 6-celled.

S. No cor. Cal. 5-partite. Nectary bearing the ſtamens. Germ. on a pedicle. Capſ. 5.

R. Cor. 4-parted. Cal. 4-parted, inferior. Seed 1, club-ſhaped, in a fleſhy receptacle.

G. Cor. 4-petaled. Cal. 4-leafed, inferior. Berry 8-ſeeded, crowned.

C. Cor. 4-petaled. Cal. 4-cleft, inferior. Berry 2-celled, with a pedicle.

D. Cor. 4-petaled. Cal. 4-cleft. Capſ. 1-celled, 4-valved.

C. Cor. 4-petaled. Cal. 4-cleft. Capſ. 5-celled, many-ſeeded.

H. Cor. 4-cleft. Cal. 4-toothed, ſuperior. Seed-veſſel 4-ſeeded, 4-angled.

A. Cor. 4-petaled. No cal. Stam. 16.

T. Cor. 5-petaled. No cal. Involucrum 4 or 5-leafed, 5-12-flowers. Berry 1-ſeeded.

E. Cor. 5-petaled, Cal. double. Capſ. 5-celled.

T. Cor. 5-petaled. Cal. 5-leafed, inferior. Capſ. 4-celled, 2-ſeeded, covered with ſharp points.

P. Cor. 5-petaled. Cal. 5-leafed, inferior. Capſ. 3-celled. Stamens 15.

K. Cor. 5-petaled. Cal. 5-leafed. Nectary bear-

Nectar.

(A) Thus far the claſſes have received their denomination from the number of ſtamens contained in the flowers. The name given to the preſent claſs would ſeem to imply, that the flowers arranged under it, contained only 12 ſtamens; but it is in fact an aſſemblage of plants, whoſe flowers contain from 11 to 19 ſtamens, incluſive.

Nectar. ſtaminiferum. Germen pedicillatum. Capſ. 5-angularis, inflata.

948. Nithraria. Cor. 5-petala. Cal. 5-fidus, inferus. Drupa 1-ſperma. Stam. 15.

941. Aristotelia. Cor. 5-petala. Cal. 5-partitus. Bacca 3-locularis.

937. Grangeria. Cor. 5-petala. Cal. 5-fidus. Drupa monoſperma.

936. Vatica. Cor. 5-petala. Anth. 15 quadriloculares; loculis interioribus brevioribus.

947. Hudsonia. Cor. 5-petala. Cal. 3-phyllus, inferus. Capſ. 1-locularis, 3-valvis, 3-ſperma.

942. Canella. Cor. 5-petala. Cal. 3-lobus, inferus. Bacca 1-locul. 2 ſ. 4-ſperma. Nectarium antheriferum.

949. Portulaca. Cor. 5-petala. Cal. 2-fidus, inferus. Capſ. 1-locul. circumſciſſa.

950. Talinum. Cor. 5-petala. Cal. 2-phyllus. Capſ. 1-locularis, trivalvis. Sem. arillata.

* 951. Lythrum. Cor. 6-petala. Cal. 5-fidus, inferus. Capſ. 2-locularis.

952. Cuphea. Cor. 6-petala, inæqualis. Cal. 6-dentatus, inæqualis. Capſ. 1-locul. ante maturitatem dehiſcens.

953. Ginoria. Cor. 6-petala. Cal. 6-fidus, inferus. Capſ. 1-locul. 4-valvis.

934. Blakea. Cor. 6-petala. Cal. 6-phyllus. Flos ſuperus, indiviſus. Capſ. 6-locularis. Antheræ connexæ.

929. Agathophyllum. Cor. 6-petala. Cal. truncatus. Drupa monoſperma.

935. Befaria. Cor. 7-petala. Stam. 14. Bacca exſucca, 7-locularis.

930. Bassia. Cor. 8-fida. Stam. 16. Drupa 5-ſperma.

940. Decumaria. Cor. 10-petala. Cal. 10-phyllus, ſuperus.

Cleome viſcoſa dodecandra. Chlora dodecandra. Samyda pubeſcens, ſerrulata. Rivina octandra. Paſſerina capitata.

ing ſtamens. Germ. on a pedicle. Capſ. 5-angular, inflated.

N. Cor. 5-petaled. Cal. 5-cleft, inferior. A drupe 1-ſeeded. Stamens 15.

A. Cor. 5-petaled. Cal. 5-partite. Berry 3-celled.

G. Cor. 5-petaled. Cal. 5-cleft. Drupe 1-ſeeded.

V. Cor. 5-petaled. Anth. 15, 4-celled, the inner cells ſhorter.

H. Cor. 5-petaled. Cal. 3-leafed, inferior. Capſ. 1-celled, 3-valved, 3-ſeeded.

C. Cor. 5-petaled. Cal. 3-lobed, inferior. Berry 1-celled, 2 or 4-ſeeded. Nectary bearing the anthers.

P. Cor. 5-petaled. Cal. 2-cleft, inferior. Capſ. 1-celled, cut round.

T. Cor. 5-petaled. Cal. 2-leafed. Capſ. 1-celled, 3-valved. Seeds coated.

* L. Cor. 6-petaled. Cal. 12-cleft, inferior. Capſ. 2-celled.

C. Cor. 6-petaled, unequal. Cal. 6-toothed, unequal. Capſ. 1-celled, opening before maturity.

G. Cor. 6-petaled. Cal. 6-cleft, inferior. Capſ. 1-celled, 4-valved.

B. Cor. 6-petaled. Cal. 6-leafed. Flower ſuperior, undivided. Capſ. 6-celled. Anthers united at the baſe.

A. Cor. 6-petaled. Cal. lopped. Drupe 1-ſeeded.

B. Cor. 7-petaled. Stam. 14. Berry dry, 7-celled.

B. Cor. 8-cleft. Stamens 16. Drupe 5-ſeeded.

D. Cor. 10-petaled. Cal. 10-leafed, ſuperior.

Ordo II. DIGYNIA.

956. Heliocarpus. Cor. 4-petala. Cal. 4-phyllus. Capſ. 2-locul. 1-ſperma, compreſſo-radiata.

* 957. Agrimonia. Cor. 5-petala. Cal. 5-fidus. Sem. 1 ſ. 2.

Order II. DIGYNIA.

H. Cor. 4-petaled. Cal. 4-leafed. Capſ. 2-celled, 1-ſeed, compreſſed, radiated.

* A. Cor. 5-petaled. Cal. 5-cleft. Seeds 1 or 2.

Ordo III. TRIGYNIA.

* 958. Reseda. Cor. petalis multifidis. Cal. partitus. Capſ. 3-locularis, hians.

960. Visnea. Cor. petalis ellipticis. Cal. 5-phyll. Nux.

* 959. Euphorbia. Cor. petalis peltatis. Cal. ventricoſus. Capſ. 3-cocca.

Order III. TRIGYNIA.

* R. Cor. with many-cleft petals. Cal. partite. Capſ. 3-celled, gaping.

V. Cor. with elliptical petals. Cal. 5-leafed. A nut.

* E. Cor. with target-ſhaped petals. Cal. bellied. Capſ. 3-celled.

Ordo IV. TETRAGYNIA.

962. Aponogeton. Cor. o. Cal. o. Capſ. 4.

961. Calligonum. Cor. o. Cal. 5-partitus. Nux monoſperma.

Tormentilla erecta. Reſedæ aliquot.

Order IV. TETRAGYNIA.

A. No cor. No cal. Capſ. 4.

C. No cor. Cal. 5-partite. 1-ſeeded nut.

Ordo V. PENTAGYNIA.

963. Glinus. Cor. o. niſi ſetulæ. Cal. 5-phyllus. Capſ. 5-locul.

964. Blackwellia. Cor. 15-petala. Cal. 5-fid. Capſ. 1-locul. polyſperma.

Reſeda purpuraſcens.

Ordo VI. DODECAGYNIA.

* 965. Sempervivum. Cor. 12-petala. Cal. 12-partitus. Capſ. 12.

Aliſma cordifolia.

Order V. PENTAGYNIA.

G. No cor. except little briſtles. Cal. 5-leafed. Capſ. 5-celled.

B. Cor. 15-petaled. Cal. 5-cleft. Capſ. 1-celled, many-ſeeded.

Order VI. DODECAGYNIA.

* S. Cor. 12-petaled. Cal. 12-partite. Capſ. 12.

Order I MONOGYNIA.

925. Asarum, or *Aſarabacca.*

Three ſpecies; viz. * europæum, canadenſe, virginicum. Europe, N. America.

europæum. * A. leaves kidney-ſhaped, blunt, in pairs.—This is a very low plant, growing naturally in France, Italy, and other warm countries. It grows readily in our gardens; and although the dried roots have been generally brought from the Levant, thoſe of our own growth do not ſeem to be weaker. Both the roots and leaves have a nauſeous, bitter, acrimonious, hot taſte. Their ſmell is ſtrong, and not very diſagreeable. Given in ſubſtance from half a dram to a dram, they evacuate powerfully both upwards and downwards. It is ſaid, that tinctures made in ſpirituous menſtrua, poſſeſs both the emetic and cathartic virtues of the plant: that the extract, obtained by inſpiſſating theſe tinctures, acts only by vomiting, and with great mildneſs: that an infuſion in water proves cathartic, rarely emetic: that aqueous decoctions, made by long boiling, and the watery extract, have no purgative or emetic quality, but prove good diaphoretics, diuretics, and emmenagogues. The principal uſe of this plant among us is as a ſternutatory. The root of aſarum is perhaps the ſtrongeſt of all the vegetable errhines, white hellebore itſelf not excepted. Snuffed up the noſe in the quantity of a grain or two, it occaſions a large evacuation of mucus, and raiſes a plentiful ſpitting. The leaves are conſiderably milder, and may be uſed, to the quantity of three, four, or five grains. Geoffroy relates, that after ſnuffing up a doſe of this errhine at night, he has frequently obſerved the diſcharge from the noſe to continue for three days together; and that he has known a paralyſis of the mouth and tongue cured by one doſe. He recommends this medicine in ſtubborn diſorders of the head, proceeding from viſcid tenacious matter, in palſies, and ſoporific diſtempers. The leaves are the principal ingredient in the *pulvis ſternutatorius*, or *pulvis aſari compoſitus*, as it is now termed, of the ſhops.

926. Tornex.

Three ſpecies; viz. japonica, tetranthera, ſebifera. Arabia.

927. Bacconia.

Two ſpecies; viz. fruteſcens, cordata.

928. Dodecas.

One ſpecies; viz. ſurinamenſis. Surinam.

929. Agathophyllum.

One ſpecies; viz. aromaticum. Eaſt Indies.

930. Bassia.

Three ſpecies; viz. longifolia, latifolia, obovata. Malabar.

931. Rhizophora, or *Mangrove-candle of India.*

Five ſpecies; viz. conjugata, gymnorhiza, candel, mangle, cylindrica. India, Malabar, Molucca.

932. Crenæa.

One ſpecies; viz. maritima. Guiana.

933. Apactis.

One ſpecies; viz. japonica. Japan.

934. Blakea.

Three ſpecies; viz. trinervia, triplinervia, pulverulenta. Jamaica, Surinam.

935. Befaria.

Two ſpecies; viz. reſinoſa, æſtuans. New Granada.

936. Vatica.

One ſpecies; viz chinenſis. China.

937. Grangeria.

One ſpecies; viz. borbonica. Iſle of Bourbon.

938. Garcinia, or *Mangoſtan.*

Four ſpecies; viz. mangoſtana, celebica, cambogia, cornea. Eaſt Indies.

939. Halesia, or *Snow-drop Tree.*

Two ſpecies; viz. tetraptera, diptera. Carolina.

940. Decumaria.

Two ſpecies; viz. barbara, ſarmentoſa. Carolina.

941. Aristotelia.

One ſpecies; viz. macqui. Chili.

942. Canella, or *White Cinnamon.*

One ſpecies; viz. alba. Weſt Indies.

The bark of the *canella alba* is brought to us rolled into

into long quills, thicker than cinnamon, and both outwardly and inwardly of a whitiſh colour, lightly inclining to yellow. It is the produce of a tall tree, growing in great plenty in the low lands in Jamaica, and other American iſlands. Infuſions of it in water, are of a yellowiſh colour, and ſmell of the canella; but they are rather bitter than aromatic. Tinctures in rectified ſpirit have the warmth of the bark, but little of its ſmell. Proof ſpirit diſſolves the aromatic, as well as bitter matter of the canella, and is therefore the beſt menſtruum. The canella is the interior bark, freed from an outward thin rough one, and dried in the ſhade. The ſhops diſtinguiſh two ſorts of canella, differing from each other in the length and thickneſs of the quills; they are both the bark of the ſame tree, the thicker being taken from the trunk, and the thinner from the branches. This bark is a warm pungent aromatic, not of the moſt agreeable kind, nor are any of the preparations of it very grateful. *Canella alba* is often employed where a warm ſtimulant to the ſtomach is neceſſary, and as a corrigent of other articles. It is now, however, little uſed in compoſition by the London college, the only officinal formula which it enters being the *pulvis aloëticus;* but with the Edinburgh college it is an ingredient in the *tinctura amara, vinum amarum, vinum rhei, &c.* It is uſeful as covering the taſte of ſome other articles.

943. Cratæva, or *Garlick-pear.*
Five ſpecies; viz. gynandra, tapia, obovata, religioſa, marmelos. E. and W. Indies.

944. Triumfetta, or *Bur-bark tree.*
11 ſpecies; viz. lappula, glanduloſa, bartramia, velutina, procumbens, hirta, ſemitriloba, grandiflora, macrophylla, rhombeæfolia, annua. E. and W. Indies, Brazil.

945. Eurya.
One ſpecies; viz. japonica. Japan.

946. Peganum, or *Wild Syrian Rue.*
Four ſpecies; harmala, crithmifolium, retuſum, dauricum. Siberia, Spain, Syria.

947. Hudsonia.
One ſpecies; viz. ericoides. Virginia.

948. Nitraria.
Two ſpecies; viz. ſchoberi, tridentata. Siberia.

949. Portulaca, or *Purſlane.*
Five ſpecies; viz. oleracea, piloſa, quadrifida, halimoides, meridiana. Europe, Cape, India, America.
The *portulaca oleracea* is cultivated in gardens for culinary uſes. The ſeeds are ranked among the leſſer cold ſeeds, and have ſometimes been employed in emulſions and the like, along with the others of that claſs.

950. Talinum.
Seven ſpecies; viz. triangulare, craſſifolium, anacampſeros, patens, cuneifolium, decumbens, fruticoſum.

951. Lythrum, or *Willow-herb.*
16 ſpecies; viz. * ſalicaria, virgatum, acuminatum, triflorum, verticillatum, petiolatum, racemoſum, ciliatum, pemphis, dipetalum, lineare, parſonia, melanium, cordifolium, * hyſſopifolia, thymifolia. Europe, N. America, Weſt Indies.

952. Cuphea.
One ſpecies; viz. viſcoſiſſima. America.

953. Ginoria.
One ſpecies; viz. americana. America.

954. Kleinhofia.
One ſpecies; viz. hoſpita. Eaſt Indies.

955. Sterculia.
Eight ſpecies; viz. lanceolata, balanghas, crinita, cordifolia, colorata, urens, plataniſolia, fœtida. Arabia, Eaſt and Weſt Indies, China.

Order II. DIGYNIA.

956. Heliocarpus, or *Sun-weed.*
One ſpecies; viz. americana. Vera Cruz.

957. Agrimonia, or *Agrimony.*
Five ſpecies; viz. * eupatoria, odorata, repens, parviflora, agrimonoides. Europe, N. America.
* A. ſtem-leaves winged, the odd leafet on a leaf-ſtalk; fruit hiſpid.—The Canadians are ſaid to uſe an infuſion of the roots in burning fevers, and with great ſucceſs. An infuſion of ſix ounces of the crown of the root, in a quart of boiling water, ſweetened with honey, and half a pint of it drank three times a-day, Dr Hill ſays, is an effectual cure for the jaundice. He adviſes to begin with a vomit, afterwards to keep the bowels ſoluble, and to continue the medicine as long as any ſymptoms of the diſeaſe remain. Sheep and goats eat it. Cows, horſes, and ſwine refuſe it. The flowers freſh gathered ſmell like apricots. *eupatoria.*

Order III. TRIGYNIA.

958. Reseda, or *Mignonette, Baſe-rocket.*
13 ſpecies; viz. * luteola, caneſcens, glauca, dipetala, purpuraſcens, ſeſamoides, fruticuloſa, alba, undata, * lutea, phyteuma, mediterranea, odorata. S. Europe, Egypt, Cape.
* R. leaves ſpear-ſhaped, entire, with a tooth on each ſide the baſe; cal. 4-cleft.—This plant affords a moſt beautiful yellow dye for cotton, woollen, mohair, ſilk, and linen, and is that which is moſt commonly uſed by the dyers for that purpoſe, as it gives the brighteſt dye. Blue cloths dipped in a decoction of it become green. The yellow colour of the paint called *Dutch pink* is got from this plant. The colouring quality reſides in the ſtems and roots, and it is cultivated in ſandy ſoils, rich ſoil making the ſtalk hollow and not ſo good. Cattle will not eat it, but ſheep ſometimes browſe it a little. *luteola.*

959. Euphorbia, or *Burn, Thorny-plant, Spurge.*
124 ſpecies; viz. antiquorum, canarienſis, viroſa, heptagona, mammillaris, cereiformis, officinarum, triaculeata, nereifolia, hyſtrix, tribuloides, ſtellata, cucumerina, meloformis, caput meduſæ, tuberculata, anacantha, clava, bupleurifolia, lophogona, mauritanica, piſcatoria, balſamifera, tirucalli, laurifolia, pyrifolia, lithymaloides, heterophylla, cyathophora, nudiflora, cotinifolia, mellifera, glabrata, linarifolia, linifolia, cuneata, ocymoidea, lævigata, origanoides, atoto, hypericifolia,

ricifolia, proſtrata, roſea, maculata, ſcordifolia, picta, hirta, pilulifera, braſilienſis, hyſſopifolia, thymifolia, parviflora, caneſcens, chamæſyce, granulata, * peplis, polygonifolia, linearis, graminea, ipecacuanhæ, portulacoides, adiantoides, myrtifolia, imbricata, elliptica, rubra, herniariæfolia, * peplus, falcata, * exigua, obliterata, ſpathulata, micrantha, dracunculoides, tuberoſa, lathyris, terracina, diffuſa, apios, læta, geniſtoides, ſpinoſa, epithymoides, villoſa, dulcis, ambigua, carniolica, angulata, pithyuſa, * portlandica, ſaxatilis, * paralias, juncea, aleppica, pinea, ſegetalis, provincialis, * helioſcopia, pubeſcens, ſerrata, * verrucoſa, glauca, punicea, corollata, corallioides, piloſa, orientalis, ſquamoſa, * platyphyllos, literata, eſula, gerardiana, * cypariſſias, nicacenſis, myrſinites, paluſtris, pallida, emarginata, * hiberna, ſalicifolia, dendroides, amygdaloides, ſylvatica, * characias. Eur. Aſia, Afr. Am.

The *Euphorbia officinarum*, or gummi-reſinous ſubſtance, is a ſpontaneous exudation from a large oriental tree. It is brought to us immediately from Barbary, in drops of an irregular form, ſome of which, upon being broken, are found to contain little thorns, ſmall twigs, flowers, and other vegetable matters; others are hollow, without any thing in their cavity. The tears are in general of a pale yellow colour externally, ſomewhat white within ſide; they eaſily break between the fingers. Slightly applied to the tongue they affect it with a very ſharp biting taſte; and upon being held for ſome time in the mouth, prove vehemently acrimonious, inflaming and exulcerating the fauces, &c. Euphorbium is extremely troubleſome to pulverize, the finer part of the powder, which flies off, affecting the head in a violent manner. The acrimony of this ſubſtance is ſo great, as to render it abſolutely unfit for internal uſe; ſeveral correctors have been contrived to abate its virulence, but the beſt of them are not to be truſted to; and as there ſeems to be no real occaſion for it, unleſs for ſome external purpoſes, ſome think that it ought to be expunged from the catalogue of internal medicines; and accordingly, it has now no place in the London or Edinburgh pharmacopœias; but it is ſtill retained in moſt of the foreign ones, and is ſometimes uſed as a ſternutatory.

characias. * E. umbel with many ſpokes, ſpokes forked; involucellums perforated, notched at the end; leaves very entire; ſtem ſhrub-like.—The powdered leaves in doſes of 15 to 25 grains operate as a purge. The juice of every ſpecies of ſpurge is ſo acrid, that it corrodes and ulcerates the body wherever it is applied; ſo that phyſicians have ſeldom ventured to uſe it internally. Warts or corns anointed with the juice preſently diſappear. A drop of it put into the hollow of a decayed and aching tooth, deſtroys the nerve, and conſequently removes the pain. Some people rub it behind the ears, that it may bliſter and by that means give relief.

960. Visnea.
One ſpecies; viz. mocanera. Canary Iſles.

Order IV. TETRAGYNIA.

961. Calligonum.
Three ſpecies; viz. polygonoides, comoſum, palloſia. Ruſſia, Siberia.

962. Aponogeton.
Four ſpecies; viz. monoſtachyon, criſpum, diſtachyon, anguſtifolium. Cape. E. Indies.

Order V. PENTAGYNIA.

963. Glinus.
Three ſpecies; viz. lotoides, ſetiflorus, dictamnoides. Spain, Levant, Egypt.

964. Blackwellia.
Three ſpecies; viz. integrifolia, paniculata, axillaris. Weſt Indies.

Order VI. DODECAGYNIA.

965. Sempervivum, or *Houſe-leek.*
14 ſpecies; viz. arboreum, canarienſe, glutinoſum, glanduloſum, * tectorum, globiferum, villoſum, tortuoſum, ſtellatum, arachnoideum, hirtum, montanum, ſediforme, monanthos. Eur. Canaries, Madeira.

tectorum. * S, leaves fringed; offsets expanding.—The juice of this plant either applied by itſelf, or mixed with cream, gives preſent relief in burns, and other external inflammations. Mixed with honey, it is a uſeful application in aphthous caſes. Sheep and goats eat it.

In the claſs Dodecandria are

41 Genera, including 273 Species, of which 18 are found in Britain.

CLASSIS XII.

ICOSANDRIA (B).

Ordo I. MONOGYNIA.

966. Cactus. Cal. ſuperus, 1-phyllus. Cor. multifida. Bacca 1-locul. polyſperma.

CLASS XII.

ICOSANDRIA.

Order I. MONOGYNIA.

C. Cal. ſuperior, 1-leaved. Cor. many-cleft. Berry 1-celled, many-ſeeded.

(B) Although this is called the claſs of twenty ſtamens, becauſe the flowers arranged under it generally contain about

972. Eugenia. Cal. ſuperus, 4-partitus. Cor. 4-petala. Bacca 1-locularis, 1-ſperma.

967. Philadelphus. Cal. ſuperus, 5 f. 4-partitus. Cor. 5 f. 4-petala. Stigma 4-fidum. Capſ. 5-4-locul. polyſperma.

968. Leptospermum. Cal. ſuperus, 5-fidus. Petala 5-unguiculata, ſtaminibus longiora. Stigma capitatum. Capſ. 4 f. 5-locularis.

969. Fabricia. Cal. ſuperus, 5-fidus. Petala 5 ſeſſilia. Stigma capitatum. Capſ. multilocularis.

970. Metrosideros. Cal. ſuperus, 5-fidus. Petala 5. Stam. longiſſima exſerta. Stigma ſimplex. Capſ. 3 f. 4-locularis.

971. Psidium. Cal. ſuperus, 5-fidus. Cor. 5-petala. Bacca 1-locularis, polyſperma.

973. Myrtus. Cal. ſuperus, 5-fidus. Cor. ſub 5-petala. Bacca 3-locularis, polyſperma.

980. Punica. Cal. ſuperus, 5-fidus. Cor. 5-petala. Pomum 10-loculare, polyſpermum.

985. Robinsonia. Cal. ſuperus, 5-dentatus. Petala 5. Bacca ſtriata, 7-locularis.

974. Calyptranthes. Cal. ſuperus, truncatus, operculo tectus. Cor. 0. Bacca 1-locul. 1-4-ſperma.

975. Eucalyptus. Cal. ſuperus, truncatus, operculo tectus. Cor. 0. Capſ. 4-locularis, polyſperma.

978. Foetidia. Cal. ſuperus, 4-fidus. Cor. 0. Capſ. 4-locularis, lignoſa.

986. Sonneratia. Cal. inferus, 6-fidus. Petala 6. Bacca multilocularis, loculis polyſpermis.

981. Amygdalus. Cal. inferus, 5-fidus. Cor. 5-petala. Drupa, nucleo foraminoſo.

* 982. Prunus. Cal. inferus, 5-fidus. Cor. 5-petala. Drupa, nucleo integro.

984. Chrysobalanus. Cal. inferus, 5-fidus. Cor. 5-petala. Drupa ſulcata.

976. Banara. Cal. inferus, 4-fidus. Petala 4. Bacca 1-locularis, polyſperma.

977. Antherylium. Cal. inferus, 4-partitus. Petala 4. Capſ. 1-locularis, 3-valvis, polyſperma.

979. Scolopia. Cal. inferus, 3 f. 4-partitus. Pet. 3 f. 4. Bacca 1-locularis. Semina arillata.

Cleome icoſandra.

E. Cal. ſuperior, 4-partite. Cor. 4-petaled. Berry 1-celled, 1-ſeeded.

P. Cal. ſuperior, 5 or 4-partite. Cor. 5 or 4-petaled. Stigma 4-cleft. Capſ. 5 or 4-celled, many-ſeeded.

L. Cal. ſuperior, 5-cleft. Petals 5-clawed, longer than the ſtamens. Stigma with a little head. Capſ. 4 or 5-celled.

F. Cal. ſuperior, 5-cleft. Petals 5, ſitting. Stigma with a little head. Capſ. many-celled.

M. Cal. ſuperior, 5-cleft. Petals 5. Very long protruded ſtamens. Stigma ſimple. Capſ. 3 or 4-celled.

P. Cal. ſuperior, 5-cleft. Cor. 5-petaled. Berry 1-celled, many-ſeeded.

M. Cal. ſuperior, 5 cleft. Cor. nearly 5-petaled. Berry 3-celled, many-ſeeded.

P. Cal. ſuperior, 5-cleft. Cor. 5-petaled. An apple, 10-celled, many-ſeeded.

R. Cal. ſuperior, 5-toothed. Petals 5. Berries ſtriped, 7-celled.

C. Cal. ſuperior, lopped, covered with a lid. No cor. Berry 1-celled, 1 to 4-ſeeded.

E. Cal. ſuperior, truncated, covered with a lid. No cor. Capſ. 4 celled, many-ſeeded.

F. Cal. ſuperior 4-cleft. No cor. Capſ. 4-celled, woody.

S. Cal. inferior, 6-cleft. Petals 6. Berry many-celled, with many-ſeeded cells.

A. Cal. inferior, 5 cleft. Cor. 5-petaled. Drupe with a kernel full of holes.

* P. Cal. inferior, 5-cleft. Cor. 5-petaled. Drupe with an entire kernel.

C. Cal. inferior, 5-cleft. Cor. 5-petaled. Drupe furrowed.

B. Cal. inferior, 4-cleft. Petals 4. Berry 1-celled, many-ſeeded.

A. Cal. inferior, 4-partite. Petals 4. Capſ. 1-celled, 3-valved, many-ſeeded.

S. Cal. inferior, 3 or 4-partite. Petals 3 or 4. Berry 1-celled. Seeds coated.

Ordo II. DIGYNIA.

* 987. Cratægus. Cal. ſuperus, 5-fidus. Cor. 5-petala. Bacca 2-ſperma.

988. Waldsteinia. Cal. 10-fidus, laciniis alternis. Petala 5. Semina 2, obovata.

Order II. DIGYNIA.

* C. Cal. ſuperior 5-cleft. Cor. 5-petaled. Berry 2-ſeeded.

W. Cal. 10-cleft, with alternate ſegments. Petals 5. Seeds 2, nearly oval.

Ordo III. TRIGYNIA.

* 989. Sorbus. Cal. ſuperus, 5-fidus. Cor. 5-petala. Bacca 3-ſperma.

990. Sesuvium. Cal. inferus, 5-fidus. Cor. nulla. Capſ. 3-locularis, circumſciſſa.

† *Spiræa opulifolia.*

Order. III. TRIGYNIA.

* S. Cal. ſuperior, 5-cleft. Cor. 5-petaled. Berry 3-ſeeded.

S. Cal. inferior, 5-cleft. Cor. 0. Capſ. 3-celled, cut round.

about that number; yet the mark or character of the claſs is not to be taken merely from the number of ſtamens, but from attending alſo to the following circumſtances: 1. The calyx, conſiſting uſually of one-concave leaf; 2. Petals, fixed by claws to the inſide of the calyx; and, laſtly, Stamens, more than 19, ſtanding upon the petals or the calyx, but not upon the receptacle. Very few are poiſonous.

Ordo IV. PENTAGYNIA.

993. Tetragonia. Cal. superus, 5 f. 4-fidus. Cor. 0. Peric. nucleo 5 f. 4-loculari.

991. Mespilus. Cal. superus, 5-fidus. Cor. 5-petala. Bacca 5-sperma.

* 992. Pyrus. Cal. superus, 5-fidus. Cor. 5-petala. Pomum 5-loculare, polyspermum.

994. Mesembryanthemum. Cal. superus, 5-fidus. Cor. multifida. Capf. carnosa, locularis, polysperma.

995. Aizoon. Cal. inferus, 5-fidus. Cor. 5-petala. Capf. plures congestæ.

* 996. Spiræa. Cal. inferus, 5-fidus. Cor. 5-petala. Capf. plures congestæ.

Ordo V. POLYGYNIA.

* 997. Rosa. Cal. 5-fidus. Cor. 5-petala. Cal. baccatus, polyspermus.

* 998. Rubus. Cal. 5-fidus. Cor. 5-petala. Bacca composita.

* 1001. Tormentilla. Cal. 8-fidus. Cor. 4-petala. Sem. 8 mutica.

* 1003. Dryas. Cal. 8-fidus. Cor. 8-petala. Sem. plurima arista lanata.

* 999. Fragaria. Cal. 10-fidus. Cor. 5-petala. Sem. plurima supra receptaculum baccatum, decidua.

* 1000. Potentilla. Cal. 10-fidus. Cor. 5-petala. Sem. plurima mutica.

* 1002. Geum. Cal. 10-fidus. Cor. 5-petala. Sem. plurima. Arista geniculata.

* 1004. Comarum. Cal. 10-fidus. Cor. 5-petala. Sem. plurima supra receptaculum carnosum, persistens.

1005. Calycanthus. Cal. squamosus, corollinus. Cor. 0. Sem. caudata calyce.

Spiræa filipendula, ulmaria. Phytolacca icosandra. Mesembryanthema aliquot.

Order IV. PENTAGYNIA.

T. Cal. superior, 5 or 4-cleft. No cor. A seed vessel with a kernel 5 or 4-celled.

M. Cal. superior, 5-cleft. Cor. 5-petaled. Berry 5-seeded.

* P. Cal. superior, 5-cleft. Cor. 5-petaled. An apple, 5-celled, many-seeded.

M. Cal. superior, 5-cleft. Cor. many-cleft. Capf. fleshy, celled, many-seeded.

A. Cal. inferior, 5-cleft. Cor. 5-petaled. Capf. several, heaped together.

* S. Cal. inferior, 5-cleft. Cor. 5-petaled. Capf. several, heaped together.

Order V. POLYGYNIA.

* R. Cal. 5-cleft. Cor. 5-petaled. Cal. berry-like, many-seeded.

* R. Cal. 5-cleft. Cor. 5-petaled. Berry compound.

* T. Cal. 8-cleft. Cor. 4-petaled. Seeds 8, awnless.

* D. Cal. 8-cleft. Cor. 8-petaled. Seeds many, with a woolly awn.

* F. Cal. 10-cleft. Cor. 5-petaled. Seeds many, upon a berried receptacle, deciduous.

* P. Cal. 10-cleft. Cor. 5-petaled. Seeds many, awnless.

* G. Cal. 10-cleft. Cor. 5-petaled. Seeds many. Awn knee-jointed.

* C. Cal. 10-cleft. Cor. 5-petaled. Seeds many, above a fleshy receptacle, permanent.

C. Cal. scaly, corol-like. No cor. Seed, with a tailed cup.

Order I. MONOGYNIA.

966. Cactus, or *Melon Thistle.*

24 species; viz. mamillaris, melocactus, pitajaya, heptagonus, tetragonus, hexagonus, pentagonus, repandus, lanuginosus, peruvianus, royeni, grandiflorus, flagelliformis, parasiticus, triangularis, moniliformis, opuntia, ficus indica, tuna, cochenillifer, curassavicus, phyllanthus, peresbia, portulacifolius. West Indies, America.

967. Philadelphus, or *Mock Orange, Syringa.*

Two species; viz. coronarius, inodorus. S. Eur. Carolina, New South Wales.

971. Psidium, or *Guara*, or *Bay Plum.*

Three species; viz. pyriferum, pomiferum, decaspernum. East and West Indies.

972. Eugenia, or *Pomey-rose, Yamboo.*

Seven species; viz. malaccensis, jambos, pseudo-psidium, uniflora, cotinifolia, acutangula, racemosa. E. Indies, Jamaica, S. America.

973. Myrtus, or *Myrtle.*

14 species; viz. communis, brasiliana, biflora, angustifolia, lævis, lucida, cumini, dioica, chytraculia, zuzyginum, zeylanica, androsæmoides, caryophyllata, pimenta. S. Europe, Asia, Africa, America.—The *myrtus communis* is an evergreen shrub, growing in Italy, and cultivated in our botanic gardens. The leaves and berries have been sometimes made use of as astringents, but not at present regarded. The pimenta is the fruit of a large tree growing spontaneously in the mountainous parts of Jamaica, called by Sir Hans Sloan, *myrtus arborea aromatica, foliis laurinis.* The smell of this spice resembles a mixture of cinnamon, cloves, and nutmegs; its taste approaches to that of cloves, or a mixture of the three foregoing; whence it has received the name of *all-spice.* The shops have been for some time accustomed to employ this aromatic as a succedaneum to the more costly spices, and from them it has been introduced into our hospitals.

Pimento is now in our pharmacopœias the basis of a distilled water, a spirit, and an essential oil; and these

are

are not unfrequently employed, where aromatics are indicated.

980. PUNICA, or *Pomegranate tree.*

Two ſpecies; viz. granatum, nana. Spain, Italy, Barb. W. Indies.—The pomegranate is a low tree, or rather ſhrub, growing wild in Italy, and other countries in the ſouth of Europe: it is ſometimes met with in our gardens; but the fruit, for which it is chiefly valued, rarely comes to ſuch perfection as in warmer climates. This fruit has the general qualities of the other ſweet ſummer fruits, allaying heat, quenching thirſt, and gently looſening the belly. The rind is a ſtrong aſtringent, and as ſuch, is occaſionally made uſe of. The flowers are of an elegant red colour, in appearance reſembling a dried red roſe. Their taſte is bitteriſh and aſtringent. They are recommended in diarrhœas, dyſenteries, and other caſes where aſtringent medicines are proper.

981. AMYGDALUS, or *Almond tree.*

Four ſpecies; viz. perſica, communis, pumila, nana. Perſia, Jordan, Barbary.—The flowers of the *amygdalus perſica* have an agreeable ſmell, and a bitteriſh taſte. Diſtilled without any addition, by the heat of a water bath, they yield one ſixth their weight, or more, of a whitiſh liquor; which, as Mr Bolduc obſerves, communicates to a large quantity of other liquids, a flavour like that of the kernels of fruits. An infuſion in water, of half an ounce of the freſh gathered flowers, or a dram of them when dried, ſweetened with ſugar, proves for children a uſeful laxative and anthelmintic; the leaves of the tree are, with this intention, ſomewhat more efficacious, though leſs agreeable. The fruit has the ſame quality with the other ſweet fruits, that of abating heat, quenching thirſt, and gently looſening the belly.

The almond of the *amygdalus communis*, is a flattiſh kernel, of a white colour, covered with a thin browniſh ſkin, of a ſoft ſweet taſte, or a diſagreeable bitter one. The ſkins of both ſorts are unpleaſant, and covered with an acrid powdery ſubſtance; they are very apt to become rancid on keeping, and to be preyed on by a kind of inſect which eats out the internal part, leaving the almond to appearance entire. To theſe circumſtances regard ought to be had, in the choice of them.

The fruit which affords theſe kernels, is the produce of a tree nearly reſembling the peach. The eye diſtinguiſhes no difference betwixt the trees which produce the ſweet and bitter, or betwixt the kernels themſelves; it is ſaid, that the ſame tree, has by a difference in culture, afforded both.

Both ſorts of almonds yield, on expreſſion, a large quantity of oil, which has no ſmell, or any particular taſte; this oil ſeparates, likewiſe, upon boiling the almonds in water, and is gradually collected on the ſurface; but on triturating the almonds with water, the oil and water unite together, by the mediation of the other matter of the kernel, and form an unctuous milky liquor.

Sweet almonds are of greater uſe in food than as medicines, but they are reckoned to afford little nouriſhment; and when eaten in ſubſtance, are not eaſy of digeſtion, unleſs thoroughly comminuted. They are ſuppoſed, on account of their ſoft unctuous quality, to obtund acrimonious juices in the primæ viæ. Peeled ſweet almonds, eaten ſix or eight at a time, ſometimes give preſent relief in the heartburn.—Bitter almonds have been found poiſonous to dogs, and ſundry other animals; and a water diſtilled from them, when made of a certain degree of ſtrength, has had the ſame effects. Nevertheleſs, when eaten, they appear innocent to men, and have been not unfrequently uſed as medicines. Boerhaave recommends them in ſubſtance, as diuretics which heat but moderately, and which may therefore be ventured upon in acute diſeaſes.

The oils obtained by expreſſion from both ſorts of almonds, are in their ſenſible qualities the ſame. The general virtues of theſe oils are, to blunt acrimonious humours, and to ſoften and relax the ſolids; hence their uſe, internally, in tickling coughs, heat of urine, pains and inflammations; and externally in tenſion, and rigidity of particular parts.—The milky ſolutions of almonds in watery liquors, commonly called emulſions, contain the oil of the ſubject, and participate in ſome degree of its emollient virtue; but have this advantage above the pure oil, that they may be given in acute or inflammatory diſorders, without danger of the ill effects which the oil might ſometimes produce; ſince emulſions do not turn rancid or acrimonious by heat, as all the oils of this kind in a little time do. Several unctuous and reſinous ſubſtances, of themſelves not miſcible with water, may, by trituration with almonds, be eaſily mixed with it into the form of an emulſion; and are thus excellently fitted for medicinal uſe. In this form camphor and the reſinous purgatives may be commodiouſly taken. The only officinal preparations of almonds, are the expreſſed oil and emulſion. The common emulſion, or the *lac amygdala*, as it is now called by the London college, is prepared from the ſweet almond alone; but in the emulſion of the Edinburgh college, a ſmall proportion of bitter almonds is added, which has a much better effect in improving its taſte, than the ſugar added by the London college.—An emulſion formed entirely of bitter almonds, taken to the quantity of a pint or two daily, is ſaid to have been given in obſtinate intermittents with ſucceſs.

982. PRUNUS, or *Plum tree.*

22 ſpecies; * padus, virginiana, canadenſis, luſitanica, lauro-ceraſus, elliptica, paniculata, mahaleb, armeniaca, ſibirica, pumila, * ceraſus, * avium, penſylvanica, * domeſtica, * inſititia, * ſpinoſa, aſpera, japonica, glanduloſa, inciſa, tomentoſa. Europe, N. America, W. Indies.

* P. flowers in bunches; leaves deciduous, with two glands at the baſe on the under ſide.—This plant grows well in woods, groves, or fields, but not in a moiſt ſoil. It bears lopping, and ſuffers the graſs to grow under it. The fruit is nauſeous, but bruiſed and infuſed in wine or brandy, it gives it an agreeable flavour. A ſtrong decoction of the bark is uſed by the Finlanders to cure venereal complaints, which practice is corroborated by the teſtimony of M. Broerland. He directs ſix ounces of the dry, or eight of the freſh bark, to be boiled in eight to four pints of water. The doſe is four ounces, four times a-day. It alone cures the ſlighter infections, and combined with mercury facilitates the cure of the ſeverer ſtates of the diſeaſe; and a decoction of the berries is ſometimes given with ſucceſs in the dyſentery. The wood being ſmooth and tough, is made into han-

padus.

dles for knives and whips. Sheep, goats, and swine eat it. Cows are not fond of it. Horses refuse it.

cerasus. * P. umbels mostly on short fruitstalks; leaves egg-spear-shaped, smooth, doubled together.—This plant loves a sandy soil and an elevated situation. The gum that exudes from this tree is equal to gum arabic. It is said, that more than 100 men during a siege were kept alive for near two months, without any other sustenance than a little of this gum taken into the mouth sometimes and suffered gradually to dissolve. The common people eat the fruit either fresh or dried; and it is frequently infused in brandy for the sake of its flavour. The wood is hard and tough. It is used by the turner, and is formed into chairs, and stained to imitate mahogany. This tree is the original stock from which many of the cultivated kinds are derived.

avium. * P. umbels sitting; leaves egg-spear-shaped, downy underneath, doubled together.—This plant grows best in a rich soil on the sides of hills, unmixed with other trees. It bears cropping, and suffers the grass to grow under it. In Hertfordshire there is a cultivated variety, called *carrons*, which are larger and much finer flavoured than the common sort.

domestica. * P. fruitstalks mostly solitary; leaves spear-egg-shaped, coiled; branches thornless.—This plant loves a lofty exposure, and is favourable to pasturage. The varieties have probably originated from the red and white cultivated plums, either sown by design or accident. The cultivated garden plums are derived from this species. The bark dyes yellow. Its medical effects are to abate heat and gently loosen the belly; which they perform by lubricating the passage, and softening the excrement. They are of considerable service in costiveness, accompanied with heat and irritation, which the more stimulating cathartics would tend to aggravate. Where prunes are not of themselves sufficient, their effects may be promoted by joining with them a little rhubarb or the like; to which may be added some carminative ingredient, to prevent their occasioning flatulencies.

insititia. * P. fruitstalks in pairs; leaves egg-shaped, slightly wooly, coiled; branches with thorns.—The fruit is acid, but so tempered by a sweetness and roughness, as not to be unpleasant, particularly after it is mellowed by the frosts. A conserve is prepared by mixing the pulp with thrice its weight of sugar. The bark of the root and branches is considerably styptic. An infusion of the flowers, sweetened with sugar, is a mild purgative, not improper for children.

spinosa. * P. fruitstalks solitary; leaves spear-shaped, smooth; branches thorny.—This plant is not well adapted to grow in hedges, because it spreads its roots wide, and encroaches upon the pasturage; but it makes a good dead fence. The wood is hard and tough, and is formed into teeth for rakes, and walking-sticks. From some effects which have been repeatedly observed to follow the prick of the thorns, there is reason to believe there is something poisonous in them, particularly in autumn. The tender leaves dried are sometimes used as a substitute for tea, and are thought the best substitute that has yet been tried. The fruit bruised and put into wine, gives it a beautiful red colour, and a pleasant subacid roughness. An infusion of a handful of the flowers is a safe and easy purge. The bark powdered, in doses of 2 drams, will cure some agues. Letters written upon linen or woollen with the juice of the fruit will not wash out. Sheep, goats, and horses eat the leaves. The different species of Prunus furnish nourishment to various insects.

983. PLINIA.

Two species; viz. crocea, pendunculata. Surinam, Brazil.

984. CHRYSOBOLANUS, or *Cocoa Plum.*

One species; viz. icaco. W. Indies, S. America.

986. SONNERATIA.

One species; viz. acida. East Indies, China.

968. LEPTOSPERMUM

Has 12 species; viz. scoparium, thea, flavescens, attenuatum, lanigerum, pubescens, parvifolium, arachnoideum, juniperinum, baccatum, ambiguum, virgatum. New Holland.

969. FABRICIA

Has two species; viz. myrtifolia, lævigata. New Holland.

970. METROSIDEROS.

14 species; viz. hispida, floribunda, costata, diffusa, villosa, florida, glomulifera, anguſtifolia, ciliata, linearis, lanceolata, saligna, viminalis, capitata. N. Holland, N. Zealand, C. of G Hope.

974. CALYPTRANTHES.

Six species; viz. suzygium, guineensis, caryophyllifolia, jambolana, chrytraculia, rigida. Jamaica, Guinea, East Indies.

975. EUCALYPTUS.

12 species; viz. robusta, pilularis, tereticornis, resinifera, capitellata, saligna, botryoides, hæmastoma, piperita, obliqua, corymbosa, paniculata. N. Holland.

976. BANARA.

One species; viz. fagifolia. Cayenne.

977. ANTHERYLIUM.

One species; viz. rohrii. W. Indies.

978. FOETIDIA.

One species; viz. mauritiana. Isle Mauritius.

979. SCOLOPIA.

One species; viz. pusilla. Ceylon.

985. ROBINSONIA.

One species; viz. melianthifolia. Guiana.

ORDER II. DIGYNIA.

987. CRATAGEUS, or *Wild Service Tree.*

15 species; viz. * avia, * torminalis, coccinea, viridis, punctata, crus galli, tomentosa, indica, * oxyacantha, monogyna, azarolus, maura, villosa, lævis, glabra. Europe, India, N. America.

avia. * C. leaves egg-shaped, cut, serrated, cottony underneath.—It loves dry hills and open exposures, and flourishes either in gravel or clay. It bears lopping, and permits the grass to grow. The wood, being hard, tough, and smooth, is used for axle-trees, wheels, walking-sticks, carpenters and others tools. The fruit is eatable when mellowed by the autumnal frosts, and an ardent spirit may be distilled from it. It seldom bears a good crop of fruit two years together. Sheep and

and goats eat it. The wood affords an excellent charcoal for the makers of gunpowder.

oxyacantha. * C. leaves moſtly 3-cleft; ſegments blunt, ſerrated.—Upon account of the ſtiffneſs of its branches, the ſharpneſs of its thorns, its roots not ſpreading wide, and its capability of bearing the ſevereſt winters without injury, this plant is univerſally preferred for making hedges, whether to clip or to grow at large. The wood is tough, and is formed into axle-trees and handles for tools. The berries are the winter food of thruſhes and many other birds. Its different ſpecies afford nouriſhment to various inſects.

988. WALDSTENIA.

One ſpecies; viz. geoides. Hungary.

ORDER III. TRIGYNIA.

989. SORBUS, or *Service-tree.*

Three ſpecies; viz. * ancuparia, * hybrida, * domeſtica. Europe.

ancuparia. * S. leaves winged, ſmooth on both ſides.—It grows either in woods or open fields, but beſt on the ſides of hills and in fertile ſoil. It will not bear lopping. Plants grow well in its ſhade. The wood is ſoft, tough, and ſolid. It is converted into tables, ſpokes for wheels, ſhafts, chairs, &c. The roots are formed into handles for knives and wooden ſpoons. The berries, dried and reduced to powder, make wholeſome bread; and an ardent ſpirit may be diſtilled from them, which has a fine flavour, but it is ſmall in quantity. The berries too, infuſed in water, make an acid liquor ſomewhat like perry, which is drank by the poorer people in Wales. In Germany, the fowlers uſe the berries to entice the redwings and fieldfares into nooſes of hair, ſuſpended in the woods; hence its trivial name.

domeſtica. * S. leaves winged, woolly underneath.—The fruit is mealy and auſtere, not much unlike the medlar. The wood is valuable for making mathematical rulers and exciſemen's gauging ſticks.

990. SESUVIUM.

One ſpecies; viz. portulacaſtrum. W. Indies.

ORDER IV. PENTAGYNIA.

991. MESPILUS, or *Medlar-tree.*

Eight ſpecies; viz. pyracantha, * germanica, arbutifolia, amelanchia, chamæ-meſpilus, canadenſis, japonica, gotoncaſter. Europe, N. America.

germanica. * M. thornleſs; leaves ſpear-ſhaped, cottony underneath; flowers ſolitary, ſitting.—Many people are fond of the fruit when it becomes ſoft by keeping; it is ſomewhat auſtere, and binds the bowels.

992. PYRUS, or *Pear-tree.*

Nine ſpecies; viz. * communis, pollveria, * malus, baccata, coronaria, cydonia, nivalis, ſalicifolia, japonica.

communis. * P. leaves ſerrated, ſmooth; flowers forming a corymbus.—This plant loves a fertile ſoil and ſloping ground; but will not thrive well in moiſt bottoms. It ſtands the ſevereſt winters, and does not deſtroy the graſs. The wood is light, ſmooth, and compact; it is uſed by turners, and to make joiners tools; and for picture frames to be ſtained black. The leaves afford a yellow dye, and may be uſed to give a green to blued cloths. The fruit is auſtere: but when cultivated, highly grateful, as is proved by the great variety of excellent pears which the induſtry of mankind has raiſed, for they all originate from this. The juice of the fruit, fermented, is called *perry*, large quantities of which are raiſed in Worceſterſhire and Herefordſhire for that purpoſe. The ſquaſh, the Oldfield, and the Barland perrys are reckoned the beſt, and are little inferior to wine. Horſes, cows, ſheep, and goats, eat the leaves, which afford nouriſhment to various inſects.

malus. * P. leaves ſerrated; flowers in umbels, ſitting.—This plant flouriſhes better on declivities and in ſhady places, than in open expoſures or boggy lands. Graſs, and even corn, will grow beneath it. It is much uſed as a ſtock, on which to ingraft the better kind of apples, becauſe its fruits are neither killed by froſt nor eaten by field-mice. The bark affords a yellow dye. The wood is tolerably hard; it turns very clean, and when made into cogs for wheels, obtains a poliſh and wears a long time. The acid juice of the fruit is called by the country people *verjuice*, and is much uſed in ſprains and in other caſes, as an aſtringent or repellent. With a proper addition of ſugar, it is probable, that a very grateful liquor might be made with the juice, but little inferior to old hock. Horſes, cows, ſheep, and goats, eat it. Swine are very fond of the fruit.

The fruit of the *pyrus cydonia* have a very auſtere acid taſte; taken in ſmall quantity, they are ſuppoſed to reſtrain vomiting and alvine fluxes, and, more liberally, to looſen the belly. The ſeeds abound with a mucilaginous ſubſtance of no particular taſte, which they readily impart to watery liquors; an ounce will render three pints of water thick and ropy, like the white of an egg. A mucilage of the ſeeds is kept in the ſhops. A ſyrup of the fruit had formerly a place, but is now rejected.

993. TETRAGONIA.

Seven ſpecies; viz. fruticoſa, herbacea, ivæfolia, hirſuta, ſpicata, expanſa, japonica. Cape, Peru, New Zealand.

994. MESEMBRYANTHEMUM, or *Fig-marygold.*

50 ſpecies; viz. nodiflorum, cryſtallinum, copticum, geniculiflorum, noctiflorum, ſplendens, umbellatum, expanſum, tripolium, calamiforme, apetalum, criniflorum, cordifolium, bellidifolium, deltoides, barbatum, hiſpidum, villoſum, ſcabrum, emarginatum, uncinatum, ſpinoſum, tuberoſum, tenuifolium, ſtipulaceum, craſſifolium, glomeratum, loreum, filamentoſum, falcatum, forficatum, edule, bicolorum, ſerratum, micans, glaucum, corniculatum, tortuoſum, pomeridianum, veruculatum, papuloſum, pinnatifidum, roſtratum, ringens, dolabriforme, difforme, albidum, linguæforme, pugioniforme, capillare. Greece, Cape, New Zealand.

995. AIZOON.

Ten ſpecies; viz. canarienſe, hiſpanicum, lanceolatum, ſarmentoſum, paniculatum, perfoliatum, glinoides, ſecundum, fruticoſum, rigidum. Spain, Cape, Canary.

996. SPIRÆA, or *Spiked Willow, Dropwort.*

18 ſpecies; viz. lævigata, * ſalicifolia, tomentoſa, calloſa,

calloſa, hypericifolia, chamædrifolia, inciſa, crenata, argentea, triloba, opulifolia, ſorbifolia, aruncus, * filipendula, * ulmaria, lobata, palmata, trifoliata. Europe, N. America.

filipendula. * S. leaves interruptedly winged; leafets ſtrap-ſpear-ſhaped, irregularly ſerrated, very ſmooth; flowers in tufts.—The tuberant pea-like roots of this plant, dried and reduced to powder, make a kind of bread, which in times of ſcarcity is not to be deſpiſed. Hogs are very fond of them. When expanded and enlarged by cultivation, it is a beautiful addition to the flower-garden.

ulmaria. * S. leaves interruptedly winged; leafets egg-ſhaped, double ſerrated, hoary underneath; flowers in tufts.—The flowers, infuſed in boiling water, give it a fine flavour, which riſes in diſtillation. Sheep and ſwine eat it. Goats are extremely fond of it. Cows and horſes refuſe it.

Order V. POLYGYNIA.

997. Rosa, or *Roſe.*

21 ſpecies; viz. eglanteria, * rubiginoſa, cinnamomea, * arvenſis, pimpinellifolia, * ſpinoſiſſima, rugoſa, carolina, * villoſa, ſinica, ſempervivens, centifolia, gallica, pumila, alpina, canina, collina, indica, pendulina, alba, multiflora. Europe, Perſia, China, N. America.

ſpinoſiſſima * R. germens and fruitſtalks ſmooth; ſtem and leaf-ſtalks fully ſet with ſtraight prickles; leafets circular, ſmooth.—The ripe fruit is eaten by children; it has a grateful ſubacid taſte. The juice of it, diluted with water, dyes ſilk and muſlin of a peach colour, and, with the addition of alum, a deep violet; but it has very little effect on woollen or linen. Its dwarfiſh growth, and the ſingular elegance of its little leaves, which reſemble thoſe of the upland burnet, entitle it to a place in the flower-garden.

canina. * R. germens and fruitſtalks ſmooth; ſtem and leaf-ſtalks prickly.—A perfumed water may be diſtilled from the bloſſoms. The pulp of the berries, beat up with ſugar, makes the conſerve of hips of the London diſpenſatory. Mixed with wine, it is an acceptable treat in the north of Europe. Several birds feed upon the berries. The leaves of every ſpecies of roſe, but eſpecially of this, are recommended as a ſubſtitute for tea, giving out a fine colour, a ſub-aſtringent taſte, and a grateful ſmell, when dried, and infuſed in boiling water. It is a difficult matter to ſay, which are ſpecies, and which are varieties only, in this genus; ſome think that there are no certain limits preſcribed by nature. Various inſects are nouriſhed by the different ſpecies; and thoſe moſſy prickly excreſcences which are frequently found upon the branches of roſes, eſpecially upon the laſt ſpecies, are the habitations of the *cynips roſæ*. This excreſcence was formerly in repute as a medicine, and was kept in the ſhops under the name of *bedeguar*. An infuſion of the full blown bloſſoms of all the roſes, eſpecially the paler kinds, is purgative; but the petals of the red roſes, gathered before they expand, and dried, are aſtringent.

The *roſa centifolia* is an elegant flower, common in our gardens. Its ſmell is very pleaſant, and almoſt univerſally admired; its taſte bitteriſh and ſubacrid. In diſtillation with water, it yields a ſmall portion of a butyraceous oil, whoſe flavour exactly reſembles that of the roſes. This oil, and the diſtilled water, are very uſeful and agreeable cordials. Hoffman ſtrongly recommends them as of a ſingular efficacy for raiſing the ſtrength, cheering and recruiting the ſpirits and allaying pain; which they perform without raiſing any heat in the conſtitution, rather abating it when inordinate. Damaſk roſes, beſides their cordial aromatic virtue, which reſides in their volatile parts, have a mildly purgative one, which remains entire in the decoction left after the diſtillation; this with a proper quantity of ſugar forms an agreeable laxative ſyrup, which has long kept its place in the ſhops.

The *roſa gallica* has very little of the fragrance of the foregoing pale ſort, and inſtead of its purgative quality, a mild gratefully aſtringent one, eſpecially before the flower has opened: this is conſiderably improved by haſty exſiccation; but both the aſtringency and colour are improved by ſlow drying. In the ſhops there are prepared a conſerve, an infuſion, a honey, and a ſyrup of this flower.

998. Rubus, or *Raſpberry.*

20 ſpecies; viz. * idæus, occidentalis, hiſpidus, parvifolius, jamaicenſis, triphyllus, * cæſius, * fruticoſus, canadenſis, odoratus, moluccanus, palmatus, villoſus, inciſus, japonicus, trifidus, * ſaxatilis, * arcticus, * chamæmorus, dalibarda. North Europe, Aſia, America.

* R. leaves winged with five or three leafets, ſtem prickly; leaf-ſtalk channelled.—The fruit of this plant is extremely grateful as nature preſents it, but made into a ſweatmeat with ſugar, or fermented with wine, the flavour is improved. It is fragrant, ſubacid, and cooling. It diſſolves the tartarous concretions of the teeth; but for this purpoſe it is inferior to the ſtrawberry. The white berries are ſweeter than the red, but they are generally contaminated by inſects. The freſh leaves are the favourite food of kids. *idæus.*

* R. leaves winged with three or five leafets; ſtem and leaf-ſtalks prickly; panicle oblong.—The berries when ripe are black, and do not eat amiſs with wine. The green twigs are of great uſe in dying woollen, ſilk, and mohair, black. Cows and horſes eat it. Sheep are not fond of it. Silk worms will ſometimes feed upon the leaves in defect of thoſe of the mulberry. *fruticoſus.*

* R. leaves ſimple, lobed; ſtem without prickles, with one flower; male and female flowers on different plants.—The berries are not unpleaſant, and held to be an excellent antiſcorbutic. The Norwegians pack them up in wooden veſſels and ſend them to Stockholm, where they are ſerved up in deſerts or made into tarts. The Laplanders bury them under the ſnow, and thus preſerve them freſh from one year to another. They bruiſe and eat them with the milk of the rein deer. In the Highlands of Scotland alſo they are ſometimes brought to table with the deſert. *chamæmorus.*

999. Fragaria, or *Strawberry.*

Three ſpecies; viz. * veſca, monophylla, * ſterilis. North Europe, America.

* F. leaves three together; runners creeping.—The berries eaten either alone or with ſugar, or with milk, are univerſally eſteemed a moſt delicious fruit. They are grateful, cooling, ſubacid, juicy, and have a delightful ſmell. Taken in large quantities, they ſeldom diſagree. *veſca.*

diſagree with the ſtomach. They promote perſpiration, impart a violet ſcent to the urine, and diſſolve the tartarous incruſtations upon the teeth. People afflicted with the gout or ſtone, have found great relief from uſing them largely. The bark of the root is aſtringent. Sheep and goats eat it. Cows are not fond of it. Horſes and ſwine refuſe it.

1000. POTENTILLA, or *Cinquefoil.*

31 ſpecies; viz. * fruticoſa, * anſerina, ſeracea, multifida, fragarioides, * rupeſtris, bifurca, pimpinelloides, penſylvanica, ſupina, recta, argentea, intermedia, hirta, ſtipularis, opaca, * verna, * aurea, aſtracanica, canadenſis, * alba, cauleſcens, eluſiana, nitida, valderia, * reptans, monſpelienſis, norvegica, nivea, grandiflora, ſubacaulis. Europe, North America.

fruticoſa. * P. leaves winged, ſtem ſhrub-like.—The beautiful appearance of its numerous flowers has gained it admittance into gardens. Beſoms are made of it. Cows, horſes, goats, and ſheep eat it. Swine refuſe it.

anſerina. * P leaves winged, ſerrated; ſtem creeping; fruit-ſtalks with one-flower.—The leaves are mildly aſtringent. Dried and powdered they have been given with ſucceſs in agues. The uſual doſe is a meal ſpoonful of the powder every three hours between the fits. The roots in the winter time eat like parſnips. Swine are fond of them. Cows, horſes, goats, and ſwine eat it. Sheep refuſe it.

reptans. * P. leafets five together, ſtem creeping; fruit-ſtalks one-flowered.—The red cortical part of the root is mildly aſtringent and antiſeptic. A decoction of it is a good gargle for looſe teeth and ſpongy gums. Horſes, cows, goats, and ſheep, eat it.

1001. TORMENTILLA, or *Tormentil.*

Two ſpecies; viz. erecta, * reptans. Europe.—The tormentil is found wild in woods and on commons; it has long ſlender ſtalks, with uſually ſeven long narrow leaves at a joint; the root is for the moſt part crooked and knotty, of a blackiſh colour in the outſide, and reddiſh within. This root has an auſtere ſtyptic taſte, accompanied with a ſlight kind of aromatic flavour; it is one of the moſt agreeable and efficacious of the vegetable aſtringents, and is employed with good effect in all caſes where medicines of this claſs are proper. It is more uſed both in extemporaneous preſcription, and officinal compoſition, than any of the other ſtrong vegetable aſtringents. It is an ingredient in the two compound powders of chalk. A tincture made from it with rectified ſpirit, poſſeſſes the whole aſtringency and flavour of the root, and loſes nothing of either in inſpiſſating.

1002. GEUM, or *Avens, Herb-bennet.*

Eight ſpecies; viz. virginianum, * urbanum, canadenſe, japonica, * rivale, hybridum, montanum, reptans. Europe, North America.

* G. flowers upright; fruit globular, woolly; awns hooked, bare; root-leaves lyre-ſhaped; ſtem-leaves in threes.—The roots gathered in the ſpring before the ſtem grows up, and put into ale, give it a pleaſant flavour, and prevent its growing ſour. Infuſed in wine it is a good ſtomachic. Its taſte is mildly auſtere and aromatic, eſpecially when it grows in a warm dry ſituation; but in ſhady and moiſt places it has little virtue. Cows, goats, ſheep, and ſwine eat it. *urbanum.*

* G. flowers nodding, fruit oblong; awns feathered, twiſted; petals blunt, roundiſh, wedge-ſhaped; leaves winged. The powdered root will cure tertian agues, and is daily uſed for that purpoſe by the Canadians. Sheep and goats eat it. Cows, horſes, and ſwine are not fond of it. It is made uſe of to cure ropy malt liquor. *rivale.*

1003. DRYAS.

Three ſpecies; viz. anemonoides, geoides, * octopetala. Alps of Europe, Kamtſchatka.

1004. COMARUM, or *Marſh-cinquefoil.*

One ſpecies; viz. * paluſtre. Europe.

* C. leaves winged, petals ſmaller than the calyx. The root dyes a dirty red. The Iriſh rub their milking pails with it, and it makes the milk appear thicker and richer. Goats eat it. Cows and ſheep are not fond of it. Horſes and ſwine refuſe it. *paluſtre.*

1005. CALYCANTHUS, or *Carolina All-ſpice.*

Two ſpecies. viz. floridus, præcox. Carolina, Florida, Japan.

In the claſs Icoſandria are

39 Genera, including 346 Species, of which 42 are found in Britain.

CLASSIS XIII.

POLYANDRIA (c).

ORDO I. MONOGYNIA.

Sect. I. *Monopetali.*

1054. SWARTZIA. Cal. 4-partitus. Petalum platum laterale. Legumen.

CLASS XIII.

POLYANDRIA.

ORDER I. MONOGYNIA.

Sect. I. *Monopetali.*

S. Cal. 4-partite. A flat lateral petal. Leguminous.

1006.

(c) The flowers of this claſs have, as its title implies, many ſtamens, that is from 20 to 1000 or more; ſo that it is unneceſſary to attempt to count them further, than to be ſatisfied that they amount to 20 or upwards. The ſtamens

1006. Marcgravia. Cal. 6-phyllus, imbricatus. Cor. 1-petala, clauſa. Bacca multilocularis.

1007. Ternstroemia. Cal. 5-partitus. Cor. rotata, limbo campanulato, 5-partito. Bacca exſucca, bilocularis.

Sect. II. *Tripetali.*

1008. Trilix. Cal. 3-phyllus. Bacca 5-locularis, polyſperma.

† *Sterbeckia lateriflora. Tetraceræ nonnullæ.*

Sect. III. *Tetrapetali.*

1023. Mammea. Cal. 2-phyllus. Bacca 1-locularis. Sem. calloſa.

* 1015. Papaver. Cal. 2-phyllus. Capſ. 1-locul. coronata.

* 1014. Chelidonium. Cal. 2-phyllus. Siliqua.

1022. Sparrmannia. Cal. 4-phyllus. Capſ. pentagona quinque-locularis, loculis diſpermis.

1010. Capparis. Cal. 4-phyllus. Bacca pedicellata, corticoſa.

* 1011. Actæa. Cal. 4-phyllus. Bacca 1-locularis. Sem. gemino ordine.

1026. Calophyllum. Cal. 4-phyllus. Drupa globoſa. Nucleus ſubgloboſus.

1025. Grias. Cal. 4-fidus. Drupa 1-ſperma. Nucleus 8-ſulcatus.

Vallea ſtipularis. Legnotis elliptica. Cleome chelidonia, felina. Tetracera nitida.

Sect. IV. *Pentapetali.*

1044. Sterbeckia. Capſ. cylindracea corticoſa. Semina imbricata in pulpa nidulantia.

1043. Loasa. Capſ. ſemi-infera, 1-locularis, ſemi-trivalvis, polyſperma.

1042. Mentzelia. Capſ. infera, 1-locularis, 3-valvis, polyſperma.

1050. Bonnetia. Capſ. ſupera, 3-locularis, 3-valvis, polyſperma. Cal. 5-partitus.

1049. Vallea. Capſ. ſupera, 4-ſ. 5-angularis, unilocularis, polyſperma.

1036. Legnotis. Capſ. ſupera, 3-locularis, 3-valvis. Sem. ſolitaria. Cal. 5-fidus.

1046. Freziera. Bacca exſucca, 3-locularis. Cal. 5-phyllus.

1034. Marila. Capſ. 4-locularis, 4-valvis, polyſperma. Cal. 5-phyllus.

* 1048. Cistus. Capſ. ſubrotunda. Cal. 5-phyllus, foliola 2 minora.

1038. Lemniscia. Pericarp. 5-loculare. Cal. 5-dentat. Nectarium cyathiforme.

1052. Chorchorus. Capſ. ſub 5-locularis. Cal. 5-phyllus, longitudine corollæ, deciduus.

1018. Sarracenia. Capſ. 5-locularis. Stigma clypeatum. Cal. exter. 3-phyllus, ſuper. 5-phyllus.

M. Cal. 6-leafed, tiled. Cor. 1-petaled, cloſed. Berry many-celled.

T. Cal. 5-partite. Cor. wheel-ſhaped, with a bell-ſhaped border, 5-partite. Dry, 2-celled berry.

Sect. II. *Three-petaled.*

T. Cal. 3-leafed. Berry 5-celled, many ſeeded.

Sect. III. *Four-petaled.*

M. Cal. 2-leafed. Berry 1-celled. Seeds callous.

* P. Cal. 2-leafed. Capſ. 1-celled, crowned.

* C. Cal. 2-leafed. A long pod.

S. Cal. 4-leafed. Capſ. a 5-celled pentagon, 2-ſeeds in each cell.

C. Cal. 4-leafed. Berry pedicled, *i. e.* with a foot-ſtalk, bark-like.

* A. Cal. 4-leafed. Berry 1-celled. Seeds in a double row.

C. Cal. 4-leaved. Globular drupe. Kernel, nearly globular.

G. Cal. 4-cleft. Drupe 1-ſeeded. Kernel 8-furrowed.

Sect. IV. *Five-petaled.*

S. Capſ. cylindrical, bark-like. Seeds tiled, diſperſed in the pulp.

L. Capſ. half-inferior, 1-celled, half 3-valved, many-ſeeded.

M. Capſ. inferior, 1-celled, 3-valved, many-ſeeded.

B. Capſ. ſuperior, 3-celled, 3-valved, many-ſeeded. Cal. 5-parted.

V. Capſ. ſuperior, 4 or 5-angular, 1-celled, many-ſeeded.

L. Capſ. ſuperior, 3-celled, 3-valved. Seeds ſolitary. Cal. 5-cleft.

F. Berry dry, 3-celled. Cal. 5-leaved.

M. Capſ. 4-celled, 4-valved, many-ſeeded. Cal. 5-leaved.

* C. Capſ. nearly round. Cal. 5-leaved, 2-leaflets ſmall.

L. Pericarp. 5 celled. Cal. 5-toothed. Nectary glaſs-ſhaped.

M. Pericarp. 5-celled. Cal. 5-leaved, of the length of the corolla, deciduous.

S. Capſ. 5-celled. Stigma ſhield-like. Cal. external 3-leaved, ſuperior 5 leaved.

1028.

ſtamens ſtand upon the receptacle. If the exact ſituation of the ſtamens may be readily perceived by carefully and ſlowly pulling off the petals and ſegments of the calyx, if the ſtamens remain in their place they may then be conſidered as growing upon the receptacle. Very many plants of this claſs are poiſonous.

* 1028. Tilia. Capſ. 5-locul. coriacea, 1-ſperma. Cal. deciduus.

1022. Aubletia. Capſ. echinata, 10-locularis, polyſperma. Cal. coloratus.

1024. Ochna. Baccæ 5, in receptaculo carnoſo. Petala unguibus elongatis.

1039. Ascium. Bacca unilocularis, polyſperma. Cal. 5-phyllus.

1031. Grewia. Drupa 4-loba, 4-locularis. Cal. 5-phyllus.

1017. Muntingia. Bacca 5-locularis, umbilicata. Cal. partitus.

1035. Elæocarpus. Drupa nuce criſpa. Petala lacera.

1033. Microcos. Drupa nuce triloculari. Petala linearia.

† *Delphinium conſolida. Ajacis. Aconiti. Lætia completa.*

Sect. V. *Hexapetali.*

1016. Argemone. Cal. 3-phyllus. Capſ. 1-locularis, ſemivalvis.

1045. Lagerstroemia. Cal. 6-fidus. Stam. 6, exteriora majora. Capſ. 6-locul. polyſperma.

1041. Alangium. Cal. 6-10-dentatus, ſuperus. Petala 6, ſ. 10. Bacca corticoſa, 2-3-ſperma.

1047. Thea. Cal. 5 ſ. 6-phyllus. Petala 6 ſ. 9. Capſ. 3-locularis. Sem. ſolitaria.

1040. Lecythos. Cal. 6-phyllus. Stam. nectario lingulato connata. Capſ. circumſciſſa.

† *Ternſtræmia meridionalis.*

Sect. VI. *Octopetali.*

1012. Sanguinaria. Cal. 2-phyllus. Capſ. 2-valvis, polyſperma.

Sect. VII. *Enneapetali.*

1013. Podophyllum. Cal. 2-phyllus. Capſ. 2-valvis, polyſperma.

Sect. VIII. *Decapetali.*

1020. Bixa. Cal. 5-dentatus. Cor. 5-petala, duplex. Capſ. 2-valvis.

Alangium decapetalum.

Sect. IX. *Polypetali.*

* 1019. Nymphæa. Bacca multilocul. corticoſa. Cal. magnus.

Sect. X. *Apetali.*

1051. Prockia. Cal. 3-phyllus. Peric. 5-loculare.

1032. Mærua. Cal. 4-fidus, tubo nectarifero. Peric. pedicellatum.

1009. Ludia. Cal. 4 ſ. 9-partitus. Pericarp. uniloculare, polyſpermum.

1021. Sloanea. Cal. 5-9-fidus. Peric. echinatum, 3-6-loculare, 3-6-valve. Semina arillata.

* T. Capſ. 5-celled, leather-like, 1-ſeeded. Cal. deciduous.

A. Capſ. prickly, 10-celled, many-ſeeded. Cal. coloured.

O. Berries 5, in a fleſhy receptacle. Petals with long claws.

A. Berry 1-celled, many-ſeeded. Cal. 5-leaved.

G. Drupe 4-lobed, 4-celled. Capſ. 5-leaved.

M. Berry 5-celled, dimpled. Cal. parted.

E. Drupe with a curled nut. Petals ragged.

M. Drupe with a 3-celled nut. Petals ſtrap-ſhaped.

Sect. V. *Six-petaled.*

A. Cal. 3-leaved. Capſ. 1-celled, half-valved.

L. Cal. 6-cleft. Outer ſtamens greater. Capſ. 6-celled, many-ſeeded.

A. Cal. 6 to 10-toothed, ſuperior. Petals 6 or 10. Berry bark-like, 2-3-ſeeded.

T. Cal. 5 or 6-leaved. Petals 6 or 9. Capſ. 3-celled. Seeds ſolitary.

L. Cal. 6-leaved. Stamens united at the baſe to a tongue-ſhaped nectary. Capſ. cut round.

Sect. VI. *Eight-petaled.*

S. Cal. 2-leaved. Capſ. 2-valved, many-ſeeded.

Sect. VII. *Nine-petaled.*

P. Cal. 2-leaved. Capſ. 2-valved, many-ſeeded.

Sect. VIII. *Ten-petaled.*

B. Cal. 5-toothed. Cor. 5-petaled, double. Capſ. 2-valved.

Sect. IX. *Many-petaled.*

* N. Berry many-celled, bark-like. Cal. large.

Sect. X. *No petals.*

P. Cal. 3-leaved. Peric. 5-celled.

M. Cal. 4-cleft, with a honey-bearing tube. Peric. pedicled.

L. Cal. 4 or 9-parted. Seed-veſſel 1-celled, many-ſeeded.

S. Cal. 5-9-cleft. Seed-veſſel prickly, 3-6-celled, 3-6-valved. Seeds coated.

1030. Ryania. Cal. 5-phyllus. Pericarp. uniloculare, polyſpermum. Semina arillata.

1029. Lætia. Cal. 5-phyllus. Peric. 1-loculare, 3-valve, polyſpermum.

1053. Seguieria. Cal. 5-phyllus. Peric. 1-ſpermum, alatum.

Cratæva marmelos, tetracera ſarmentoſa.

Ordo II. DIGYNIA.

1057. Fothergilla. Cal. integerrimus. Cor. nulla. Capſ. 2-locularis. Sem. bina.

1056. Curatella. Cal. 5-phyllus. Cor. 4-petala. Capſ. 2-partita, 2-ſperma.

1055. Pæonia. Cal. 5-phyllus. Cor. 5-petala. Capſ. polyſperma. Sem. colorata.

1058. Trichocarpus. Cal. 4 ſ. 5-partitus. Cor. o. Capſ. ſetoſa, polyſperma.

1059. Lacis. Cal. o. Cor. o. Capſ. 2-valvis, polyſperma.

Tetracera lævis.

Ordo III. TRIGYNIA.

* 1061. Delphinium. Cal. nullus. Cor. 5-petala, ſupremo petalo cornuto. Nectar. 2-fidum, ſeſſile.

1062. Aconitum. Cal. nullus. Cor. 5-petala, ſupremo galeato. Nectar. 2-pedicillata.

1060. Homalium. Cal. 6-7-partitus. Cor. 6-7-petala. Stamina per tria aggregata.

Reſeda lutcola. Corchorus æſtuans.

Ordo IV. TETRAGYNIA.

1063. Wintera. Cal. integer. Cor. 6-petala. Baccæ 4, 4-ſpermæ.

1067. Cimicifuga. Cal. 4-phyllus. Cor. nectariis 4, urceolatis. Capſ. 4. Sem. ſquamoſa.

1066. Wahlbomia. Cal. 4-phyllus. Cor. 4-petala. Peric. 4-roſtrata.

1064. Tetracera. Cal. 6-phyllus. Capſ. 4, monoſpermæ. Stamina dilatata utrinque antherifera.

1065. Caryocar. Cal. 5-partitus. Cor. 5-petala. Drupa nucibus 4.

Ordo V. PENTAGYNIA.

* 1068. Aquilegia. Cal. nullus. Cor. 5-petala. Nectaria 5, inferne cornuta.

1069. Nigella. Cal. nullus. Cor. 5-petala. Nectar. 8, ſuperne 2 labiata.

1070. Reaumuria. Cal. 5-phyllus. Cor. 5-petala, nectariis 10, adnatis, ciliatis. Capſ. 5-locularis, polyſperma.

Aconita et Delphinia nonnulla.

Ordo VI. POLYGYNIA.

1091. Hydraſtis. Cal. nullus. Cor. 3-petala. Bacca compoſita acinis 1-ſpermis.

R. Cal. 5-leaved. Seed-veſſel 1-celled, many-ſeeded; ſeeds coated.

L. Cal. 5-leaved. Seed-veſſel, 1-celled, 3-valved, many-ſeeded.

L. Cal. 5-leaved. Seed-veſſel 1-ſeeded, winged.

Order II. DIGYNIA.

F. Cal. entire. No cor. Capſ. 2-celled. Seeds 2.

C. Cal. 5-leaved. Cor. 4-petaled. Capſ. 2-parted, 2-ſeeded.

P. Cal. 5-leaved. Cor. 5-petaled. Capſ. many-ſeeded. Seeds coloured.

T. Cal. 4 or 5-parted. No cor. Capſ. briſtly, many-ſeeded.

L. No cal. No cor. Capſ. 2-valved, many-ſeeded.

Order III. TRIGYNIA.

* D. No cal. Cor. 5-petaled, the laſt petal horn-ſhaped. Nectary 2-cleft, ſitting.

A. No cal. Cor. 5-petaled, the laſt helmet-ſhaped. Nectar. 2-pedicled.

H. Cal. 6-7-partite. Cor. 6-7-petaled. Stamens incorporated by threes.

Order IV. TETRAGYNIA.

W. Cal. entire. Cor. 6-petaled. Berries 4, 4-ſeeded.

C. Cal. 4-leaved. Cor. with 4-pitcher-ſhaped nectaries. Capſ. 4. Seeds ſcaly.

W. Cal. 4-leaved. Cor. 4-petaled. Seed-veſſels 4-beaked.

T. Cal. 6-leaved. Capſ. 4, 1-ſeeded. Stamens dilated on both ſides bearing the anthers.

C. Cal. 5-parted. Cor. 5-petaled. Drupe with 4-nuts.

Order V. PENTAGYNIA.

* A. No cal. Cor. 5-petaled. Nectaries 5, horned beneath.

N. No cal. Cor. 5-petaled. Nectaries 8, two-lipped above.

R. Cal. 5-leaved. Cor. 5-petaled, with 10 nectaries connected, fringed. Capſ. 5-celled, many-ſeeded.

Order VI. POLYGYNIA.

H. No cal. Cor. 3-petaled. Berry compound with 1-ſeeded granulations.

1082. Atragene. Cal. nullus. Cor. 4-petala, major; interior polypetala. Sem. plurima, criſtata.
* 1083. Clematis. Cal. nullus. Cor. 4-petala. Sem. plurima ariſtata.
* 1084. Thalictrum. Cal. nullus. Cor. 4-5-petala. Sem. plurima, ſubmutica, nuda.
1088. Isopyrum. Cal. nullus. Cor. 5-petala, decidua. Nectaria 5. Capſ. polyſpermæ.
* 1089. Helleborus. Cal. nullus. Cor. 5-petala, perſiſtens. Nectaria plura. Capſ. polyſpermæ.
* 1090. Caltha. Cal. nullus. Cor. 5-petala. Capſ. plurimæ. Nectaria nulla.
* 1081. Anemone. Cal. nullus. Cor. 6-petala. Sem. plurima.
1076. Michelia. Cal. truncatus. Cor. 8-petala. Baccæ 4-ſpermæ, glomeratæ.
* 1087. Trollius. Cal. nullus. Cor. 14-petalæ. Nectaria linearia. Capſ. polyſpermæ.
1079. Xylopia. Cal. 3-phyllus. Cor. 6-petala. Capſ. 1 ſ. 2-ſpermæ, in receptaculo hæmiſpherico.
1080. Unona. Cal. 3-phyllus. Cor. 6-petala. Baccæ moniliformes, 2-ſpermæ, in receptaculo hæmiſpherico.
1077. Uvaria. Cal. 3-phyllus. Cor. 6-petala. Baccæ polyſpermæ, recept. longo affixæ.
1078. Annona. Cal. 3-phyllus. Cor. 6-petala. Bacca cortice imbricato, polyſperma.
1073. Liriodendrum. Cal. 3-phyllus. Cor. 6-petala. Samaræ plurimæ, lanceolatæ, imbricatæ.
1074. Magnolia. Cal. 3-phyllus. Cor. 9-petala. Capſ. glomeratæ, 2-valves. Sem. pendula.
1075. Nelumbium. Cal. 4-5-phyllus. Cor. polypetala. Nuces monoſpermæ, receptaculo immerſæ.
1071. Dillenia. Cal. 5-phyllus. Cor. 5-petala. Sem. plurima. Petala ungue nectarifero.
* 1086. Ranunculus. Cal. 5-phyllus. Cor. 5-petala. Sem. plurima, petala ungue nectarifero.
1072. Illicium. Cal. 6-phyllus. Pet. 27. Capſ. 1-ſperma, in orbem.
* 1085. Adonis. Cal. 5-phyllus. Cor. 5 ſ. 10-petala. Sem. plurima, angulata, corticata.

Nigellæ nonnullæ.

A. No cal. Cor. 4-petaled, large; within, many-petaled. Seeds many, creſted.
* C. No cal. Cor. 4-petaled. Seeds many, awned.

* T. No cal. Cor. 4-5-petaled. Seeds many, nearly awnleſs, naked.
I. No cal. Cor. 5-petaled, deciduous. Nectaries 5. Capſ. many-ſeeded.
* H. No cal. Cor. 5-petaled, permanent. Nectaries ſeveral. Capſ. many-ſeeded.
* C. No cal. Cor. 5-petaled. Capſ. many. Nectaries none.
* A. No cal. Cor. 6-petaled. Seeds many.

M. Cal. truncated. Cor. 8-petaled. Berrics 4-ſeeded, congregated.
* T. No cal. Cor. 14 petals. Nect. ſtrap-ſhaped. Capſ. many-ſeeded.
X. Cal. 3-leaved. Cor. 6-petaled. Capſ. one or 2-ſeeded, in a hemiſpherical receptacle.
U. Cal. 3-leaved. Cor. 6-petaled. Berries bracelet-ſhaped, 2-ſeeded, in a hemiſpherical receptacle.

U. Cal. 3-leaved. Cor. 6-petaled. Berries many-ſeeded, affixed to a long receptacle.
A. Cal. 3-leaved. Cor. 6-petaled. Berry many-ſeeded, with a tiled bark.
L. Cal. 3-leaved. Cor. 6-petaled. Seed-veſſels many, ſpear-ſhaped, tiled.
M. Cal. 3-leaved. Cor. 9-petaled. Capſ. congregated, 2-valved. Seeds pendulous.
N. Cal. 4-5-leaved. Cor. many-petaled. Nuts one-ſeeded, immerſed in the receptacle.
D. Cal. 5-leaved. Cor. 5-petaled. Seeds many. Petals with a honey-bearing claw.
* R. Cal. 5-leaved. Cor. 5-petaled. Seeds many. Petals with a honey-bearing claw.
I. Cal. 6-leaved. Petals 27. Capſ. 1-ſeeded, in a circle.
* A. Cal. 5-leaved. Cor. 5 or 10-petaled. Seeds many, angled, bark-like.

Order I. MONOGYNIA.

1006. Marcgravia,

Two ſpecies; viz. umbellata, coriacea. Weſt Indies.

1007. Ternstroemia.

Five ſpecies; viz. meridionalis, elliptica, punctata, japonica, dentata. Japan, Weſt Indies, Guiana.

1008. Trilix.

One ſpecies; viz. lutea. Carthagena.

1009. Ludia.

Three ſpecies; viz. heterophylla, myrtifolia, ſeſſiliflora. Iſle of Mauritius.

1010. Capparis, or *Caper-buſh.*

30 ſpecies: viz. ſpinoſa, ovata, ægyptia, tomentoſa, acuminata, zeylanica, horrida, erythrocarpos, ſepiara, citrifolia, corymboſa, mariana, panduriformis, badducca, toruloſa, longifolia, frondoſa, ferruginea, grandis, jamaicenſis, odorotiſſima, verrucoſa, ampliſſima, cynophallophora, ſaligna, pulcherrima, tenuiſiliqua, linearis, breynia, haſtata. S. Europe, Eaſt and Weſt Indies, South America.—The buſh of the *capparis ſpinoſa* is a low prickly buſh, found wild in Italy and other countries; it is raiſed with us by ſowing the ſeeds upon old walls, where they take root between the bricks, and endure for many years. The bark of the root is pretty thick, of an aſh colour, with ſeveral tranſverſe wrinkles on the ſurface; cut in ſlices and laid to dry, it rolls up into quills. This bark has a bitteriſh acrid taſte; it is reckoned aperient and diuretic, and recommended in ſeveral chronic diſorders for opening obſtructions of the viſcera. The buds pickled with vinegar, &c. are uſed at table. They are ſuppoſed to

excite appetite and promote digeſtion; and to be particularly uſeful, as detergents and aperients, in obſtructions of the liver and ſpleen. Their taſte and virtues depend more upon the ſaline matter introduced into them, than on the caper buds.

1011. Actæa, or *Herb-chriſtopher*.

Three ſpecies; viz. * ſpicata, racemoſa, japonica. Europe. North America, Japan.

ſpicata. * A. bunch egg-ſhaped; fruit berry-like.—The plant is a powerful repellent. The root is uſeful in ſome nervous caſes, but it muſt be adminiſtered with caution. The berries are poiſonous in a very high degree. It is ſaid that toads, allured by the fœtid ſmell of this plant, reſort to it; but it grows in ſhady places, and toads are fond of damp and ſhady ſituations. Sheep and goats eat it. Cows, horſes, and ſwine refuſe it.

1012. Sanguinaria, or *Puncoon*, *Blood-root*.

One ſpecies; viz. canadenſis. North America.

1013. Podophyllum, or *Ducks-foot* or *May apple*.

Two ſpecies; viz. peltatum, diphyllum. North America.

1014. Chelidonium, or *Celandine*.

Five ſpecies; viz. * majus, japonicum, * glaucium, * corniculatum, * hybridum. Europe, Egypt, Japan.

majus. * C. fruit-ſtalks forming umbels.—This plant grows upon old walls, among rubbiſh, and in waſte ſhady places. The bark is of a bluiſh green colour; the root of a deep red; both contain a gold-coloured juice. Their ſmell is diſagreeable, the taſte ſomewhat bitteriſh, very acrid, biting and burning the mouth; the root is the moſt acrid. The juice of celandine has long been celebrated in diſorders of the eyes; but it is too ſharp, unleſs plentifully diluted, to be applied with ſafety to that tender organ. It has been ſometimes uſed, and it is ſaid with good ſucceſs, for extirpating warts, cleanſing old ulcers, and in cataplaſms for the *herpes miliaris*. This acrimonious plant is rarely given internally. The virtues attributed to it are thoſe of a ſtimulating aperient, diuretic, and ſudorific; it is particularly recommended in the ſlow kind of jaundice, where there are no ſymptoms of inflammation, and in dropſies. Some ſuppoſe the root to have been Helmont's ſpecific in the *hydrops aſcites*. Half a dram or a dram of the dry root is directed for a doſe; or an infuſion in wine of an ounce of the freſh root.

1015. Papaver, or *Poppy*.

Nine ſpecies; viz. * hybridum, * argemone, alpinum, nudicaule, rhœas, dubium, * ſomniferum, * cambricum, orientale. Europe.

rhœas. * P. capſules ſmooth, urn ſhaped; ſtem hairy, many-flowered; leaves wing-cleft, jagged.—The petals give out a fine colour when infuſed, and a ſyrup prepared from the infuſion is kept in the ſhops. It partakes in a ſmall degree of the properties of opium.

ſomniferum. * P. calyx and capſules ſmooth; leaves embracing the ſtem, jagged.—Opium is the juice of this plant. This juice has of late been collected by way of experiment, by certain individuals, from poppies cultivated in Great Britain, and has been found not inferior in quality to that brought from the warmer climates. It is obtained by making wounds with a ſmall ſharp inſtrument in the ſmooth capſule of the plant when nearly ripe, and thereafter collecting the juice that exſudes from the wounds. It is probable, however, that the high price of labour will ſcarcely permit the rearing of Britiſh opium to become an important object of agriculture. Egypt, Perſia, and Hindoſtan, have hitherto ſupplied us with this commodity: in thoſe countries large quantities of poppies are cultivated for this purpoſe. The opium prepared about Thebes in Egypt, hence named *Thebaic opium*, has been uſually eſteemed the beſt; but this is not now diſtinguiſhed from that collected in other places. This juice is brought to us in cakes or loaves covered with leaves and other vegetable matters, to prevent their ſticking together: it is of a ſolid conſiſtence, yet ſomewhat ſoft and tenacious; of a dark reddiſh-brown colour in the maſs, and when reduced into powder yellow; of a faint diſagreeable ſmell, and a bitteriſh taſte, accompanied with a pungent heat and acrimony.

In the province of Bahar in the Eaſt Indies, it is ſaid, the poppy ſeeds are ſown in October or November, at about eight inches diſtance; and are well watered till the plants are about half a foot high, when a compoſt of nitrous earth, dung, and aſhes, is ſpread over the areas; and a little before the flowers appear they are again watered profuſely till the capſules are half grown: and then the opium is collected; for when fully ripe they yield little juice. Two longitudinal inciſions, from below upwards, without penetrating the cavity, are made at ſunſet for three or four ſucceſſive evenings; and then they are allowed to ripen their ſeeds. In the morning the juice is ſcraped off with an iron ſcoop, and worked in an earthen pot, in the ſun's heat, till it be of a conſiſtence to be formed into thick cakes of about four pounds weight, which are covered over with the leaves of poppy or tobacco, and dried. It is ſaid to be adulterated with various unknown ſubſtances, with the extract of the poppy plant procured by boiling, and even with cow-dung. It is purified by reducing it to a pulp with hot-water, and ſtrongly preſſing it while hot through a linen cloth from its impurities. It is then evaporated by a water-bath, or other gentle heat, to its original conſiſtence. This extract is found to contain a reſin, a kind of eſſential oil, a principle of odour, an eſſential ſalt, and a ſoapy extract.

Opium has a reddiſh brown colour, a ſtrong peculiar ſmell, a taſte at firſt nauſeous and bitter, but ſoon becoming acrid, with a ſlight warmth: and it appears to have ſome aſtringency, as a watery tincture of it forms an ink with a chalybeate ſolution.

The external and internal effects of opium appear to be various in different conſtitutions, and in the ſame at different times. By ſome, when applied to the tongue, the noſe, the eye, or any part deprived of ſkin, it has been ſaid to ſtimulate, and to induce, in the eye in particular, a ſlight degree of redneſs. But if this effect do take place, it is at the utmoſt extremely inconſiderable, particularly when compared with the effect of volatile alkali, ardent ſpirit, or a variety of other articles applied to the ſame organ. And there can be no doubt, that in a very ſhort time the ſenſibility of the part to which it is applied, even when there has not taken place the ſlighteſt mark of preceding ſtimulus or inflammation, is very conſiderably diminiſhed. Some allege, that when applied to the ſkin, it allays pain

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and ſpaſm, procures ſleep, and produces all the other ſalutary or dangerous effects which reſult from its internal uſe; while others allege, that thus applied, it has little or no effect whatever. This variety probably ariſes from differences in the condition of the ſubcutaneous nerves, and of the ſenſibility of the ſurface, as being more or leſs defended. But there is no doubt that when mixed with cauſtic, it diminiſhes the pain, which would otherwiſe enſue, probably by deadening the ſenſibility of the part. It ſometimes allays the pain from a carious tooth; and a watery ſolution of it has been uſed in various ulcers, certain ophthalmias, and virulent gonorrhœa, when pain and inflammation have before that given very great diſtreſs.

Opium, when taken into the ſtomach to ſuch an extent as to have any ſenſible effect, gives riſe to a pleaſant ſerenity of mind, in general proceeding to a certain degree of languor and drowſineſs. The action of the ſanguiferous ſyſtem is diminiſhed, the pulſe becoming for the moſt part ſofter, fuller, and ſlower than it was before. There often take place ſwelling of the ſubcutaneous veins, and ſweating; both probably the conſequences of a diminution of reſiſtance at the ſurface, from a diminution of muſcular action, as is particularly exemplified in its effect of binding the belly. Opium taken into the ſtomach in a larger doſe, gives riſe to confuſion of head and vertigo. The power of all ſtimulating cauſes, as making impreſſions on the body, is diminiſhed; and even at times, and in ſituations, when a perſon would naturally be awake, ſleep is irreſiſtibly induced. In ſtill larger doſes, it acts in the ſame manner as the narcotic poiſon, giving riſe, not only to vertigo, headach, tremours, and delirium, but to convulſions alſo; and theſe terminating in a ſtate of ſtupor, from which the perſon cannot be rouſed. This ſtupor is accompanied with ſlowneſs of the pulſe, and with ſtertor in breathing; and the ſcene is terminated in death, attended with the ſame appearances as take place in apoplexy.

From theſe effects of opium, in a ſtate of health, it is not wonderful that recourſe ſhould have been had to it in diſeaſe, as mitigating pain, inducing ſleep, allaying inordinate action, and diminiſhing morbid ſenſibility. That theſe effects do reſult from it is confirmed by the daily experience of every obſerver; and as anſwering one or other of theſe intentions, moſt, if not all, of the good conſequences derived from it in actual practice are to be explained. If, therefore, by a ſedative medicine, we mean an article capable of allaying, aſſuaging, mitigating, and compoſing, no ſubſtance can have a better title to the appellation of ſedative than opium.

As anſwering the purpoſes of mitigating pain, inducing ſleep, allaying inordinate action, and diminiſhing ſenſibility, it naturally follows, that opium may be employed with advantage in a great variety of different diſeaſes. Indeed there is hardly any affection in which it may not, from circumſtances, be proper; and in all deſperate caſes, it is the moſt powerful means of alleviating the miſeries of patients.

Some practitioners are averſe to its uſe where there takes place an active inflammation; but others have recourſe to it in ſuch caſes, even at an early period, eſpecially after blood-letting; and where ſuch affections are attended, not only with pain and ſpaſm, but with watchfulneſs and cough, it is often productive of the greateſt benefit. Opium, combined with calomel, has of late been extenſively employed in every form of active inflammation, and with the greateſt ſucceſs. It is found alſo to be of very great ſervice in allaying the pain and preventing the ſymptomatic fever liable to be induced by wounds, fractures, burns, or ſimilar accidents.

In intermittents, it is ſaid to have been uſed with good effect before the fit, in the cold ſtage, in the hot ſtage, and during the interval. Given even in the hot ſtage, it has been obſerved to allay the heat, thirſt, headach, and delirium; to induce ſweat and ſleep; to cure the diſeaſe with the leſs bark, and without leaving abdominal obſtructions or dropſy.

It is often of very great ſervice in fevers of the typhoid type, when patients are diſtreſſed with watchfulneſs or diarrhœa. But where theſe or ſimilar circumſtances do not indicate its uſe, it is often diſtreſſing to patients, by augmenting thirſt and conſtipation.

In ſmallpox, when the convulſions before eruption are frequent and conſiderable, opium is liberally uſed. It is likewiſe given from the fifth day onwards; and is found to allay the pain of ſuppuration, to promote the ptyaliſm, and to be otherwiſe uſeful.

In dyſentery, after the uſe of gentle laxatives, or along with them, opium, independently of any effect it may have on the fever, is of conſequence in allaying the tormina and teneſmus, and in obviating that laxity of bowels which is ſo frequently a relict of that diſeaſe.

In diarrhœa, the diſeaſe itſelf generally carries off any acrimony that may be a cauſe, and then opium is uſed with great effect. Even in the worſt ſymptomatic caſes it ſeldom fails to alleviate.

In cholera and pyroſis it is almoſt the only thing truſted to. In cholic it is employed with laxatives; and no doubt often prevents ileus and inflammation, by relieving the ſpaſm. Even in ileus, and in incarcerated hernia, it is often found to allay the vomiting, the ſpaſms, the pain, and ſometimes to diminiſh the inflammation, and prevent the gangrene of the ſtrangulated gut. It is given to allay the pain and favour the deſcent of calculi, and to relieve in jaundice and dyſuria proceeding from ſpaſm.

It is of acknowledged uſe in the different ſpecies of tetanus, affords relief to the various ſpaſmodic ſymptoms of dyſpepſia, hyſteria, hypochondriaſis, aſthma, rabies canina, &c. and has been found uſeful in ſome kinds of epilepſy.

Of late, in doſes gradually increaſed to five grains, three, four, or even ſix times a-day, it has been uſed in ſyphilis; and ſome inſtances are recorded in which it would ſeem, that by this remedy alone a complete cure had been obtained: In other inſtances, however, after the faireſt trial for a conſiderable length of time, it has been found ineffectual; and upon the whole, it ſeems rather to be uſeful in combating ſymptoms, and in counteracting the effects reſulting from the improper uſe of mercury, than in overcoming the venereal virus.

It is found uſeful in certain caſes of threatened abortion and lingering delivery, in convulſions during parturition, in the after-pains and exceſſive flooding.

The only form perhaps neceſſary for opium, is that

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of pill; and as it is ſo ſoluble in every menſtruum, there ſeems the leſs occaſion for the addition of either gum or ſoap. This form is more apt to ſit on the ſtomach than any liquid form, but requires rather more time to produce its effects. The adminiſtration of opium to the unaccuſtomed, is ſometimes very difficult. The requiſite quantity of opium is wonderfully different in different perſons, and in different ſtates of the ſame perſon. A quarter of a grain will, in one adult, produce effects, which ten times the quantity will not do in another; and a doſe that might prove fatal in cholera or colic, would not be perceptible in many caſes of tetanus or mania. The loweſt fatal doſe to the unaccuſtomed, as mentioned by authors, ſeems to be four grains; but a dangerous doſe is ſo apt to puke, that it has ſeldom time to occaſion death. When given in too ſmall a doſe, it is apt to produce diſturbed ſleep and other diſagreeable conſequences; and in ſome caſes, it ſeems impoſſible to be made agree in any doſe or form. Often, on the other hand, from a ſmall doſe, ſound ſleep and alleviation of pain will be produced, while a larger one gives riſe to vertigo and delirium. Some prefer the repetition of ſmall doſes, others the giving of a full doſe at once. In ſome, it ſeems not to have its proper effect till after a conſiderable time. The operation of a moderate doſe is ſuppoſed to laſt, in general, about eight hours from the time of taking it.

Pure opium is partially ſoluble in water and in rectified ſpirit, and totally in proof ſpirit, wine, or vinegar. Water, rubbed with opium, and decanted repeatedly till it come off colourleſs, yields, on gentle evaporation, an extract which ſome uſe and recommend as one of the beſt preparations of this ſubſtance, and which requires to be given in double the doſe of common opium.

It is ſaid that alkalies diminiſh its ſoporific effects; that the fixed render it diuretic, the volatile determine it to the ſkin; and that acids deſtroy its activity almoſt entirely. But when conjoined with acids, particularly the diluted vitriolic acid, it often ſits eaſily on the ſtomach, when it would not otherwiſe be retained, and afterwards produces all its ſedative effects.

The chief officinal preparations of opium are, the *opium purificatum*, *pilulæ ex opio*, *pulvis opiatus*, *tinctura opii*, and *tinctura opii camphorata*. Beſides this, it enters a great variety of different compoſitions, as the *pulvis ſudorificus*, *balſamum anodynum*, *electuarium japonicum*, *pulvis è creta compoſitus*, &c.

The occaſional bad effects of opium may reſult from the ſame power, by which in other ſtates of the ſyſtem it proves beneficial. The methods, therefore, propoſed of correcting theſe by roaſting, fermentation, long-continued digeſtion, repeated ſolutions and diſtillations, have not ſucceeded.

1016. ARGEMONE, or *Prickly Poppy*.

Three ſpecies; viz. mexicana, armeniaca, pyrenaica. Weſt Indies, Mexico, Pyrennees.

1017. MUNTINGIA.

One ſpecies; viz. calabura. Weſt Indies.

1018. SARRACENIA, or *Side-ſaddle-flower*.

Four ſpecies; viz. flava, minor, rubra, purpurea. North America.

1019. NYMPHÆA, or *Water Lily*.

Seven ſpecies; viz. *lutea, advena, * alba, odorata, ſtellata, lotus, pubeſcens. Europe, India, Africa, America.

* N. leaves heart-ſhaped, very entire; cal. 5-leaved, much larger than the petals.—The roots, rubbed with milk, deſtroy crickets and cockroaches. Swine eat it. Goats are not fond of it. Cows, ſheep, and horſes refuſe it. An infuſion of a pound of the freſh root, to a gallon of water, taken in the doſe of a pint night and morning, cured a leprous eruption of the arm. *lutea.*

* N. leaves heart-ſhaped, very entire; calyx 4-cleft. —It extends itſelf by long runners, which form a root at the end, and ſend up leaf-ſtalks in deep water. The root is bulbous. It is one of the moſt beautiful of the Engliſh plants, and may be propagated by tranſplanting the bulbous roots in winter. The petals gradually leſſen as they approach the centre of the flower, where the outer filaments expanding in breadth, gradually aſſume the form of petals, as is generally the caſe in the double flowers of our gardens. The roots are uſed in Ireland, and in the iſland of Jura, to dye a dark-brown. Swine eat it. Goats are fond of it. Cows and horſes refuſe it. *alba.*

1020. BIXA, or *Anotta*.

One ſpecies; viz. orellana. Weſt Indies.

1021. SLOANEA, or *Apeiba of the Brazils*.

Three ſpecies, viz. dentata, maſſoni, ſinemarienſis. Brazil, Caribbee iſles.

1022. AUBLETIA.

Four ſpecies; viz. tibourbon, petonmo, aſpera, lævis. Guiana.

1023. MAMMEA, or *Mammee-tree*.

Two ſpecies; viz. americana, humilis. Jamaica, Hiſpaniola.

1024. OCHNA.

Two ſpecies; viz. ſquamoſa, parvifolia. Africa, Eaſt and Weſt Indies.

1025. GRIAS.

One ſpecies; viz. cauliflora. Jamaica.

1026. CALOPHYLLUM.

Two ſpecies; viz. inophyllum, calaba. Eaſt and Weſt Indies.

1027. SPARRMANNIA.

One ſpecies; viz. africana. Africa.

1028. TILIA, or *Lime-tree*.

Four ſpecies; viz. *europæa, americana, pubeſcens, alba. Europe, N. America.

* T. flowers without a nectary; berry 4-celled.—This plant flouriſhes beſt on the ſide of hills, but it will live very well in meadow grounds. It is eaſily tranſplanted, and graſs grows beneath it: it is uſeful to form ſhady walks and clipped hedges. The wood is ſoft, light, and ſmooth; cloſe grained, and not ſubject to the worm. It makes good charcoal for gunpowder and for deſigners. It is uſed for leather-cutters boards, and for carved works. It is alſo employed by the turner. The leaves are dried in ſome countries as winter food for ſheep and goats. Cows eat them in the autumn; but they give a bad taſte to the milk. The bark, macerated in water, may be made into *europæa.*

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ropes and fiſhing nets. The flowers are fragrant, and afford the beſt honey for bees. The ſap, inſpiſſated, affords a quantity of ſugar.

1029. Lætia.

Four ſpecies; viz. apetala, guidonia, thamnia, completa. Jamaica.

1030. Ryania.

One ſpecies; viz. ſpecioſa.

1031. Gravia.

11 ſpecies; viz. occidentalis, populifolia, orientalis, mallococca, lævigata, glanduloſa, hirſuta, excelſa, aſiatica, tiliæfolia, velutina. Aſia, Cape, Amer. S. ſeas.

1033. Microcos.

One ſpecies; viz. paniculata.

1034. Marila.

One ſpecies; viz. racemoſa. Weſt Indies.

1035. Elæocarpus.

Five ſpecies; viz. ſerratus, dentatus, dicera, integrifolius, copalliferus. India, New Zealand.

1036. Legnotis.

Two ſpecies; viz. elliptica, caſſipourea. Weſt Indies, Guiana.

1037. Myrodendrum.

One ſpecies; viz. amplexicaule. Guiana.

1038. Lemniscia.

One ſpecies; viz. floribunda. Guiana.

1039. Ascium.

One ſpecies; viz. violaceum. Guiana.

1040. Lecythis.

Eight ſpecies; viz. ollaria, minor, grandiflora, amara, zabucajo, idatimon, parviflora, bracteata. America.

1041. Alangium.

Two ſpecies; viz. decapetalum, hexapetalum. Coaſt of Malabar.

1042. Mentzelia.

Two ſpecies; viz. aſpera, hiſpida. America.

1043. Loasa.

Six ſpecies; viz. hiſpida, contorta, acanthifolia, grandiflora, chenopodifia, nitida.

1044. Sterbechia.

One ſpecies; viz. lateriflora.

1045. Lagerstroemia.

Five ſpecies; viz. indica, reginæ, hirſuta, munchhauſia, parviflora. Eaſt Indies, China.

1046. Freziera.

Two ſpecies; viz. theacoides, undulata.

1047. Thea, or *Tea-tree*.

Two ſpecies; viz. bohea, viridis. China, Japan.

The ſeveral ſorts of tea met with among us, are the leaves of this ſame genus collected at different times, and cured in a ſomewhat different manner; the ſmall young leaves very carefully dried, are the finer green, the older afford the ordinary green and bohea. The two firſt have a ſenſible flavour of violets, the other of roſes; the former is the natural odour of the plant, the latter, as Neumann obſerves, is probably introduced by art. Some of the dealers in this commodity in Europe, are not ignorant that bohea tea is imitable by the leaves of certain plants, artificially tinctured and impregnated with the roſe flavour. The taſte of both ſorts is lightly bitteriſh, ſubaſtringent, and ſomewhat aromatic. The medical virtues attributed to theſe leaves are ſufficiently numerous, though few of them have any foundation; little more can be expected from the common infuſions than that of a diluent acceptable to the palate and ſtomach; the diuretic, diaphoretic, and other virtues for which they have been celebrated, depend more on the quantity of warm fluid, than any particular qualities which it gains from the tea. Nothing ariſes in diſtillation from either ſort of tea with rectified ſpirit; water elevates the whole of their flavour.

Good tea, in a moderate quantity, ſeems to refreſh and ſtrengthen; but if taken in a recent highly flavoured ſtate, and in conſiderable quantity, its uſe is apt to be ſucceeded by weakneſs and tremors, and other ſimilar conſequences, reſulting from the narcotic vegetables; yet it is highly probable that many of the bad, as well as good effects, ſaid to refult from it, are conſequences of the warm water.

1048. Cistus, or *Rock-roſe*.

79 ſpecies; viz. capenſis, villoſus, populifolius, laurifolius, vaginatus, ledon, ladaniferus, monſpelienſis, laxus, ſalvifolius, heterophyllus, incanus, creticus, parviflorus, albidus, ſericeus, hybridas, criſpus, formoſus, halimifolius, elongatus, libanotis, umbellatus, lævipes, calycinus, fumana, canus, ſcabroſus, cinereus, ocymoides, italicus, marifolius, origanifolius, mollis, dichotomus, * anglicus, vinealis, œlandicus, alternifolius, globularifolius, tuberaria, plantagineus, ſerratus, * guttatus, canadenſis, punctatus, ledifolius, * ſalicifolius, niloticus, ægyptiacus, ſquamatus, lippii, ſeſſiliflorus, ellipticus, * ſurrejanus, polyanthos, glaucus, nummularius, canarienſis, ſerpillifolius, violaceus, linearis, lævis, ſtrictus, glutinoſus, thymifolius, piloſus, lavandulifolius, racemoſus, ciliatus, anguſtifolius, * helianthemum, mutabilis, fœtidus, croceus, hirtus, apenninus, * polifolius, arabicus. Alps, S. Europe, Egypt, Cape.

1049. Vallea.

One ſpecies; viz. ſtipularis. New Granada.

1050. Bonnetia.

One ſpecies; viz. paluſtris. Guiana.

1051. Prockia.

Four ſpecies; viz. crucis, ſerrata, theæformis, integrifolia. Iſle of Santa Cruz.

1052. Corchorus, or *Jews-mallow*.

14 ſpecies; viz. olitorius, triloculatis, tridens, æſtuans, acutangulus, faſcicularis, capſularis, ſcandens, ſerratus, hirſutus, japonicus, flexuoſus, hirtus, ſiliquoſus.

1053. Siguieria.

One ſpecies; viz. americana.

1054. Swartia.

Six ſpecies; viz. ſimpliciſolia, grandiflora, dodecandra, triphylla, pinnata, alata. Caribbee Iſles, Guiana.

Order II. DIGYNIA.

1055. Pæonia, or *Peony*.

Seven ſpecies; viz. officinalis, corallina, albiflora, humilis, anomala, hybrida, tenuifolia. Switz. Ukraine.

The

The *pæonia officinalis* is cultivated in our gardens on account of the beauty of its flowers. The female peony, which is the largeſt and moſt elegant, and for this reaſon the moſt common, is the only one with which the ſhops are ſupplied. In quality they are ſcarce ſenſibly different; and hence they may be taken promiſcuouſly. The roots and ſeeds of peony have, when recent, an unpleaſant ſcent, approaching to that of the narcotic plants, and a ſomewhat glutinous ſubacrid taſte, with a light degree of bitterneſs and aſtringency; the leaves alſo diſcover an aſtringent quality, both to the taſte, and by changing chalybeate ſolutions of a purple colour; the flowers have little taſte, and a very faint not agreeable ſmell. The parts which have chiefly been uſed for medicinal purpoſes, are the roots and ſeeds. Theſe are looked upon as emollient, corroborant, and lightly anodyne, and ſuppoſed to be of ſervice in ſome kinds of obſtructions, eroſions of the viſcera, heat of urine, pains in the kidneys, and the like. The virtue they are chiefly celebrated for, is that of curing ſpaſmodic and epileptic complaints, which many have been abſurd enough to believe, that the root of this plant would do by being only worn about the neck.

1056. CURATELLA.
One ſpecies; viz. americana. America.

1057. FOTHERGILLA.
One ſpecies; viz. alnifolia. North America.

1058. TRICHOCARPUS.
One ſpecies; viz. laurifolia. Guiana.

1059. LACIS.
One ſpecies; viz. fluviatilis. Guiana.

ORDER III. TRIGYNIA.

1060. HOMALIUM.
Two ſpecies; viz. racemoſum, racoubea. Jamaica, Guiana.

1061. DELPHINIUM, or *Larkſpur*.
14 ſpecies; viz. * conſolida, ajacis, aconiti, ambiguum, peregrinum, grandiflorum, intermedium, elatum, hybridum, exaltatum, urceolatum, puniceum, ſtaphiſagria, pentagynum. Europe, N. America.

conſolida. * D. capſule ſingle; nectary of one leaf; ſtem ſubdivided.—The expreſſed juice of the petals, with the addition of a little alum, makes a good blue ink; the ſeeds are acrid, and poiſonous. When cultivated, the bloſſoms often become double. Sheep and goats eat it. Horſes are not fond of it. Cows and ſwine refuſe it.

1062. ACONITUM, or *Wolfsbane, Monkshood*.
15 ſpecies; viz. lycoctonum, japonicum, pyrenaicum, ochroleucum, anthora, album, ſeptentrionale, napellus, neomontanum, tauricum, volubile, cornuum, variegatum, cammarum, uncinatum. Europe, North America, Japan.

ORDER IV. TETRAGYNIA.

1063. WINTERA, or *Winter's-bark*.
Three ſpecies; viz. aromatica, granadenſis, axillaris. New Granada, S. Seas.

1064. TETRACERA.
12 ſpecies; viz. ſarmentoſa, tomentoſa, aſpera, doliocarpus, ſtricta, calinea, obovata, nitida, euryandra, volubilis, lævis, alnifolia. Ceylon, W. Indies, South ſea iſles.

1065. CARYOCAR.
Three ſpecies; viz. nuciferum, butyroſum, tomentoſum. Barbary.

1066. WAHLBOMIA.
One ſpecies; viz. indica.

1067. CIMICIFUGA.
One ſpecies; viz. fœtida. Siberia.

ORDER V. PENTAGYNIA.

1068. AQUILEGIA, or *Columbine*.
Five ſpecies; viz. viſcoſa, * vulgaris, alpina, canadenſis, viridiflora.

* A. nectaries bowed inwards, nearly equal to the petals; leafets all on leaf-ſtalks; lobes diſtant, roundiſh, bluntiſh. The beauty of its flowers has long introduced it into our flower borders. Goats eat it. Sheep are not fond of it. Cows, horſes, and ſwine, refuſe it. *vulgaris.*

1069. NIGELLA, or *Fennel-flower*.
Five ſpecies; viz. damaſcena, ſativa, arvenſis, hiſpanica, orientalis. Germany, S. Europe, Egypt.

1070. REAUMURIA.
Two ſpecies; viz. verniculata, hypericoides. Sicily, Syria, Egypt.

ORDER VI. POLYGYNIA.

1071. DILLENIA.
Eight ſpecies; viz. ſcandens, integra, ſpecioſa, elliptica, ſerrata, pentagyna, retuſa, dentata. India.

1072. ILLICIUM, or *Aniſeed-tree*.
Two ſpecies; viz. aniſatum, floridanum. Florida, China, Japan.

1073. LIRIODENDRON, or *Tulip-tree*.
Four ſpecies; viz. tulipifera, coco, figo, liliifera. Amboyna, N. America.

1074. MAGNOLIA, or *Laurel-leaved Tulip-tree*.
Eight ſpecies; viz. grandiflora, plumieri, glauca, obovata, tomentoſa, acuminata, tripetala, auriculata. N. America.

1075 NELUMBIUM.
Four ſpecies; viz. ſpecioſum, luteum, pentapetalum, reniforme.

1076. MICHELIA.
Two ſpecies; viz. champæa, tſiampæa. Indies.

1077. UVARIA.
11 ſpecies; viz. zeylanica, lanceolata, ceruſoides, ſuberoſa, tomentoſa, odorata, monoſperma, lutea, ligularis, longifolia, japonica. Ceylon, Japan, Jamaica, Surinam.

1078. ANNONA, or *Cuſtard-apple*.
18 ſpecies; viz. muricata, tripetala, ſquamoſa, paludoſa, longifolia, punctata, hexapetala, paluſtris, glabra, triloba,

triloba, aſiatica, ambotay, africana, pygmæa, obovata, grandiflora, amplexicaulis. Egypt, E. and W. Indies, America.

1079. Xylopia, or *Bitter-wood.*

Three ſpecies; viz. muricata, fruteſcens, glabra. America.

1080. Unona.

Four ſpecies; viz. diſcreta, tomentoſa, diſcolor, concolor.

1081. Anemone, or *Wind-flower.*

29 ſpecies; viz. hepatica, patens, cernua, vernalis, halleri, * pulſatilla, * pratenſis, alpina, apiifolia, coronaria, hortenſis, palmata, ſibirica, baldenſis, ſylveſtris, virginiana, decapetala, triternata, penſylvanica, dichotoma, trifolia, quinquefolia, * nemoroſa, * apennina, reflexa, * ranunculoides, narciſſiflora, umbellata, thalictroides, Europe, N. America.

pratenſis. * A. leaves doubly winged; petals the ends turned back.—This is the moſt acrid of the anemonies; and is recommended by Dr Stoerk in the quantity of half an ounce of the diſtilled water, or five grains of the extract, twice or thrice a-day, in venereal nodes, pains, ulcers with caries, chronic eruptions, amenorrhœa, various chronic affections of the eye, particularly blindneſs from obſcurities of the cornea. Its common effects are nauſea or vomiting, an augmented diſcharge of urine, diarrhœa, and increaſe dpain at firſt in the affected part.

pulſatilla. * A. leaves doubly winged; petals ſtraight.—The whole plant is acrid, and bliſters the ſkin. The juice of the petals ſtains paper green. Goats and ſheep eat it. Horſes, cows, and ſwine, refuſe it.

nemoroſa. A. ſeeds pointed; leafets ſnipt; petals roundiſh; ſtem moſtly 2-flowered.—The flowers fold up in a curious manner againſt rain. The whole plant is acrid. When ſheep are unaccuſtomed to eat it, it brings on a bloody flux. Goats and ſheep eat it. Horſes, cows, and ſwine, refuſe it. This plant is ſometimes found with yellow dots on the under ſurface of the leaves.

1082. Atragene.

Six ſpecies; viz. alpina, ochotenſis, japonica, capenſis, tenuifolia, zeylanica. Alps of Europe, Ceylon, Cape.

1083. Clematis, or *Virgins-bower.*

24 ſpecies; viz. cirrhoſa, florida, viticella, viorna, criſpa, calycina, orientalis, glauca, hexapetala, triflora, virginiana, japonica, trifoliata, dioica, indiviſa, paniculata, * vitalba, chinenſis, flammula, maritima, anguſtifolia, erecta, ochroleuca, integrifolia. Europe, N. America.—The *clematis erecta* is introduced into but few of the modern pharmacopœias, and has never been found in Britain. As well as many other active articles, ſuppoſed to be of a poiſonous nature, it was ſometime ago recommended to the attention of practitioners by Dr Stoerk of Vienna. Its leaves and flowers are ſo acrid as to bliſter. Dr Stoerk recommends it in venereal, cancerous, and other cutaneous affections, in thoſe headachs, pains of the bones, and waſtings of the habit, the conſequences of *lues venerea.* Externally the acrid powder is ſprinkled on the ulcers, and the forms for internal uſe, are thoſe of infuſion and extract.

1084. Thalictrum, or *Meadow-rue.*

23 ſpecies; viz. * alpinum, fœtidum, tuberoſum, cornuti, dioicum, elatum, * majus, medium, * minus, rugoſum, ſibiricum, ſquarroſum, purpuraſcens, anguſtifolium, * flavum, nigricans, ſimplex, lucidum, aquilegifolium, contortum, petaloideum, ſtyloideum, japonicum. Europe, N. America.

* T. ſtem furrowed, leafy; leafets acute, 3-cleft; pa- *flavum.*
nicle much branched, upright, compact; flowers upright.—A cataplaſm made of the leaves has been known to give relief in the ſciatica. The root dyes wool yellow. Cows, horſes, goats, and ſheep, eat it. Swine are not fond of it.

1085. Adonis, or *Pheaſants Eye.*

Eight ſpecies; viz. * æſtivalis, * autumnalis, flammea, vernalis, apennina, ſilia, capenſis, veſicatoria. S. Europe, Cape.

1086. Ranunculus, or *Crow-foot.*

61 ſpecies; viz. * flammula, * reptans, * lingua, nodiflorus, * gramineus, pyrenaeus, parnaſſifolius, ophioglooſſoides, amplexicaulis, bullatus, ſalſuginoſus, * ficaria, frigidus, thora, creticus, caſſubicus, * auricomus, abortivus, trilobus, * ſceleratus, aconitifolius, platanifolius, ſpicatus, illyricus, flabellatus, aſiaticus, japonicus, rutæfolius, glacialis, ſeguieri, nivalis, montanus, gonani, alpeſtris, lapponicus, hyperboreus, monſpeliacus, penſylvanicus, ternatus, * bulboſus, philonotis, polyrhizos, * repens, polyanthemos, * acris, cappadocicus, lanuginoſus, chærophyllus, millefoliatus, parvulus, oxyſpermus, * arvenſis, muricatus, * parviflorus, orientalis, grandiflorus, falcatus, polyphyllus, * hederaceus, * aquatilis, fluviatilis. Europe, Aſia, N. America.

* R. leaves heart-ſhaped, angular, on leaf-ſtalks; ſtem *ficaria.*
1-flowered; flowers with eight petals; calyx with three leaves.—This is a very ſmall plant, found in moſt meadows, and by hedge ſides. The roots conſiſt of ſlender fibres with ſome little tubercles among them, which are ſuppoſed to reſemble the hæmorrhoids; from thence it has been concluded, that this root muſt needs be of wonderful efficacy for the cure of that diſtemper. To the taſte it is little other than mucilaginous; and although ſtill retained in ſeveral of the foreign pharmacopœias, it is hardly in uſe in this country.

* R. leaves egg-ſpearſhaped, on leaf-ſtalks; ſtem de- *flammula.*
clining.—This plant is very acrid; applied externally, it inflames and bliſters the ſkin. Horſes eat it. Cows, ſheep, goats, and ſwine refuſe it. Its acrimony riſes in diſtillation. Some years ago, a man travelled in ſeveral parts of England adminiſtering vomits, which, like white vitriol, operated the inſtant they were ſwallowed. The diſtilled water of this plant was his medicine. It is ſaid, that in the caſe of poiſon being ſwallowed, or other circumſtances occuring, in which it is deſireable to make a patient vomit inſtantaneouſly, it is preferable to any other medicine yet known, and does not excite thoſe painful contractions in the upper part of the ſtomach, which the white vitriol ſometimes does, thereby defeating the intention for which it was given.

* R. lower leaves hand-ſhaped, the upper fingered; *ſceleratus.*
fruit oblong.—The whole plant is very corroſive; and beggars are ſaid to uſe it to ulcerate their feet, which they expoſe in that ſtate to excite compaſſion. Goats eat it. Cows, horſes, and ſheep refuſe it.

* R. cal. expanding; fruit-ſtalks cylindrical; leaves *acris,*
with three diviſions, and many clefts, the uppermoſt

ſtrap-ſhaped.—Sheep and goats eat it. Cows, horſes, and ſwine refuſe it. Cows and horſes leave this plant untouched, though their paſture be ever ſo bare. It is very acrid, and eaſily bliſters the ſkin.

arvenſis. * R. ſeeds prickly; upper leaves doubly compound, ſtrap-ſhaped.—It has lately been ſaid that cows, horſes, and ſheep, in Italy, eat it greedily, though it is ſo acrid as to poiſon the latter. Three ounces of the juice killed a dog in four minutes. Its growing chiefly, if not ſolely, in corn fields where cattle are excluded, may poſſibly be the reaſon why we have not heard of miſchief being done by it in this country.

1087. TROLLIUS, or *Globe-ranunculus*.

Two ſpecies; viz. * europæus, aſiaticus. Europe, Aſia.

1088. ISOPYRUM.

Three ſpecies; viz. fumarioides, thalictroides, aquilegioides. Siberia, Alps of Auſtria, Italy.

1089. HELLEBORUS, or *Black Hellebore*.

Eight ſpecies; viz. hyemalis, ranunculinus, niger, * viridis, orientalis, * fœtidus, lividus, trifolius. Auſtria, Italy, Canada.

fœtidus. * H. ſtem many flowered, leafy; leaves bird-footed. *Bearsfoot*, or *Helleboraſter*.—The leaves of this plant, taken in ſeveral different forms, have been by ſome recommended as a very powerful anthelmintic. They are particularly extolled by Dr Biſſett, in his eſſay on the medical conſtitution of Great Britain, eſpecially under the form of ſyrup, made by moiſtening the leaves of the freſh herb in vinegar, and then preſſing out their juice, which was formed into a ſyrup with coarſe ſugar. Of this ſyrup, Dr Biſſett gave to children from two to ſix years of age, one tea ſpoonful at bed-time, and another in the morning, for two or three days ſucceſſively. The doſe was increaſed or diminiſhed according to the ſtrength of the patient; and in this way he found it very ſucceſsful in the expulſion of lumbrici.

Where the helleboraſter is to be employed, this form is perhaps the beſt, and we doubt not that it may ſucceed where others have failed; but it ſhould not, we apprehend, be employed till ſafer anthelmintics have been tried in vain. For we have heard of ſome inſtances where the imprudent adminiſtration of it has been attended even with fatal conſequences.

The ſpecies called *helleborus niger*, black hellebore or melampodium, grows wild in the mountainous parts of Switzerland, Auſtria, and Stiria; the earlineſs of its flowers, which ſometimes appear in December, has gained it a place in our gardens. In ſome parts of Germany, a ſpecies of black hellebore has been made uſe of, which not unfrequently produced violent and ſometimes deleterious effects; this the Wirtemburg college particularly caution againſt, though without mentioning any marks by which it may be diſtinguiſhed, or even giving the preciſe name of the plant. It appears to be the fœtid hellebore of Linnæus, called in England where it grows, ſetterwort, ſettlewort, or baſtard hellebore; the roots of this may be diſtinguiſhed from the officinal ſort by their being leſs black. The roots of the poiſonous aconites reſemble in appearance thoſe of the black hellebore; and in the Breſlaw collections we find ſome inſtances of fatal effects occaſioned by miſtaking the former for the latter: theſe alſo are happily diſcoverable by their colour; the *aconitum* being lighter coloured than even the paleſt of the black hellebores. The faculty of Paris, by allowing the uſe of one of the paler hellebores (the green-flowered which grows wild in England, and is called by our farriers peg-root) have in ſome degree deprived the ſhops of the benefit of this criterion. Since, therefore, the two noxious roots which the buyer is moſt apt to miſtake for this, are diſtinguiſhable from it by their colour, but have no other external mark by which they may be with certainty known, particular regard ought to be had to this circumſtance; only the deepeſt black being choſen, and all the paler roots rejected.

The taſte of the hellebore is acrid and bitter. Its acrimony is firſt felt on the tip of the tongue, and then ſpreads immediately to the middle, without being much perceived on the intermediate part; on chewing it for a few minutes the tongue ſeems benumbed and affected with a kind of paralytic ſtupor, as when burnt by eating any thing too hot; the fibres are more acrimonious than the head of the root from which they iſſue. Black hellebore root, taken from fifteen grains to half a dram, proves a ſtrong cathartic, and as ſuch has been celebrated for the cure of maniacal and other diſorders proceeding from what the ancients called the *atra bilis*; in theſe caſes medicines of this kind are doubtleſs occaſionally of uſe, though they are by no means poſſeſſed of any ſpecific power. It does not however appear, that our black hellebore acts with ſo much violence as that of the ancients, whence many have ſuppoſed it to be a different plant; and indeed, the deſcriptions which the ancients have left us of their hellebore, do not agree to any of the ſorts uſually taken notice of by modern botaniſts. Another ſpecies has been diſcovered in the Eaſtern countries, which Tournefort diſtinguiſhes by the name of *black oriental hellebore*, with a large leaf, a lofty ſtem and purpliſh flower; and ſuppoſes to be the true ancient hellebore, from its growing in plenty about Mount Olympus, and in the iſland of Anticyra, celebrated of old for the production of this antimaniacal drug; he relates that a ſcruple of this ſort given for a doſe, occaſioned convulſions.

Our hellebore is at preſent looked upon principally as an alterative; and in this light is frequently employed in ſmall doſes, for attenuating viſcid humours, promoting the uterine and urinary diſcharges, and opening inveterate obſtructions of the remoter glands; it often proves a very powerful emmenagogue in plethoric habits, where ſteel is ineffectual or improper. An extract made from this root with water, is one of the mildeſt, and, for the pupoſes of a cathartic, the moſt effectual preparations of it: this operates ſufficiently, without occaſioning the irritation which the pure reſin is accompanied with. A tincture drawn with proof ſpirit contains the whole virtue of the hellebore, and ſeems to be one of the beſt preparations of it when deſigned for an alterative; this tincture and the extract are kept in the ſhops.

The melampodium is the baſis of Bacher's tonic pills for the dropſy. The root is ordered to be macerated in rectified ſpirit of wine; the liquor expreſſed is repeatedly mixed with water, and duly evaporated. This is made up into pills, with an extract of myrrh and

and powder of carduus benedictus. They are said to be cathartic and diuretic, and at the same time strengtheners of the solids.

1090. CALTHA, or *Marsh-marygold.*

Two species; viz. * palustris, natans. Europe.

palustris. * C. The flowers of this plant gathered before they expand, and preserved in salted vinegar, are a good substitute for capers. The juice of the petals, boiled with a little alum, stains paper yellow. The remarkable yellowness of butter in the spring has been supposed to be caused by this plant; but cows will not eat it, unless compelled by extreme hunger, and then, as some say, it occasions such an inflammation that they generally die. Upon May-day the country people in England strew the flowers before their doors.

1091. HYDRASTIS, or *Yellow-root.*

One species; viz. canadensis. Carolina, Canada.

In the class Polyandria are

85 Genera, including 563 Species, of which 50 are found in Britain.

CLASSIS XIV.

DIDYNAMIA (D).

ORDO I. GYMNOSPERMIA.

Sect. I. *Calyces subquinquefidi.*

1103. PERILLA. Styli duo. Stam. distantia.
* 1105. GLECOMA. Antherarum paria cruciata.
1096. HYSSOPUS. Filam. distantia, recta. Cor. ringens, labio inferiore tripartito, subcrenato.
1098. ELSHOLTZIA. Filam. distantia, recta. Cor. ringens, labio inferiore indiviso.
1101. BYSTROPOGON. Filam. distantia, recta. Cor. ringens, labio inferiore trilobo.
* 1102. MENTHA. Filam. distantia, recta. Cor. subæqualis.
1104. HYPTIS. Filam. declinata. Cor. ringens; labio sup. bifido, inferiore trifido, lacinia media concava.
1100. SIDERITIS. Stigma alterum vaginans alterum.
1099. LAVANDULA. Corolla resupinata.
* 1093. TEUCRIUM. Cor. labium superius nullum, sed fissura loco labii.
* 1092. AJUGA. Cor. lab. superius staminibus brevius.
1113. PHLOMIS. Cor. lab. superius hirtum, compressum.
* 1112. LEONURUS. Cor. labium superius erectum, indivisum, planum. Stamina fauce longiora.
1108. BETONICA. Cor. lab. superius planum, adscendens, tubo cylindrico. Stam. longitudine faucis.
* 1106. LAMIUM. Cor. lab. inferius utrinque dente setaceo.
* 1107. GALEOPSIS. Cor. lab. inferius lateribus reflexum. Stam. deflorata ad latera deflexa.

CLASS XIV.

DIDYNAMIA, OR TWO STAMENS LONGER.

ORDER I. GYMNOSPERMIA, or Seeds naked.

Sect. I. *The Calyxes or Cups nearly 5-cleft.*

P. Styles 2. Stamens far asunder.
* G. Pairs of anthers cross-shaped.
H. Filaments asunder, straight. Cor. gaping, with the inferior lip 3-cleft, nearly scolloped.
E. Filaments far asunder, straight. Cor. gaping, with the inferior lip undivided.
B. Filaments far asunder and straight. Cor. gaping, with the inferior lip 3-lobed.
* M. Filaments far asunder and straight. Cor. nearly equal.
H. Filam. declining. Cor. gaping; the superior lip 2-cleft, the inferior 3-cleft, the middle segments concave.
S. The one stigma sheathing the other.

L. Cor. horizontally turned upside down.
* T. Cor. with no superior lip, but a fissure in place of a lip.
* A. Cor. having the upper lip shorter than the stamens.
P. Cor. the upper lip rough-haired, compressed.

* L. Cor. the upper lip erect, undivided, flat. The stamens longer than the mouth.
B. Cor. the upper lip flat, ascending with a cylindrical tube. Stamens of the length of the mouth.
* L. Cor. the inferior lip on both sides with a bristle-shaped tooth.
* G. Cor. the inferior lip bent back to the sides. The stamens bent to the sides after the anthers have shed their pollen.

(D) The essential character of this class consists of the flowers of the plants which it contains having four stamens, two of which are long, and two short. The short stamens stand next together, and adjoining to the style of the pistil. They are covered by the corolla or blossom, which is irregular in its shape.

* 1097. NEPETA. Cor. lab. inferius crenatum. Faux margine reflexo.

1094. SATUREIA. Cor. laciniis ſubæqualibus. Stam. remota.

* 1110. BALLOTA. Cal. 10-ſtriatus. Cor. labium ſuperius fornicatum.

1111. MARRUBIUM. Cal. 10-ſtriatus. Cor. lab. ſuperius rectum.

1114. MOLUCELLA. Cal. campanulatus, corolla amplior, dentibus ſpinoſis.

Verbenæ ſpecies aliquot. Monarda didyma.

Sect. II. *Calyces bilabiati.*

* 1124. SCUTELLARIA. Cal. fructiferus, operculatus.

* 1117. THYMUS. Cal. fauce villis clauſus.

1122. PLECTRANTHUS. Cor. reſupinata baſi ſurſum calcarata. Filamenta ſubulata.

1121. OCIMUM. Cor. reſupinata baſi nuda. Filamenta bina, baſi proceſſu.

* 1125. PRUNELLA. Filamenta omnia apice bifurca.

1126. CLEONIA. Filamenta bifurca, apici altero antherifero. Stigma quadrifidum.

1123. TRICHOSTEMA. Filamenta longiſſima.

1119. DRACOCEPHALUM. Corollæ faux inflato-dilatata.

* 1116. ORIGANUM. Strobilus calyces colligens.

* 1115. CLINOPODIUM. Involucrum calyces colligens.

1095. THYMBRA. Calyx utrinque linea ciliata carinatus. Stylus ſemibifidus. Cor. labia plana.

* 1120. MELITTIS. Cal. tubo corolla amplior. Corollæ lab. ſuperius planum, integrum. Antheræ cruciatæ.

* 1118. MELISSA. Cal. angulatus, ſcarioſus, labio ſuperiore adſcendente.

1127. PRASIUM. Semina baccata.

1128. PHRYMA. Sem. unicum. Cor. ringens.

1129. SELAGO. Sem. unicum. Corollæ limbo quinquefido inæquali.

ORDO II. ANGIOSPERMIA.

Sect. I. *Calyces indiviſi.*

1185. ÆGINETIA. Capſ. multilocularis. Cor. campanulata. Cal. indiviſus, ſpathaceus.

1161. TANÆCIUM. Bacca corticoſa. Cor. tubuloſa, ſubæqualis. Cal. tubuloſus, truncatus.

Sect. II. *Calyces bifidi.*

1184. OBOLARIA. Capſ. 1-locularis. Cor. campanulata, 4-fida. Filam. ex diviſuris corollæ.

* 1186. ORORANCHE. Capſ. 1-locularis. Cor. ſubæqualis, 4-fida. Glandula ſub baſi germinis.

1172. HEBENSTREITIA. Capſ. 2-ſperma. Cor. 1-labiata, 4-fida. Stam. margini laterali corollæ inſerta.

1149. TORENIA. Capſ. 2-locularis. Cor. perſonata. Filam. duo bifida.

1205. CASTILLEIA. Capſ. 2-locularis. Cor. bilabiata, labio inferiore breviſſimo. Cal. unilabiatus, bidentatus.

* N. Cor. the inferior lip ſcolloped. The mouth with a border bent back.

S. Cor. with ſegments nearly equal. Stamens remote.

* B. Cal. 10-ſtriped. Cor. the ſuperior lip vaulted.

M. Cal. 10-ſtriped. Cor. the upper lip ſtraight.

M. Cal. bell-ſhaped. Cor. large, with prickly teeth.

Sect. II. *Calyxes 2-lipped.*

* S. Cal. fruit-bearing, covered with a lid.

* T. Cal. with a mouth ſhut with ſoft hairs.

P. Cor. horizontally turned upſide down at the baſe, upwards, having a ſpur. Filaments awl-ſhaped.

O. Cor. naked, horizontally turned up at the baſe. Filaments 2, with an enlargement at the baſe.

* P. Filaments all with a 2-forked top.

C. Filaments 2-forked. The alternate apex bearing an anther. Stigma 4-cleft.

T. Filaments very long.

D. Mouth of the cor. inflate-dilated.

* O. A cone collecting the calyxes.

* C. Involucrum collecting the cups.

T. Cal. keeled on both ſides with a fringed line. Style half 2-cleft. Cor. flat lips.

* M. Cal. with a tube larger than the cor. the upper lip of the cor. flat, entire. Anthers croſs-ſhaped.

* M. Cor. angled, ſkinny, the upper lip aſcending.

P. Seeds berry-like.

P. Seed 1. Cor. gaping.

S. Seed 1. Border of the cor. unequal, 5-cleft.

ORDER II. ANGIOSPERMIA, or with Seeds in a Capſule.

Sect. I. *Cups undivided.*

Æ. Capſ. many-celled. Cor. bell-ſhaped. Cal. undivided, chaffy.

T. Berry barked. Cor. tubular, nearly equal. Cal. tubular, lopped.

Sect. II. *Cups 2-cleft.*

O. Capſ. 1-celled. Cor. bell-ſhaped, 4-cleft. Filam. from the diviſions of the corolla.

* O. Capſ. 1-celled. Cor. nearly equal, 4-cleft. Gland under the baſe of the germen or ſeed-bud.

H. Capſ. 2-ſeeded. Cor. 1-lipped, 4-cleft. Stamens inſerted in the lateral margin of the cor.

T. Capſ. 2-celled. Cor. gaping. Filam. 2, two-cleft.

C. Capſ. 2-celled. Cor. 2-lipped, under lip very ſhort. Cal. 1-lipped, 2-toothed.

1211. Acanthus. Capſ. 2-locularis. Cor. 1-labiata, 3-fida. Antheræ villoſæ.

1164. Premna. Drupa 1-ſperma, nuce 4-loculari. Cor. 4-fida, inæqualis.

1160. Crescentia. Bacca 1-locularis, corticoſa. Cor. tubo campanulata. Germen pedicellatum.

Sect. III. *Calyces trifidi.*

1159. Halleria. Bacca 2-locul. Cor. 4-fida, labio ſuperiore longiore.

Sect. IV. *Calyces quadrifidi.*

1189. Lippia. Capſ. 2-ſperma, 2-locularis. Cor. hypocraterif. Cal. compreſſus.

1134. Lathræa. Capſ. 1-locularis. Cor. perſonata. Glandula ſub germine.

1130. Bartsia. Capſ. 2-locularis. Cor. perſonata. Cal. coloratior.

* 1132. Euphrasia. Capſ. 2-locularis. Cor. perſonata. Antheræ inferiores ſpinoſæ.

* 1131. Rhinanthus. Capſ. 2-locularis. Cor. perſonata. Capſ. compreſſa.

* 1133. Melampyrum. Capſ. 2-locularis. Cor. perſonata. Sem. bina gibboſa.

1135. Schwalbea. Capſ. 2-locularis? Cor. perſonata. Cal. laciniæ ſuperiores ſenſim minores.

1196. Barleria. Capſ. 2-locularis. Cor. infundibil. Sem. bina. Capſ. elaſtica.

1168. Loeselia. Capſ. 3-locular. Cor. laciniis ſecundis. Stam. petalo adverſa.

1162. Gmelina. Drupa nuce 2-locul. Cor. bilabiata. Antheræ binæ craſſiores, bipartitæ.

1165. Lantana. Drupa nuce 2-locul. Cor. hypocraterif. Stigma uncinatum.

Sect. V. *Calyces quinquefidi.*

1209. Avicennia. Capſ. 1-locularis, coriacea. Cor. labio ſuperiore quadrato. Sem. unicum.

1136. Tozzia. Capſ. 1-locul. Cor. hypocraterif. Sem. unicum.

1179. Phaylopsis. Capſ. 1-locularis. Cor. ringens, labio ſuperiore minimo. Semina quatuor.

* 1178. Limosella. Capſ. 1-locul. Cor. campan. regular. Sem. plurima.

1175. Browallia. Capſ. 1-locul. Cor. hypocraterif. Sem. numeroſa.

1151. Brunfelsia. Capſ. 1-locul. baccata. Cor. infundibiliformis.

1193. Holmskioldia. Capſ. 1-locul.? Cor. ringens. Cal. ampliat.

1170. Lindernia. Capſ. 1-locular. Cor. ringens. Stam. inferiora dente terminali.

1182. Conobea. Capſ. 1-locularis. Cor. ringens. Stylus piloſus.

1210. Columnea. Capſ. 1-locularis. Cor. ringens, ſupra baſin gibba. Antheræ connexæ.

1180. Vandellia. Capſ. 1-locul. Cor. ringens. Stam. inferiora diſco labii enata.

1181. Russelia. Capſ. 1-locularis. Cor. bilabiata.

1213. Alectra. Capſ. 2-locularis didyma. Cor. infundibiliformes. Filamenta barbata. Semina ſolitaria.

A. Capſ. 2-celled. Cor. 1-lipped, 3-cleft. Anthers woolly.

P. Drupe 1-ſeeded, with a 4-celled nut. Cor. 4-cleft, unequal.

C. Berry 1-celled, bark-like. Cor. with a bell-ſhaped tube. Germen on a pedicle or footſtalk.

Sect. III. *Cups 3-cleft.*

H. Berry 2-celled. Cor. 4-cleft; the upper lip longer.

Sect. IV. *Cups 4-cleft.*

L. Capſ. 2-ſeeded, 2-celled. Cor. ſalver-ſhaped. Cal. flattened.

L. Capſ. 1-celled. Cor. gaping. A gland under the ſeed-bud.

B. Capſ. 2-celled. Cor. gaping. Cal. coloured.

* E. Capſ. 2-celled. Cor. gaping. Inferior anthers thorny.

* R. Capſ. 2-celled. Cor. gaping. Capſ. compreſſed.

* M. Capſ. 2-celled. Cor. gaping. Seeds 2, bulging.

S. Capſ. 2 celled? Cor. gaping. Upper ſegments of the cor. gradually leſs.

B. Capſ. 2-celled. Cor. funnel-ſhaped. Seeds 2. Capſ. elaſtic.

L. Capſ. 3-celled. Cor. with ſegments pointing one way. Stamens oppoſite to the petals.

G. Drupe, with a 2-celled nut. Cor. 2-lipped. Two coarſe anthers, 2-parted.

L. Drupe, with a 2-celled nut. Cor. ſalver-ſhaped. Stigma hooked at the end.

Sect. V. *Cups 5-cleft.*

A. Capſ. 1-celled, leather-like. Cor. with an upper lip ſquared. Seed 1.

T. Capſ. 1-celled. Cor. ſalver-ſhaped. Seed 1.

P. Capſ. 1-celled. Cor. gaping, upper lip ſmall. Seeds 4.

* L. Capſ. 1-celled. Cor. bell-ſhaped, regular. Seeds many.

B. Capſ. 1-celled. Cor. ſalver-ſhaped. Seeds numerous.

B. Capſ. 1-celled, berry-like Cor. funnel-ſhaped.

H. Capſ. 1-celled? Cor. gaping. Cal. enlarged.

L. Capſ. 1-celled. Cor. gaping. Inferior ſtamens with a terminal tooth.

C. Capſ. 1-celled. Cor. gaping. Style hairy.

C. Capſ. 1-celled. Cor. gaping, bulged above the baſe. Anthers connected.

V. Capſ. 1-celled. Cor. gaping. Inferior ſtamens riſing from the ſurface of the lip.

R. Capſ. 1-celled. Cor. 2-lipped.

A. Capſ. 2-celled, double. Cor. funnel-ſhaped. Filam. bearded. Seeds ſolitary.

1143. Gesneria. Capſ. 2-locul. Cor. ſupera incurvata.

1141. Cyrilla. Capſ. 2-locularis. Cor. ſupera declinata. Rudimentum filamenti quinti.

* 1152. Scrophularia. Capſ. 2-locul. Cor. reſupinata. Lab. ſegmento intermedio interno.

1183. Sternodia. Capſ. 2-locul. Cor. inæqualis. Stam. bifida. Antheræ geminæ.

1190. Achimenes. Capſ. 2-locularis. Cor. ſubæqualis, 4-fida.

1153. Celsia. Capſ. 2-locul. Cor. rotata. Filamenta lanata.

1154. Hemimeris. Capſ. 2-locular. Cor. rotata, ringens.

* 1177. Sibthorpia. Capſ. 2-locul. Cor. rotata. Stam. 2, et 2 approximata.

1169. Capraria. Capſ. 2-locul. Cor. campanulata. Stigm. cordatum, bivalve.

* 1155. Digitalis. Capſ. 2-locularis. Cor. campan. ſubtus ventricoſa. Stam. declinata.

1157. Bignonia. Capſ. 2-locul. Cor. campanulata. Sem. alata, imbricata. Rudimentum filamenti quinti.

1156. Incarvillea. Capſ. 2-locularis. Cor. infundibiliformis. Semina alata. Rudimentum filamenti quinti nullum.

1195. Ruellia. Capſ. 2-locul. Cor. campanulata. Stam. per paria approximata.

1174. Buchnera. Capſ. 2-locul. Cor. hypocraterif. Limbi laciniis obcordatis æqualibus.

1173. Erinus. Capſ. 2-locul. Cor. bilabiata; labio ſuperiore breviſſimo, reflexo.

1163. Petrea. Capſ. 2-locul. Cor. rotata, calyce colorato minor. Sem. ſolitaria.

1171. Manulea. Capſ. 2-locul. Cor. limbus 5-partitus; lacinia infima profundiore, reflexa.

* 1144. Antirrhinum. Capſ. 2-locul. Cor. perſonata, ſubtus nectario prominente.

1145. Anarrhinum. Capſ. 2-locularis, multivalvis. Cor. bilabiata, fauce pervia.

1138. Gerardia. Capſ. 2-locul. Cor. hypocrat. inæqual. Capſ. baſi dehiſcens.

* 1137. Pedicularis. Capſ. 2-locul. Cor. perſonata. Sem. tunicata.

1194. Mimulus. Capſ. 2-locul. Cor. perſonata. Cal. priſmaticus.

1188. Dodartia. Capſ. 2-locul. Cor. perſonata; labio ſuperiori brevi adſcendente.

1139. Chelone. Capſ. 2-locularis. Cor. perſonata, inflata, clauſa. Rudiment. filamenti quinti glabrum.

1140. Pentstemon. Capſ. 2-locularis. Cor. bilabiata, ventricoſa. Rudimentum filamenti quinti barbatum.

1191. Sesamum. Capſ. 2-locul. Cor. campan. inæqual. Rudim. filam. quinti.

1142. Gloxinia. Capſ. Semibilocularis. Cor. campanulata. Rudiment. quinti filamenti cum reliquis receptaculo inſertum.

1147. Tourettia. Capſ. 4-locularis, hamata. Cor. unilabiata.

1148. Martynia. Capſ. 4-locul. Cor. campanulata. Rudim. filam. quinti.

1204. Maurandia. Capſulæ 2, coalitæ apice, ſemi-

G. Capſ. 2-celled. Cor. bent inwards above.

C. Capſ. 2-celled. Cor. at the upper part bent downwards. Rudiment of a 5th filament.

* S. Capſ. 2-celled. Cor. horizontally turned upſide down. Lip, with an internal intermediate ſegment.

S. Capſ. 2-celled. Cor. unequal. Stamens 2-cleft. Anthers in pairs.

A. Capſ. 2-celled. Cor. nearly equal, 4-cleft.

C. Capſ. 2-celled. Cor. wheel-ſhaped. Filaments cottony.

H. Capſ. 2-celled. Cor. wheel-ſhaped, gaping.

* S. Capſ. 2-celled. Cor. wheel-ſhaped. Stam. 2, and 2 approximated.

C. Capſ. 2-celled. Cor. bell-ſhaped. Stigma heart-ſhaped, 2-valved.

* D. Capſ. 2-celled. Cor. bell-ſhaped, underneath bellied. Stamens declining.

B. Capſ. 2-celled. Cor. bell-ſhaped. Seeds winged, tiled. Rudiment of a 5th filament.

I. Capſ. 2-celled. Cor. funnel-ſhaped. Seeds winged. No rudiment of a 5th filament.

R. Capſ. 2-celled. Cor. bell-ſhaped. Stamens near together by pairs.

B. Capſ. 2-celled. Cor. ſalver-ſhaped. Segments of the border equal, inverſely heart-ſhaped.

E. Capſ. 2-celled. Cor. 2-lipped; upper lip very ſhort, turned back.

P. Capſ. 2-celled. Cor. wheel-ſhaped, leſs than the coloured cal. Seeds ſolitary.

M. Capſ. 2-celled. Cor. with a 5-parted border, lower ſegment deeper, bent back.

* A. Capſ. 2-celled. Cor. gaping, a nectary prominent from underneath.

A. Capſ. 2-celled, many-valved. Cor. 2-lipped, with an open mouth.

G. Capſ. 2-celled. Cor. ſalver-ſhaped, unequal. Capſ. open at the baſe.

* P. Capſ. 2-celled. Cor. gaping. Seeds coated.

M. Capſ. 2-celled. Cor. gaping. Cal. priſmatic.

D. Capſ. 2-celled. Cor. gaping; upper ſhort lip aſcending.

C. Capſ. 2-celled. Cor. gaping, inflated, ſhut. Smooth rudiment of a fifth filament.

P. Capſ. 2-celled. Cor. 2-lipped, bellied. Barbed rudiment of a fifth filament.

S. Capſ. 2-celled. Cor. bell-ſhaped, unequal. Rudim. of a 5th filament.

G. Capſ. half 2-celled. Cor. bell-ſhaped. Rudim. of a 5th filam. inſerted with the reſt in the receptacle.

T. Capſ. 4-celled, hooked. Cor. 1-lipped.

M. Capſ. 4-celled. Cor. bell-ſhaped. Rudiment of a 5th filament.

M. Two capſules united at the point, half 5-valved.

quinquevalves. Cor. campanulata, inæqualis. Filamenta baſi calloſa.

1200. MALLINGTONIA. Siliqua ? Corolla regularis, quadrifida. Antheræ deformes.

1192. TORTULA. Nuces 2, biloculares, externæ, rugoſæ. Corollæ tubus ſpiralis.

1214. PEDALIUM. Nux bilocularis.

* 1176. LINNÆA. Bacca 3-locularis, ſicca. Cor. campan. Cal. ſuperus.

1167. CORNUTIA. Bacca 1-ſperma. Cor. ringens. Stylus longiſſimus.

1199. OVIEDA. Bacca 4-ſperma. Cor. longiſſima; limbo 3-fido. Cal. fructiferus, campanulatus.

1207. AMASONIA. Bacca 4-ſperma. Cor. ſubæqualis.

1150. BESLERIA. Bacca polyſperma, unilocularis. Cor. inæqualis.

1208. BONTIA. Drupa monoſperma. Cor. labium inferius revolutum. Sem. plicatum.

1166. SPIELMANNIA. Drupa monoſperma, nuce 2-loculari. Cor. hypocrateriformis.

1206. VITEX. Drupa monoſperma, nuce 4-loculari. Cor. ringens, labio ſuperiore 3-fido.

1198. MYOPORUM. Drupa diſperma, nuce 2-loculari. Cor. campanulata, ſubæqualis.

1158. CITHAREXYLON. Drupa diſperma, nuce 2-loculari. Cor. infundibiliformis, ſubæqualis.

1201. VOLKAMERIA. Drupa diſperma, nuce 2-loculari. Cor. hypocrateriformis, laciniis ſecundis.

1202. CLERODENDRON. Drupa tetraſperma, nuce uniloculari. Cor. bilabiata.

1197. DURANTA. Drupa tetraſperma, nuce 2-loculari. Cor. ſubæqualis, tubo curvo.

Gratiola Monnieria.

Sect. VI. *Calyces multifidi.*

1187. HYOBANCHE. Capſ. 2-locul. Cor. unilabiata. Cal. heptaphyllus.

1212. LEPIDAGATHIS. Capſ. 2-locul. Cor. bilabiata. Cal. 2, polyphylli, imbricati.

1146. CYMBARIA. Capſ. 2-locul. Cor. ringens. Cal. 10-dentatus.

1203. THUNBERGIA. Capſ. 2-locul. Cor. campanulata. Cal. duplex, exterior diphyllus, interior 12-dentatus.

Sect. VII. *Polypetali.*

1215. MELIANTHUS. Capſ. 4-locul. 4-loba. Cor. 4-petal. labium inferius conſtituens.

Cor. bell-ſhaped, unequal. Filaments hard at the baſe.

M. A long pod ? Cor. regular, 4-cleft. Anthers deformed.

T. Nuts 2, 2-celled, external, wrinkled. Tube of the cor. ſpiral.

P. A 2-celled nut.

* L. Berry 3-celled, dry. Cor. bell-ſhaped. Cal. ſuperior.

C. Berry 1-ſeeded. Cor. gaping. Style very long.

O. Berry 4-ſeeded. Cor. very long, with a border 3-cleft. Cal. fruit-bearing, bell-ſhaped.

A. Berry 4-ſeeded. Cor. nearly equal.

B. Berry many-ſeeded, 1-celled. Cor. unequal.

B. Drupe 1-ſeeded, under lip of the cor. rolled back. Seed plaited.

S. Drupe 1-ſeeded, with a 2-celled nut. Cor. ſalver-ſhaped.

V. Drupe 1-ſeeded, with a 4-celled nut. Cor. gaping, with the upper lip 3-cleft.

M. Drupe 2-ſeeded, with a 2-celled nut. Cor. bell-ſhaped, nearly equal.

C. Drupe 2-ſeeded, with a 2-celled nut. Cor. funnel-ſhaped, nearly equal.

V. Drupe 2-ſeeded, with a 2-celled nut. Cor. ſalver-ſhaped, with ſegments pointing one way.

C. Drupe 4-ſeeded, with a 1-celled nut. Cor. 2-lipped.

D. Drupe 4-ſeeded, with a 2-celled nut. Cor. nearly equal, with a crooked tube.

Sect. VI. *Cups many-cleft.*

H. Capſ. 2-celled. Cor. 1-lipped. Cal. 7-leafed.

L. Capſ. 2-celled. Cor. 2-lipped. Cups 2, many-leafed, tiled.

C. Capſ. 2-celled. Cor. gaping. Cal. 10-toothed.

T. Capſ. 2-celled. Cor. bell-ſhaped. Cal. double, the outer 2-leafed, the inner 12-toothed.

Sect. VII. *Many-petaled.*

M. Capſ. 4-celled, 4-lobed. Cor. 4-petaled, conſtituting the lower lip.

ORDER I. GYMNOSPERMIA.

1092. AJUGA, or *Bugle.*

10 ſpecies; viz. orientalis, decumbens, * pyramidalis, alpina, * genevenſis, * reptans, * chamæpithys, chia, iva, ſalicifolia. Europe.

chamæpithys. *. A. leaves 3-cleft, ſtrap-ſhaped, very entire; flowers ſitting, lateral, ſolitary; ſtem ſpreading.—This plant has a degree of bitterneſs and acrimony; but its real uſe is far from being aſcertained. It ſtands recommended in the gout, jaundice, and intermitting fevers.

1093. TEUCRIUM, or *Germander.*

64 ſpecies; viz. campanulatum, lævigatum, orientale, parviflorum, botrys, niſſolianum, trifidum, pſeudo-chamæpithys, fruticans, brevifolium, creticum, marum, quadratulum, multiflorum, regium, laxmanni, fibiricum, aſiaticum, cubenſe, arduini, canadenſe, virginicum,

ginicum, japonicum, inflatum, villoſum, hyrcanicum, abutiloides, * ſcorodonia, pſeudo-ſcorodonia, betonicum, reſupinatum, maſſilienſe, ſalviaſtrum, * ſcordium, ſcordioides, * chamædrys, heterophyllum, bracteatum, lucidum, nitidum, flavum, montanum, ſupinum, thymifolium, pyrenaicum, rotundifolium, buxifolium, aureum, flaveſcens, gnaphalodes, achæmenis, polium, trifoliatum, pſeudhyſſopus, valentinum, capitatum, luſitanicum, pycnophyllum, verticillatum, libanitis, pumilum, anguſtiſſimum, cœleſte, ſpinoſum. Europe, Perſia, N. America, W. Indies.

ſcorodonia. * T. leaves heart-ſhaped, ſerrated, on leaf-ſtalks; flowers in lateral bunches, pointing one way; ſtem upright.—The people of Jerſey are ſaid to make uſe of this plant in brewing. It poſſeſſes the bitterneſs and a good deal of the flavour of hops; but, upon trial, it gave too much colour to the liquor.

ſcordium. * T. leaves oblong, ſitting, toothed, nakediſh; flowers in pairs, on fruitſtalks, axillary; ſtem pubeſcent, ſpreading —The freſh leaves of this plant are bitter, and ſomewhat pungent. Powdered, they deſtroy worms. A decoction of this plant is a good fomentation in gangrenous caſes. If cows eat it, when compelled by hunger, their milk gets a garlick flavour. Sheep and goats eat it. Horſes, cows, and ſwine, refuſe it.

chamædrys. * T. leaves wedge-egg-ſhaped, cut, ſcolloped, on leaf-ſtalks; flowers 3 together; ſtems ſomewhat hairy. —This plant is bitter, with a degree of aroma, and may be uſed with advantage in weak and relaxed conſtitutions. It is an ingredient in the celebrated gout powders.

The *teucrium chamæpithys* is a low hairy plant, clammy to the touch, of a ſtrong aromatic reſinous ſmell, and a little roughiſh taſte. It is an aperient and vulnerary, and is uſed alſo in gouty and rheumatic pains.

The *teucrium marum* is a ſmall ſhrubby plant, growing ſpontaneouſly in Syria, Candy, and other warm climates, and cultivated with us in gardens. The leaves have an aromatic bitteriſh taſte, and, when rubbed betwixt the fingers, a quick pungent ſmell, which ſoon affects the head and occaſions ſneezing. Diſtilled with water, they yield a very acrid, penetrating, eſſential oil, reſembling one obtained by the ſame means from ſcurvy graſs. Theſe qualities ſufficiently point out the uſes to which this plant might be applied: at preſent, it is little otherwiſe employed than in cephalic ſnuffs.

1094. SATUREJA, or *Savory*.

11 ſpecies: viz. juliana, nervoſa, thymbra, gracea, filiformis, montana, rupeſtris, hortenſis, capitata, ſpinoſa, viminea. S. Europe, Jamaica.—The herb of the *ſatureja hortenſis* is raiſed annually in gardens for culinary purpoſes. It is a very warm aromatic, and affords in diſtillation with water, a ſubtile eſſential oil, of a penetrating ſmell, and very hot acrid taſte. It yields little of its virtues by infuſion to aqueous liquors; rectified ſpirit extracts the whole of its taſte and ſmell, but elevates nothing in diſtillation.

1095. THYMBRA, or *Mountain-hyſſop*.

Three ſpecies; viz. ſpicata, verticillata, ciliata. Spain, Italy, Levant.

1096. HYSSOPUS, or *Hyſſop*.

Four ſpecies; viz. officinalis, lophanthus, nepetoides, ſcrophularifolius. Siberia, S. Europe, N. America.—The leaves of hyſſop have an aromatic ſmell, and a warm pungent taſte. Beſides the general virtues of aromatics, they are particularly recommended in humoral aſthmas, coughs, and other diſorders of the breaſt and lungs; and ſaid to promote expectoration: but ſo little dependence is put upon any property of this kind, that hyſſop has now no place in the Pharmacopœia of the London college.

1097. NEPETA, or *Nep*, or *Cat-mint*.

27 ſpecies; viz. * cataria, anguſtifolia, criſpa, heliotropifolia, pannonica, cœrulea, violacea, incana, japonica, ucranica, nepetella, nuda, meliſſæfolia, hirſuta, italica, multibracteata, reticulata, tuberoſa, lanata, ſcordotis, virginica, malabarica, indica, amboinica, madagaſcarienſis, multifida, botryoides. Europe, India, N. America.

cataria. * N. flowers in ſpikes: whirls on ſhort fruit-ſtalks: leaves on leave-ſtalks, heart-ſhaped, tooth-ſerrated. —An infuſion of this plant is deemed a ſpecific in chlorotic caſes. Two ounces of the expreſſed juice may be given for a doſe. Cats are ſo delighted with this plant that they can hardly be kept out of the garden wherein it grows. Mr Miller ſays, that cats will not meddle with it if it is raiſed from ſeeds; and in ſupport of this opinion quotes an old ſaying, "If you ſet it, the cats will eat it; if you ſow it, the cats will not know it." It cannot well be planted without being more or leſs bruiſed. Sheep eat it; cows, horſes, goats, and ſwine, refuſe it.

1098. ELSHOLTZIA.

Two ſpecies; viz. criſtata, paniculata.

1099. LAVANDULA, or *Lavender*.

Eight ſpecies; viz. ſpica, ſtoechas, viridis, dentata, pinnata, multifida, abrotanoides, carnoſa. S. Europe, Madeira, E. Indies.

There are different varieties of the *lavandula ſpica*, particularly the narrow and broad leaved. The flowers of both have a fragrant ſmell, to moſt people agreeable, and a warm pungent bitteriſh taſte; the broad-leaved ſort is the ſtrongeſt in both reſpects, and yields in diſtillation thrice as much eſſential oil as the other; its oil is alſo hotter and ſpecifically heavier: hence in the ſouthern parts of France, where both kinds grow wild, this only is made uſe of for the diſtillation of what is called *oil of ſpike*. The narrow-leaved is the ſort commonly met with in our gardens.

Lavender is a warm ſtimulating aromatic. It is principally recommended in vertigoes, palſies, tremours, ſuppreſſion of the menſtrual evacuations; and in general in all diſorders of the head, nerves, and uterus. It is ſometimes alſo uſed externally in fomentations for paralytic limbs. The diſtilled oil is particularly celebrated for deſtroying various cutaneous inſects. If ſoft ſpongy paper, dipt in this oil, either alone or mixed with that of almonds, be applied at night to the parts infeſted by the inſects, they will certainly be all found dead in the morning. The officinal preparations of lavender are, the eſſential oil, a ſimple ſpirit, and a compound tincture.

The *Lavendula ſtœchas* is a ſhrubby plant, conſiderably ſmaller than the common lavender. The flowery heads are brought from Italy and the ſouthern parts of France;

France; they are very apt to grow mouldy in the paſſage; and even when they eſcape this inconvenience, are generally much inferior to thoſe raiſed in our gardens. The beſt ſtœchas which we receive from abroad has no great ſmell or taſte; Pomet affirms, that ſuch as the ſhops of Paris are ſupplied with is entirely deſtitude of both; whilſt that of our own growth, either when freſh, or when carefully dried, has a very fragrant ſmell, and a warm, aromatic, bitteriſh, ſubacrid taſte: diſtilled with water, it yields a conſiderable quantity of a fragrant eſſential oil; to rectified ſpirit it imparts a ſtrong tincture, which inſpiſſated proves an elegant aromatic extract. This aromatic plant is rarely met with in preſcription; the only officinal compoſitions into which it was admitted were the mithridate and theriaca.

There is another plant called *ſtœchas*, which from the beauty and durability of its flowers has of late years had a place in our gardens, and whoſe aromatic qualities render it worthy of attention; this is the *gnaphalium arenarium*, the golden ſtœchas, goldilocks, or yellow caſſidony: its flowers ſtand in umbels on the tops of the branches; they are of a deep ſhining yellow colour, which they retain in perfection for many years; their ſmell is fragrant and agreeable, ſomewhat of the muſky kind; their taſte warm, pungent and ſubaſtringent; they impart their flavour to water in diſtillation and by infuſion to rectified ſpirit.

1100. SIDERITIS, or *Iron-wort*.

20 ſpecies; viz. canarienſis, candicans, cretica, montana, elegans, romana, ſyriaca, taurica, diſtans, perfoliata, ciliata, incana, virgata, glauca, hyſſopifolia, ſcordioides, ſpinoſa, hirſuta, ovata, lanata. S. Europe, Canary, Madeira.

1101. BYSTROPOGON.

Seven ſpecies; viz. pectinatum, fidæfolium, ſuaveolens, plumoſum, origanifolium, canarienſe, punctatum. Madeira, Canary, Japan.

1102. MENTHA, or *Mint*.

22 ſpecies; viz. auricularia, * ſylveſtris, nemoroſa, gratiſſima, niliaca, glabrata, * viridis, * rotundifolia, criſpa, * hirſuta, * aquatica, citrata, * piperita, ſativa, dentata, * gentilis, * arvenſis, auſtriaca, canadenſis, * pulegium, cervina, perilloides. Europe, Egypt, Canada.

viridis. * M. ſpikes oblong; leaves ſpear-ſhaped, naked, ſerrated, ſitting; ſtamens longer than the bloſſom.—The flavour of this ſpecies being more agreeable than that of the others, it is generally preferred for culinary and medicinal purpoſes. A conſerve of the leaves is very grateful, and the diſtilled waters, both ſimple and ſpirituous, are univerſally thought pleaſant. The leaves are uſed in ſpring ſallads; and the juice of them, boiled up with ſugar, is formed into tablets. The diſtilled waters, and the eſſential oil, are often given to ſtop retching, and frequently with ſucceſs. Dr Lewis ſays, that dry mint digeſted in rectified ſpirit of wine, gives out a tincture which appears by daylight of a fine dark-green, but in candlelight of a bright red colour. The fact is, that a ſmall quantity of this tincture is green either by daylight, or by candlelight; but a large quantity of it ſeems impervious to common daylight: however, when held between the eye and a candle, or between the eye and the ſun, it appears red; ſo that if put into a flat bottle, it appears either green or red, as it is viewed through the flat ſide or through the edge of the bottle.

* M. leaves egg-ſhaped, on leaf-ſtalks; ſtamens ſhorter than the bloſſom.—The ſtem and leaves of it are beſet with numbers of very minute glands, containing the eſſential oil, which riſes plentifully in diſtillation. Peppermint-water is well known as a carminative and antiſpaſmodic. The eſſence of peppermint is an elegant medicine, and poſſeſſes the moſt active properties of the plant. *piperita.*

* M. leaves egg-ſhaped, acute, ſerrated; ſtamens as long as bloſſoms.—This ſpecies prevents the coagulation of milk; and when cows have eaten it, as they will do largely at the end of ſummer when the paſtures are bare, and hunger diſtreſſes them, their milk can hardly be made to yield cheeſe; a circumſtance which ſometimes puzzles the dairy-maids. Horſes and goats eat it; ſheep are not fond of it; cows and ſwine refuſe it. *arvenſis.*

* M. leaves egg-ſhaped, blunt, ſomewhat ſcolloped; ſtems roundiſh, creeping; ſtamens longer than the bloſſom.—The expreſſed juice of this plant, with a little ſugar, is not a bad medicine in the hooping cough. A ſimple and a ſpirituous water, diſtilled from the dried leaves, are kept in the ſhops. They are preſcribed in hyſterical affections, and are not without conſiderable antiſpaſmodic properties. An infuſion of the plant may be uſed with the ſame intention. *pulegium.*

1103. PERILLA.

One ſpecies; viz. ocymoides. India.

1104. HYPTIS.

Four ſpecies; viz. verticillata, capitata, radiata, chamædrys.

1105. GLECHOMA, or *Gill*, or *Ground ivy*.

One ſpecies; viz. hederacea. N. of Europe.

G. leaves kidney-ſhaped, ſcolloped.—The leaves of this plant, thrown into the vat with ale, clarify it and give it a flavour. Ale thus prepared is often drank as an antiſcorbutic. The expreſſed juice, mixed with a little wine, and applied morning and evening, deſtroys the white ſpecks upon horſes eyes. The plants that grow near it do not flouriſh. It is ſaid to be hurtful to horſes if they eat much of it. Sheep eat it; horſes are not fond of it; cows, goats, and ſwine, refuſe it. Little protuberances, compoſed of many cells, are ſometimes found upon the leaves, and are occaſioned by inſects.

1106. LAMIUM, or *Dead-nettle*.

13 ſpecies; viz. ovvala, lævigatum, rugoſum, garganicum, maculatum, * album, molle, * purpureum, inciſum, bifidum, tomentoſum, * amplexicaule, multifidum. Europe.

* L. leaves heart-ſhaped, tapering to a point, ſerrated, on leaf-ſtalks; flowers about 20 in a whirl.—This plant grows wild in hedges; and flowers in April and May. The flowers have been particularly celebrated in uterine fluors and other female weakneſſes, and alſo in diſorders of the lungs; but they appear to be of very weak virtue, and are at preſent little uſed in Britain. *album.*

1107. GALEOPSIS, or *Hedge-nettle.*

Four ſpecies; viz. * ladanum, * grandiflora, * tetrahit, * cannabina. Europe.

1108. BETONICA, or *Betony.*

Eight ſpecies; viz. * officinalis, ſtricta, incana, orientalis, alopecuros, hirſuta, grandiflora, heraclea.

officinalis. * B. ſpike interrupted: bloſſoms, upper lip entire; lower lip, the upper ſegment notched: calyxes ſmoothiſh.—This is a low plant, growing in woods and ſhady places, in ſeveral parts of England; the flowers come forth in June and July; they are of a purpliſh colour, and ſtand in ſpikes on the tops of the ſtalks. The leaves and flowers have an herbaceous, roughiſh, ſomewhat bitteriſh taſte, accompanied with a very weak aromatic flavour. This herb has long been a favourite among writers on the materia medica, who have not been wanting to attribute to it abundance of good qualities. Experience does not diſcover any other virtue in betony than that of a mild corroborant; as ſuch, an infuſion or light decoction of it may be drank as tea, or a ſaturated tincture in rectified ſpirit given in ſuitable doſes, in laxity and debility of the viſcera, and diſorders proceeding from thence. The powder of the leaves, ſnuffed up the noſe, provokes ſneezing; and hence betony is ſometimes made an ingredient in ſternutatory powders: this effect does not ſeem to be owing, as is generally ſuppoſed, to any peculiar ſtimulating quality in the herb, but to the rough hairs which the leaves are covered with. The roots of this plant differ greatly in quality from the other parts; their taſte is bitter, and very naufeous; taken in a ſmall doſe, they vomit and purge violently, and are ſuppoſed to have ſomewhat in common with the roots of hellebore. It is pretty ſingular, if true, that betony affects thoſe who gather any conſiderable quantity of it, with a diſorder reſembling drunkenneſs, as affirmed by Simon Paulli and Bartholinus. From theſe ſenſible qualities and operative effects, although it has now no place in our pharmacopœias, yet it is perhaps to be conſidered as a vegetable deſerving farther attention.

1109. STACHYS, or *Baſe Horehound.*

26 ſpecies, viz. * ſylvatica, circinata, coccinea, * paluſtris, alpina, * germanica, intermedia, lanata, cretica, heraclea, tenuifolia, glutinoſa, ſpinoſa, orientalis, palæſtina, maritima, æthiopica, hirta, lavandulifolia, rugoſa, recta, arenaria, annua, * arvenſis, latifolia, artemiſia. Europe, Barbary, Cape, Carolina.

ſylvatica. * S. ſix flowers in a whirl; leaves heart-ſhaped, on leaf-ſtalks.—It will dye yellow. The whole plant has a fœtid ſmell, and toads are thought to be fond of living under its ſhade. Sheep and goats eat it. Horſes, cows, and ſwine refuſe it.

1110. BALLOTA, or *Black Horehound.*

Four ſpecies, viz. * nigra, alba, lanata, diſticha. Europe, Eaſt Indies.

B. leaves heart-ſhaped, undivided, ſerrated; calyx, teeth tapering to a point.—It ſtands recommended in hyſterical caſes. The Swedes reckon it almoſt a univerſal remedy in the diſeaſes of their cattle. Horſes cows, ſheep, and goats refuſe it.

1111. MARRUBIUM, or *Horehound.*

14 ſpecies, viz. alyſſum, aſtracanicum, peregrinum, creticum, candidiſſimum, ſuperium, catariæfolium, * vulgare, africannm, criſpum, hirſutum, hiſpanicum, pſeudo-dictamnus, acetabuloſum.

* M. teeth of the calyx, briſtle ſhaped, hooked.—It *vulgare.* is very bitter to the taſte, and not altogether unpleaſant to the ſmell. It was a favourite medicine with the ancients in obſtructions of the viſcera. In large doſes it looſens the belly. It is a principal ingredient in the negro Cæſar's remedy for vegetable poiſons. A young man who had occaſion to take mercurial medicines, was thrown into a ſalivation which continued for more than a year. Every method that was tried to remove it rather increaſed the complaint. At length Linnæus preſcribed an infuſion of this plant, and the patient got well in a ſhort time. Horſes, cows, ſheep and goats refuſe it.

1112. LEONURUS, or *Lions-tail.*

Seven ſpecies, viz. criſpus, * cardiaca, marrubiaſtrum, galeobdolon, ſupinus, tataricus, ſibiricus. Ruſſia, Siberia, Auſtria.

* L. ſtem-leaves ſpear-ſhaped, 3-lobed.—The leaves *cardiaca.* have a ſtrong but not agreeable ſmell, and a bitter taſte. Goats, ſheep, and horſes eat it. Cows are not fond of it. Swine refuſe it.

1113. PHLOMIS, or *Jeruſalem Sage.*

27 ſpecies, viz. fruticoſa, purpurea, italica, niſſolii, armenica, lychnites, laciniata, ſamia, crinita, biloba, pungens, herba venti, alpina, tuberoſa, zeylanica, martinicenſis, urticifolia, decemdentata, biflora, chinenſis, indica, moluccoides, glabrata, alba, nepetifolia, leonurus, leonites. South Europe, Cape, Eaſt and Weſt Indies.

1114. MOLLUCCELLA, or *Molucco Balm.*

Six ſpecies, viz. ſpinoſa, lævis, tuberoſa, perſica, fruteſcens, grandiflora. Siberia, Levant, India.

1115. CLINOPODIUM, or *Field Baſil.*

Three ſpecies, viz. * vulgare, ægyptiacum, incanum. Europe, Egypt, North America.

1116. ORIGANUM, or *Wild Marjorum.*

16 ſpecies, viz. ægyptiacum, dictamnus, ſipyleum, tournefortii, ciliatum, benghalenſe, creticum, ſmyrnæum, heracleoticum, * vulgare, glanduloſum, onites, ſyriacum, maru, majorana, majoranoides. S. Europe, Egypt, Carolina.

* O. ſpikes roundiſh, panicled, cluſtered; floral leaves *vulgare.* egg-ſhaped, longer than the calyx.—The whole plant is a warm aromatic. The dried leaves, uſed inſtead of tea, are exceedingly grateful. The eſſential oil of this plant is ſo acrid, that it may be conſidered as a cauſtic, and is much uſed with that intention by farriers. A little cotton wool moiſtened with it, and put into the hollow of an aching tooth, frequently relieves the pain. The country people uſe the tops to dye purple. Goats and ſheep eat it. Horſes are not fond of it. Cows refuſe it.

The *origanum dictamnus* is a kind of origanum ſaid to grow plentifully in the iſland of Candy, in Dalmatia, and in the Morea; it has been found hardy enough to bear the ordinary winters of our climate. The leaves, which are the only part in uſe with us, come from Italy. The beſt ſort are well covered over with a thick white down, and now and then intermixed with purpliſh flowers. In ſmell and taſte they ſomewhat reſemble lemon thyme: but have more of an aromatic flavour,

flavour, as well as a greater degree of pungency. When freſh they yield a conſiderable quantity of an excellent eſſential oil; but they have now no place either in the London or Edinburgh Pharmacopœias.

The *origanum majorana* is raiſed annually in our gardens for culinary as well as medicinal uſes; the ſeeds are commonly procured from the ſouthern parts of France, where the plant grows wild. It is a moderately warm aromatic, yielding its virtues both to aqueous and ſpirituous liquors by infuſion, and to water in diſtillation. It is principally uſed in diſorders of the head and nerves, and in the humoural aſthmas and catarrhs of old people. An eſſential oil of the herb is kept in the ſhops. The powder of the leaves proves an agreeable errhine, and enters the officinal ſternutatory powder.

1117. THYMUS, or *Thyme.*

22 ſpecies; viz. * ſerpyllum, lanuginoſus, lævigatus, vulgaris, lanceolatus, numidicus, zygis, marſhallianus, inodorus, * acinos, patavinus, alpinus, montanus, piperella, brownei, filiformis, cephalotus, ſtriatus, villoſus, maſtichina, tragoriganum, virginicus. Europe, North America, Jamaica.

ſerpyllum. * T. flowers in heads; ſtems creeping; leaves flat, blunt, fringed at the baſe.—The whole plant is fragrant, and yields an eſſential oil that is very heating. An infuſion of the leaves removes the headach occaſioned by the debauch of the preceding evening. A general opinion prevails, that the fleſh of ſheep that feed upon aromatic plants, particularly upon thyme, is much ſuperior in flavour to common mutton: but ſome ſay this is a vulgar error, that ſheep are not fond of aromatic plants; that they will carefully puſh aſide the thyme to get at the graſs growing beneath it; and that they never touch it unleſs when walking apace, and then they will catch at any thing. The attachment of bees to this and other aromatic plants is well known. Sheep and goats eat it. Swine refuſe it.

1118. MELISSA, or *Balm.*

Seven ſpecies; viz. officinalis, grandiflora, *calamintha, *nepeta, pyrenaica, cretica, fruticoſa. South of Europe.

The *meliſſa officinalis*, when in perfection, has a pleaſant ſmell, ſomewhat of the lemon kind, and a weak roughiſh aromatic taſte. The young ſhoots have the ſtrongeſt flavour; the flowers, and the herb itſelf when old, or produced in very moiſt rich ſoils, or rainy ſeaſons, are much weaker both in ſmell and taſte. Balm, the herb of this plant, is appropriated by the writers on the materia medica, to the head, ſtomach, and uterus; and in all diſorders of theſe parts is ſuppoſed to do extraordinary ſervice. So high an opinion have ſome of the chemiſts entertained of balm, that they have expected to find in it a medicine which ſhould prolong life beyond the uſual period. The preſent practice, however, holds it in no great eſteem, and ranks it, where it certainly deſerves to be, among the weaker corroborants. In diſtillation it yields an elegant eſſential oil, but in very ſmall quantity; the remaining decoction taſtes roughiſh. Strong infuſions of the herb, drank as tea, and continued for ſome time, have done ſervice in a weak lax ſtate of the viſcera; theſe liquors, lightly acidulated with juice of lemons, turn of a fine reddiſh colour, and prove an uſeful, and to many a very grateful, drink in dry parching fevers.

1119. DRACOCEPHALUM, or *Dragon's-head.*

18 ſpecies; viz. virginianum, denticulatum, canarienſe, pinnatum, origanoides, palmatum, peregrinum, fruticuloſum, auſtriacum, ruyſchiana, grandiflorum, altaienſe, ſibiricum, moldavica, caneſcens, peltatum, nutans, thymiflorum. N. Europe, N. America, Canaries.

1120. MELITTIS, or *Baſe-balm.*

Two ſpecies; viz. * meliſſophyllum, japonica.

1121. OCIMUM, or *Baſil.*

27 ſpecies; viz. thyrſiflorum, inflexum, virgatum, monachorum, gratiſſimum, album, tomentoſum, grandiflorum, baſilicum, minimum, integerrimum, ſanctum, rugoſum, criſpum, ſcabrum, americanum, verticillatum, acutum, tenuiflorum, polyſtachyon, ſerpyllifolium, menthoides, molle, adſcendens, ſcutellarioides, proſtratum, capitellatum. Perſia, E. Indies, Japan, Chili.

1122. PLECTRANTHUS.

Six ſpecies; viz. fruticoſus, galeatus, nudiflorus, forſkolæi, craſſifolius, punctatus. Africa.

1123. TRICHOSTEMA.

Two ſpecies; viz. dichotoma, brachiata. North America.

1124. SCUTELLARIA, or *Scull-cap.*

17 ſpecies; viz. orientalis, albida, alpina, lupulina, lateriflora, *galericulata, haſtifolia, *minor, integrifolia, havanenſis, purpuraſcens, hyſſopifolia, peregrina, columnæ, indica, altiſſima, cretica. Europe, China, N. America.

* S. leaves heart-ſpear-ſhaped; ſcolloped flowers axil- *galericulata.*
lary.—When the bloſſom falls off, the cup cloſes upon the ſeeds, which when ripe, being ſtill ſmaller than the cup, could not poſſibly open its mouth, or overcome its elaſtic force, as the down of the ſeeds do in the compound flowers, and muſt conſequently remain uſeleſs, without a poſſibility of eſcaping. But nature, ever full of reſources, finds a method to diſcharge them. The cup grows dry, and then divides into two parts; ſo that the ſeeds, already detached from the receptacle, fall to the ground. Cows, goats, and ſheep eat it; horſes and ſwine refuſe it.

1125. PRUNELLA, or *Self-heal.*

Three ſpecies; viz. * vulgaris, grandiflora, hyſſopifolia. Europe, Barbary.

1126. CLEONIA.

One ſpecies; viz. luſitanica. Spain, Portugal.

1127. PRASIUM, or *Shrubby Hedge-nettle.*

Two ſpecies; viz. majus, minus. Spain, Italy, Carolina.

1128. PHRYMA.

Two ſpecies; viz. leptoſtachia, dehiſcens. North America.

1129. SELAGO.

20 ſpecies; viz. corymboſa, cinerea, polyſtachya, verbenacea, rapunculoides, ſpuria, hirta, rotundifolia, faſciculata, polygaloides, ovata, coccinea, caneſcens, geniculata, divaricata, capitata, triquetra, fruticoſa, hiſpida, ciliata. C. of G. Hope.

ORDER

Order II. ANGIOSPERMIA.

1130. Bartsia.

Five ſpecies; viz. coccinea, pallida, * viſcoſa, gymnandra, * alpina. Alps of Europe, Hudſon Bay.

1131. Rhinanthus, or *Elephants-head.*

10 ſpecies; viz. orientalis, elephas, * criſta-galli, trixago, maximus, verſicolor, capenſis, indicus, virginicus, trifidus. Europe, Cape, India, Virginia.

1132. Euphrasia, or *Eye-bright.*

12 ſpecies; viz. latifolia, * officinalis, ſaliſburgenſis, tricuſpidata, cuneata, * odontites, lutea, linifolia, viſcoſa, purpurea, longiflora, aſpera. Europe.

officinalis. * E. leaves egg-ſhaped, ſerrated, ſharply toothed.—It is a weak aſtringent, and was formerly in repute as a remedy for impaired viſion. It will not grow but when ſurrounded by plants taller than itſelf. Cows, horſes, goats, and ſheep eat it. Swine refuſe it.

1133. Melampyrum, or *Cow-wheat.*

Seven ſpecies; viz. * criſtatum, * arvenſe, barbatum, nemoroſum, * pratenſe, * ſylvaticum, lineare. Eur.

arvenſe. M. ſpikes conical, looſe; floral leaves, with briſtle-ſhaped teeth, coloured.—The ſeeds when ground with corn give a bitteriſh and greyiſh caſt to the bread, but do not make it unwholeſome. Cows and goats eat it. Sheep refuſe it.

pratenſe. * M. flowers lateral, pointing one way: leaves in diſtant pairs; bloſſoms cloſed.—Where this plant abounds, the butter is yellow and uncommonly good. Swine are very fond of the ſeeds. Sheep and goats eat it. Cows are very fond of it. Horſes and ſwine refuſe it.

1134. Lathræa.

Three ſpecies; viz. clandeſtina, aublatum, * ſquamaria. Europe.

1135. Schwalbea.

One ſpecies; viz. americana. N. America.

1136. Tozzia.

One ſpecies; viz. alpina. Alps of Auſtria, Italy, Pyrennees.

1137. Pedicularis, or *Rattle-coxcomb.*

34 ſpecies; viz. * paluſtris, * ſylvatica, euphraſioides, myriophylla, ſpicata, reſupinata, ſceptrum carolinum, triſtis, lapponica, aſplenifolia, flava, ſtriata, ſudetica, recutita, elata, foliosa, canadenſis, grœnlandica, incarnata, uncinata, interrupta, verticillata, acaulis, flammea, hirſuta, roſea, roſtrata, tuberoſa, gyroflexa, faſciculata, rubens, compacta, achilleifolia, comoſa. Europe, N. America.

paluſtris. * P. ſtem branched; calyx creſted with callous dots; lip of the bloſſom ſlanting.—This plant is an unwholeſome gueſt in meadows, being very diſagreeable to cattle. Goats eat it. Horſes, ſheep, and cows refuſe it. Swine are not fond of it.

ſylvatica. * P. ſtem branched; calyx oblong, angular, ſmooth; lip of the bloſſom heart-ſhaped.—The expreſſed juice, or a decoction of this plant, has been uſed with advantage as an injection for ſinuous ulcers. It is ſaid, that if the healthieſt flock of ſheep be fed with it, they become ſcabby and ſcurfy in a ſhort time; the wool will get looſe, and they will be overrun with vermine. Cows and ſwine refuſe it.

1138. Gerardia.

12 ſpecies; viz. tuberoſa, delphinifolia, purpurea, tenuifolia, tubuloſa, nigrina, flava, ſcabra, pedicularia, japonica, glutinoſa, feſſilifolia. E. Indies, China, Japan, N. America.

1139. Chelone, or *Humming-bird Tree.*

Four ſpecies; viz. glabra, obliqua, ruellioides, barbata. N. America.

1140. Pentstemon.

Four ſpecies; viz. hirſuta, pubeſcens, lævigata, campanulata. N. America.

1141. Cyrilla.

One ſpecies; viz. pulchella. Jamaica.

1142. Gloxinia.

One ſpecies; viz. maculata. Guiana.

1143. Gesneria.

11 ſpecies; viz. humilis, corymboſa, acaulis, pumila, craniolaria, grandis, tomentoſa, ſcabra, exſerta, calycina, ventricoſa. Jamaica, Hiſpan. S. America.

1144. Antirrhinum, or *Snap-dragon, Calves-ſnout.*

70 ſpecies; viz. * cymbalaria, piloſum, lanigerum, dentatum, heterophyllum, * elatine, elatinoides, * ſpurium, cirrhoſum, ægyptiacum, fruticoſum, hexandrum, triphyllum, latifolium, virgatum, triornithophorum, purpureum, verſicolor, linarioides, * repens, monſpeſſulanum, ſparteum, bipunctatum, amethyſtinum, laxiflorum, triſte, hælava, thymifolium, ſupinum, ſimplex, * arvenſe, peliſſerianum, parviflorum, flavum, ſaxatile, micranthum, viſcoſum, aparinoides, multicaule, reticulatum, marginatum, glaucum, alpinum, aphyllum, bicorne, macrocarpum, villoſum, origanifolium, flexuoſum, * minus, dalmaticum, hirtum, geniſtifolium, junceum, * linaria, linifolium, lagopodioides, canadenſe, chalepenſe, reflexum, pedunculatum, * majus, ſiculum, ſempervirens, * orontium, papilionaceum, aſarina, molle, pinnatum, unilabiatum. Europe, Egypt, Barbary, Cape.

* A. leaves heart-ſhaped, 5-lobed, alternate; ſtems trailing.—Its trailing branches, variouſly interwoven, often cover old moiſt walls with a thick tapeſtry, and when in bloſſom, make a beautiful appearance. *cymbalaria.*

* A. leaves halberd-ſhaped, alternate; ſtems trailing. —This is conſiderably more bitter than the other ſpecies, and is ſaid to have been uſed ſucceſsfully in caſes of foul ulcers, and in cutaneous eruptions. *elatine.*

* A. leaves ſpear-ſtrap-ſhaped, crowded; ſtem upright; ſpikes terminating, ſitting.—An infuſion of the leaves is diuretic and purgative. An ointment, prepared from them, gives relief in the piles. The expreſſed juice, mixed with milk, is a poiſon to flies, as is likewiſe the ſmell of the flowers. Cows, horſes, and ſwine, refuſe it. Sheep and goats are fond of it. *linaria.*

* A. bloſſoms without a ſpur; flowers in ſpikes; cups rounded.—Though the ſeeds of this plant vegetate on the ground, it is only in dry ſoils and ſituations that the plant continues to live long enough to produce flowers. *majus.*

1145. Anarrhinum.

Five ſpecies; viz. bellidifolium, pedatum, fruticoſum, craſſifolium, tenellum.

1146. Cymbaria.

One ſpecies; viz. daurica. Dauria.

1147.

1147. Tourrettia.
One ſpecies; viz. lappacea. Iſle of Bourbon.

1148. Martynia.
Four ſpecies; viz. diandra, carniolaria, proboſcidea, longiflora. Cape, America.

1149. Torenia.
Two ſpecies; viz. aſiatica, hirſuta. India.

1150. Besleria.
Eight ſpecies; viz. multifolia, lutea, violacea, incarnata, ſerrulata, criſtata, coccinea, bivalvis. Weſt Indies, S. America.

1151. Brunfelsia.
Two ſpecies; viz. americana, undulata. W. Indies.

1152. Scrophularia, or *Fig-wort*.
26 ſpecies; viz. marilandica, * nodoſa, * aquatica, auriculata, appendiculata, * ſcorodonia, glabrata, betonicifolia, orientalis, fruteſcens, rupeſtris, heterophylla, altaica, * vernalis, arguta, trifoliata, ſambucifolia, mellifera, hiſpida, canina, lucida, variegata, chinenſis, meridionalis, coccinea, peregrina. Europe, Barbary, Madeira, America.

nodoſa. * S. leaves oblong-heart-ſhaped, 3-fibred at the baſe, corners of the ſtem acute.—This plant is hardly known in modern practice; but the rank ſmell and bitter taſte of the leaves ſeem to indicate ſome active properties. Swine that have the ſcab are cured by waſhing them with a decoction of the leaves. Goats eat it. Cows, horſes, ſheep, and ſwine refuſe it.

1153. Celsia.
Five ſpecies; viz. orientalis, arcturus, coromandelina, cretica. Crete, Levant, E. Indies.

1154. Hemimeris.
Five ſpecies; viz. montana, ſabuloſa, diffuſa, urticifolia, coccinea. C. of G. Hope.

1155. Digitalis, or *Fox-glove*.
12 ſpecies; viz. * purpurea, minor, thapſi, parviflora, lutea, ambigua, ferruginea, orientalis, lanata, obſcura, canarienſis, ſceptrum. S. Europe, Canary, Madeira.

purpurea. * D. ſegments of the calyx egg-ſhaped, acute; bloſſom blunt, upper lip nearly entire.—This ſpecies is certainly a very active medicine, and merits more attention than modern practice till very lately beſtowed upon it. It grows wild in woods and on uncultivated heaths: the elegant appearance of its purple flowers (which hang in ſpikes along one ſide of the ſtalk), has gained it a place in ſome of our gardens. The leaves have been ſtrongly recommended, externally, againſt ſcrophulous tumours, and likewiſe internally in epileptic diſorders: what ſervice they may be capable of doing in theſe caſes, is not aſcertained by accurate experiment. Several examples are mentioned by medical writers of their occaſioning violent vomiting, hypercatharſis, and diſordering the whole conſtitution; inſomuch that Boerhaave accounts them poiſonous. Their taſte is bitter, and very nauſeous. Digitalis, however, has lately been employed with great ſucceſs in other diſeaſes. A treatiſe has lately been publiſhed by Dr Withering, profeſſedly on the ſubject of its uſe in medicine, and containing many important and uſeful obſervations.

An infuſion of two drams of the leaf, in a pint of water, given in half-ounce doſes every two hours or ſo, till it begin to puke or purge, is recommended in dropſy, particularly that of the breaſt. It is ſaid to have produced an evacuation of water ſo copious and ſudden, in aſcites, by ſtool and urine, that the compreſſion of bandages was found neceſſary. The plentiful uſe of diluents is ordered during its operation. The remedy, however, is inadmiſſible in many weakly patients. But beſides being given in infuſion, it has alſo been employed in ſubſtance; and when taken at bed-time, to the extent of one, two, or three grains of the dried powder, it often in a ſhort time operates as a very powerful diuretic, without producing any other evacuation. Even this quantity, however, will ſometimes excite very ſevere vomiting; and that too, occurring unexpectedly. During its operation, it has often very remarkable influence in rendering the pulſe ſlower; and it frequently excites very conſiderable vertigo, and an affection of viſion.

Beſides dropſy, digitalis has of late been employed in ſome inſtances of hæmoptyſis, of phthiſis, and of mania, with apparent good effects. But its uſe in theſe diſeaſes is much leſs common than in dropſy.

1156. Incarvillæa.
One ſpecies; viz. ſinenſis.

1157. Bignonia, or *Trumpet-flower*.
54 ſpecies; viz. catalpa, longiſſima, tomentoſa, linearis, ſempervirens, tenuiſiliqua, caſſinoides, obtuſifolia, microphylla, unguis, ſtaminea, æquinoctialis, alliacea, ſpectabilis, laurifolia, rigeſcens, lactiflora, paniculata, elongata, corymbifera, crucigera, grandifolia, capreolata, pubeſcens, villoſa, echinata, heterophylla, triphylla, mollis, hirſuta, pentaphylla, orbiculata, chryſantha, fluviatilis, leucoxylon, ſerratifolia, radiata, radicans, grandiflora, ſtans, africana, bijuga, racemoſa, compreſſa, ſpathacea, chelonoides, variabilis, alba, peruviana, indica, longifolia, procera, cœrulea, braſiliana. E. and W. Indies, America.

1158. Citharexylum, or *Fiddle-wood*.
Six ſpecies; viz. cinereum, caudatum, villoſum, ſubſerratum, quadrangulare, melanocardium. W. Indies.

1159. Halleria, or *African Fly-honeyſuckle*.
Two ſpecies; viz. lucida, elliptica. Cape of Good Hope.

1160. Crescentia, or *Calabaſh Tree*.
Two ſpecies; viz. cujete, cucurbitina. Virginia, Jamaica, Brazil.

1161. Tanæcium.
Three ſpecies; viz. paraſiticum, jaroba, pinnatum. Jamaica.

1162. Gmelina.
One ſpecies; viz. aſiatica. Aſia.

1163. Petrea.
One ſpecies; viz. volubilis. S America.

1164. Premna.
Three ſpecies; viz. integrifolia, tomentoſa, ſerratifolia. E. Indies.

1165. Lantana, or *American Viburnum*.
15 ſpecies; viz. miſta, trifolia, viburnioides, annua, ſtricta, radula, camara, involucrata, recta, odorata, lavandulacca, ſalvifolia, meliſſæfolia, ſcabrida, aculeata. Weſt Indies, S. America.

1166. Spielmannia.
One ſpecies; viz. africana. C. of G. Hope.

1167. Cornutia.
Two ſpecies; viz. pyramidata, punctata. W. Ind.

1168. Loeselia.
One ſpecies; viz. ciliata. Vena Cruz.

1169. Capraria, or *Sweet-weed.*
Six ſpecies; viz. biflora, lucida, lanceolata, ſemiferrata, undulata, humilis. E. and W. Indies, Cape, S. America.

1170. Lindernia.
Three ſpecies; viz. pyxidaria, dianthera, japonica. Japan, Virginia, Hiſpaniola.

1171. Manulea.
17 ſpecies; viz. cheiranthus, corymboſa, altiſſima, pinnatifida, plantaginis, capitata, antirrhinoides, thyrſiſflora, argentea, tomentoſa, rubra, capillaris, cuneifolia, cœrulea, heterophylla, integrifolia, microphylla. C. of G. Hope.

1172. Hebenstreitia.
Six ſpecies; viz. dentata, ciliata, integrifolia, erinoides, fruticoſa, cordata. C. of G. Hope.

1173. Erinus.
Seven ſpecies; viz. alpina, maritimus, africanus, lychnidea, fragrans, peruvianus, triſtis. Alps, Pyrenees, Cape, Peru.

1174. Buchnera.
14 ſpecies; viz. americana, elongata, cernua, cuneifolia, cordifolia, grandiflora, æthiopica, viſcoſa, capenſis, humifuſa, aſiatica, euphraſioides, geſnerioides, pinnatifida. Cape, Ceylon, China, America.

1175. Browallia.
Three ſpecies; viz. demiſſa, elata, alienata. South America.

1176. Linnæa.
One ſpecies; viz. * borealis. N. Europe, Aſia, and America.

1177. Sibthorpia, or *Baſe Money-wort.*
One ſpecies; viz. europæa. Europe, Africa.

1178. Limosella, or *Mud-wort.*
Two ſpecies; viz. * aquatica, diandra. North of Europe.

1179. Phaylopis.
One ſpecies; viz. parviflora.

1180. Vandellia.
Two ſpecies; viz. diffuſa, pratenſis. Iſle of St Thomas.

1181. Russelia.
One ſpecies; viz. ſarmentoſa.

1182. Conobea.
One ſpecies; viz. aquatica. Guiana.

1183. Sternodia.
Five ſpecies; viz. maritima, durantifolia, ruderalis, camphorata, aquatica. Jamaica.

1184. Obolaria.
One ſpecies; viz. virginica. N. America.

1185. Æginatia.
One ſpecies; viz. indica.

1186. Orobanche, or *Broom-rape.*
18 ſpecies; viz. * major, fœtida, caryophyllacea, cœruleſcens, elatior, purpurea, minor, alba, gracilis, americana, virginiana, uniflora, cœrulea, phelypæa, tinctoria, cernua, * ramoſa, coccinea. Europe, Malabar. N. America.

1187. Hyobanche.
One ſpecies; viz. ſanguinea. C. of G. Hope.

1188. Dodartia.
Two ſpecies; viz. orientalis, indica. Levant, Ind.

1189. Lippia.
Five ſpecies; viz. americana, hirſuta, umbellata, cymoſa, hemiſphærica. Cape, America.

1190. Achimenes.
One ſpecies; viz. ſeſamoides. E. Indies.

1191. Sesamum, or *Oily Purging-grain.*
Four ſpecies; viz. orientale, luteum, indicum, laciniatum. E. Indies.

1192. Tortula.
One ſpecies; viz. aſpera.

1193. Holmskioldia.
One ſpecies; viz. ſanguinea.

1194. Mimulus, or *Monkey-flower.*
Four ſpecies; viz. ringens, glutinoſus, alatus, luteus. Virginia, Canada, Peru.

1195. Ruellia.
46 ſpecies; viz. blechum, blechioides, anguſtifolia, ovata, ſtrepens, patula, pallida, fragrans, lactea, clandeſtina, violacea, rubra, macrophylla, gullata, imbricata, ariſtata, intruſa, paniculata, tuberoſa, tentaculata, biflora, criſpa, faſciculata, molliſſima, undulata, involucrata, repanda, ringens, coccinea, repens, uliginoſa, piloſa, hirta, depreſſa, cordifolia, ſecunda, reptans, japonica, alopecuroidea, barbata, balſamea, ſalicifolia, longiflora, difformis, rupeſtris, ſcabroſa. Egypt, E. and W. Indies, Japan, America.

1196. Barleria.
13 ſpecies; viz. longifolia, ſolanifolia, hyſtrix, prionitis, triſpinoſa, biſpinoſa, buxifolia, nodiflora, acanthoides, criſtata, ſtrigoſa, pungens, longiflora.

1197. Duranta.
Three ſpecies; viz. plumieri, elliſia, mutiſii. Weſt Indies, S. America.

1198. Myoporum.
Four ſpecies; viz. lætum, pubeſcens, craſſifolium, tenuifolium. South ſea iſles.

1199. Ovieda.
Two ſpecies; viz. ſpinoſa, mitis. Java, W. Indies.

1200. Mallingtonia.
One ſpecies; viz. hortenſis.

1201. Volkameria.
Eight ſpecies; viz. aculeata, leguſtrina, inermis, capitata, ſerrata, ſcandens, japonica, kæmpferi. E. and W. Indies, Japan.

1202. Clerodendrum.
Eight ſpecies; viz. infortunatum, fortunatum, calamitoſum, phlomoides, ſquamatum, trichotomum, diverſifolium, paniculatum. E. Indies, Japan.

1203. THUNBERGIA.
Two ſpecies; viz. capenſis, fragrans. C. of G. Hope.

1204. MAURANDIA.
One ſpecies; viz. ſemperflorens.

1205. CASTILLEJA.
Two ſpecies; viz. integrifolia, fiſſifolia. Egypt, E. Indies, S. America.

1206. VITEX, or *Chaſte Tree.*
13 ſpecies; viz. ovata, triflora, divaricata, pubeſcens, altiſſima, agnus caſtus, inciſa, leucoxylon, trifolia, umbroſa, capitata, negundo, pinnata. Naples, Sicily, E. and W. Indies.

The *vitex agnus caſtus* is a ſmall tree, or rather ſhrub, growing ſpontaneouſly in Italy, &c. and raiſed with us in gardens. Its fruit, which is about the ſize of a pepper corn, contains four longiſh ſeeds, which are ſaid to be of an aromatic ſmell and an acrid bitteriſh taſte, but which are found, on examination, to be almoſt inodorous and inſipid. Theſe ſeeds have been celebrated as antiphrodiſiacs, and were formerly much uſed by the monks for allaying the venereal appetite: but experience does not warrant their having any ſuch virtues.

1207. AMASSONIA.
Two ſpecies; viz. erecta, punicea. Surinam.

1208. BONTIA, or *Barbadoes Wild-olive.*
One ſpecies; viz. daphnoides. W. Indies.

1209. AVICENNIA.
Three ſpecies; viz. tomentoſa, reſinifera, nitida. Martinico, Carthagena.

1210. COLUMNEA.
Four ſpecies; viz. ſcandens, hirſuta, rutilans, hiſpida. Martinico, Jamaica.

1211. ACANTHUS, or *Bears-breech.*
14 ſpecies; viz. mollis, carduifolius, ſpinoſus, arboreus, dioſcorides, ilicifolius, ebracteatus, capenſis, furcatus, procumbens, integrifolius, repens, edulis, maderas-patenſis. S. Europe, Cape, W. Indies.

1212. LEPIDAGATHIS.
One ſpecies; viz. criſtata.

1213. ALECTRA.
One ſpecies; viz. capenſis.

1214. PEDALIUM.
One ſpecies; viz. murex. E. Indies.

1215. MELIANTHUS, or *Honey-flower.*
Three ſpecies; viz. major, minor, comoſus. C. of G. Hope.

In the claſs Didynamia are

123 Genera, which include 1006 Species. Of theſe 72 are found in Britain.

CLASSIS XV.

TETRADYNAMIA. (E)

ORDO I. SILICULOSÆ.

Sect. I. *Silicula integra, nec apice emarginata.*

* 1225. DRABA. Silic. valvulis planiuſculis. Stylus nullus.

1234. LUNARIA. Silic. valvulis planis pedicellata. Stylus exſertus.

* 1224. SUBULARIA. Silic. valvulis ſemiovatis. Stylus brevior ſilicula.

* 1216. MYAGRUM. Silic. valvulis concavis. Stylus perſiſtens.

CLASS XV.

TETRADYNAMIA, OR FOUR LONG AND TWO SHORT STAMENS.

ORDER I. SILICULOSÆ, or thoſe having a Pouch, or broad Pod.

Sect. I. *The Pouch entire, not notched at the point.*

* D. Pouch with flattened valves. No ſtyle.

L. Pouch on a pedicle with flat valves. Style protruding.

* S. Pouch with half-oval valves. Style ſhorter than the pouch.

* M. Pouch with concave valves. Style permanent.

(E) In the flowers of this claſs of plants there are ſix ſtamens, four of them long and two ſhort. It is alſo moſt worthy of notice, that the flowers of this claſs have uniformly four petals, a circumſtance which renders it eaſy to diſtinguiſh them. The difference in length of the ſtamens is not always very obvious, but as the Hexandria claſs contains no plants with four petals, this laſt circumſtance readily diſtinguiſhes the plants of the preſent claſs. The orders are two, and are diſtinguiſhed by the figure of the ſeed-veſſel, which in the firſt order is a broad and ſhort *pouch;* that is, a roundiſh flat ſeed-veſſel furniſhed with a *ſtyle*, which is ſometimes as long as the ſeed-veſſel itſelf. In the ſecond order, the ſeed veſſel is a long *pod;* that is, a very long ſeed-veſſel, without any remarkable ſtyle. This is a natural rather than an artificial claſs. The plants belonging to it are called *antiſcorbutic*, and their taſte is acrid and watery: They loſe moſt of their virtues by drying. None of them

are

* 1222. VELLA. Silic. valvulis diſſepimento dimidio brevioribus.

1219. CAKILE. Silic. lanceolata biarticulata, articulis monoſpermis, articulo ſupremo ſecedente.

1218. PUGIONIUM. Silic. tranſverſalis utrinque roſtrata, evalvis, monoſperma.

* 1217. BUNIAS. Silic. tetraëdra, evalvis, bi ſ. quadrilocularis, rugoſa.

* 1220. CRAMBE. Silic. globoſa, unilocularis, monoſperma, evalvis.

Sect. II. *Silicula emarginata apice.*

* 1229. IBERIS. Petala duo exteriora majora.

1230. ALYSSUM. Filamenta quædam latere interiore dente notata. Silicula bilocularis.

1131. CLYPEOLA. Silic. orbiculata, valvulis planis, decidua.

1232. PELTARIA. Silic. orbiculata, compreſſo-plana, non dehiſcens.

* 1228. COCHLEARIA. Silic. cordata, valvulis obtuſis, gibbis.

* 1226. LEPIDIUM. Silic. cordata, valvulis acutè carinatis.

* 1227. THLASPI. Silic. obcordata, valvulis marginato carinatis.

* 1221. ISATIS. Silic. obcordata, valvulis carinatis, bipartibilis, 1-ſperma, diſſepimento feneſtrato.

1233. BISCUTELLA. Silic. biloba ſupra infraque, margine carinato.

1223. ANASTATICA. Silic. retuſa. Valvulis diſſepimento mucronato longioribus.

ORDO II. SILIQUOSÆ.

Sect. I. *Calyx clauſus foliolis longitudinaliter conniventibus.*

* 1247. RAPHANUS. Siliq. articulata.

* 1239. ERYSIMUM. Siliq. tetragona.

* 1240. CHEIRANTHUS. Siliq. germine utrinque glandula notato.

* 1242. HESPERIS. Glaudula intra ſtamina breviora. Petala obliqua.

* 1143. ARABIS. Glandulæ 4 intra foliola calycina. Stigma ſimplex.

* 1245. BRASSICA. Glandulæ 2 intra ſtamina breviora, 2 extra ſtamina longiora.

1248. CORDYLOCARPUS. Siliq. toruloſa, ſemine ſupremo inarticulo diſcreto.

* 1244. TURRITIS. Petala erecta.

* 1256. DENTARIA. Siliq. valvis revolutis dehiſcentibus.

1235. RICOTIA. Siliq. unilocularis.

Sect. II. *Calyx hians, foliolis ſuperne diſtantibus.*

1249. CLEOME. Siliq. dehiſcens, unilocularis.

* V. Pouch with valves ſhorter by half than the partition.

C. Pouch ſpear-ſhaped, 2-jointed, with 1-ſeeded joints, the laſt joint retiring.

P. Pouch placed croſsways, beaked on both ſides, no valves, 1-ſeeded.

* B. Pouch 4-ſided, without valves, 2 or 4-celled, wrinkled.

* C. Pouch bulging, 1-celled, 1-ſeeded, without valves.

Sect. II. *Pouch with a notched end.*

* I. Two outer petals large.

A. Some filaments in the inner ſide toothed. Pouch 2-celled.

C. Pouch round and flat, with flat valvis, deciduous.

P. Pouch round and flat, compreſſed plane, not opening.

* C. Pouch heart-ſhaped, with blunt bulging valves.

* L. Pouch heart-ſhaped, with valves ſharply keeled.

* T. Pouch, heart-ſhape reverſed, valves keel bordered.

* I. Pouch heart reverſed, keeled valves, diviſible into 2, 1-ſeeded; window-ſhaped partition.

B. Pouch 2-lobed above and beneath, with a keel-ſhaped border.

A. Pouch bluntly notched at the end. Valves long, with a dagger-pointed partition.

ORDER II. SILIQUOSÆ, or thoſe having a long Pod.

Sect. I. *Calyx ſhut by leafets cloſing lengthwiſe.*

* R. A jointed pod.

* E. Pod 4-gon.

* C. Pod, with a ſeed-bud marked on both ſides with a gland.

* H. A gland between the ſhorter ſtamens. Petals oblique.

* A. Four glands between the leafets of the calyx. Stigma undivided.

* B. Two glands betwixt the ſhorter ſtamens, 2 beyond the longer ſtamens.

C. Pod a little ſwelling out, with the laſt ſeed in a ſeparate joint.

* T. Petals erect.

* D. Pod with valves rolled back, open.

R. Pod 1-celled.

Sect. II. *Calyx open, with Leafets diſtant above.*

C. Pod open, 1-celled.

1237.

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are poiſonous. It is not a little ſingular, that they are moſt acrimonious in moiſt ſituations, and wet ſeaſons. Thus the *cochlearia armoracia* (horſe-radiſh), growing near water, is ſo very acrimonious that it can hardly be uſed; and the *braſſica rapa* (turnip) whoſe root in a dry ſandy ſoil is ſucculent and ſweet, in ſtiff wet lands is hard and acrimonious.

* 1237. Cardamine. Siliq. dehiſcens, valvulis revolutis.
* 1246. Sinapis. Siliq. dehiſcens. Cal. horizontaliter patens.
* 1238. Sisymbrium. Siliq. dehiſcens, valvis rectiuſculis. Cal. patulus.
1241. Heliophila. Siliq. dehiſcens. Nectaria 2 recurvata.

* G. Pod open, with valves rolled back.
* S. Pod open. Cal. horizontally expanding.
* S. Pod open, with valves rather ſtraight. Cal. open.
H. Pod open. Nectaries 2, bent back.

Order I. SILICULOSÆ.

1216. Myagrum, or *Gold of Pleaſure.*

12 ſpecies; viz. perenne, orientale, rugoſum, hiſpanicum, perfoliatum, chloræfolium, ſativum, dentatum, auſtriacum, paniculatum, ſaxatile, ægyptium. Europe, Egypt.

1217. Bunias, or *Sea Rocket.*

11 ſpecies; viz. ſpinoſa, erucago, aſpera, orientalis, cochlearioides, tatarica, ſyriaca, myagroides, ægyptiaca, balearica, proſtrata. Europe, Africa, America.

1218. Pugionium.

One ſpecies; viz. viz. cornutum.

1219. Cakile.

Two ſpecies; viz. maritima, ægyptiaca.

1220. Crambe, or *Sea-cabbage*, or *Kale.*

Eight ſpecies; viz. * maritima, tatarica, orientalis, hiſpanica, reniformis, filiformis, fruticoſa, ſtrigoſa. Sea ſhores of Europe, Madeira.

maritima. * C. leaves and ſtem ſmooth.—The young and tender plants are boiled as cabbage; but when full grown they occaſion giddineſs. Horſes, cows, goats, ſheep, and ſwine eat it.

1221. Isatis, or *Woad.*

Four ſpecies; viz. * tinctoria, luſitanica, armena, alpina. Sea ſhores of Europe, Egypt.

tinctoria. * I. root-leaves ſcolloped; ſtem-leaves arrow-ſhaped; pouches oblong.—With the juice of this plant, it is ſaid, the ancient Britons painted their bodies to render themſelves more terrible to their enemies. It is much uſed by the dyers for its blue colour, and it is the baſis of many other colours. It is cultivated for their uſe. Cows eat; horſes, ſheep, and goats refuſe it.

1222, Vella, or *Spaniſh Creſs.*

Two ſpecies; viz. * annua, pſeudo-cytiſus. Siberia, Spain.

1223. Anastatica, or *Roſe of Jericho.*

One ſpecies; viz. hierochuntica. Auſtria, Levant.

1224. Subularia, or *Awl-wort.*

Two ſpecies; viz. * aquatica, alpina. N. of Europe, Arabia.

1225. Draba, or *Whitlow-graſs.*

16 ſpecies; viz. aizoides, rigida, ciliaris, alpina, hiſpida, * verna, caroliniana, nivalis, * ſtellata, androſacea, pyrenaica, * muralis, nemoralis, hirta, * incana, magellanica. Alps of Europe, N. America.

* D. ſtalks naked; leaves ſparingly ſerrated; petals divided.—This is one of our earlieſt flowering plants. It is good as a ſalad. Goats, ſheep, and horſes eat it; cows are not fond of it; ſwine refuſe it. *verna.*

1226. Lepidium, or *Dittander.*

29 ſpecies; viz. perfoliatum, veſicarium, nudicaule, procumbens, alpinum, calycinum, * petræum, cardamines, ſpinoſum, ſativum, lyratum, craſſifolium, * latifolium, amplexicaule, glaſtifolium, oleraceum, piſcidium, ſubulatum, graminifolium, apetalum, ſuffruticoſum, * didymum, * ruderale, virginicum, divaricatum, iberis, pollichii, bonarienſe, chalepenſe. Europe, Cape, America, New Zealand.

* L. leaves egg-ſpear-ſhaped, entire, ſerrated.—This is one of the antiſcorbutics, and was formerly uſed in the place of *horſe-radiſh.* An infuſion of it excites vomiting. *latifolium.*

1227. Thlaspi, or *Treacle Muſtard.*

14 ſpecies; viz. peregrinum, arabicum, * arvenſe, alliaceum, pſychine, ſaxatile, hirtum, * campeſtre, * montanum, alpinum, * perfoliatum, * alpeſtre, * burſa paſtoris, ceratocarpon. Europe.

Two ſorts of the *thlaſpi arvenſe* are uſed promiſcuouſly; they both grow wild: their ſeeds have an acrid biting taſte like common muſtard, with which they agree in medical qualities.

The *thlaſpi burſa paſtoris* is common in waſte places, and is found in flower all the ſummer. Shepherds-purſe, or the leaf, has long been celebrated as an aſtringent, and ſtrongly recommended in diarrhœas, dyſenteries, uterine fluors, and in general in all diſeaſes where aſtringents of any kind can avail. Some have eſteemed it ſo powerful a ſtyptic as ſcarce to be ſafely exhibited internally. Others have thought it to be of a hot fiery nature, and ſuppoſed it to ſtop fluxes and hemorrhagies, by coagulating the juices like alcohol, and burning or ſearing the orifices of the veſſels. The ſenſible qualities of ſhepherds-purſe diſcover little foundation for either of theſe opinions: it has no perceptible heat, acrimony, pungency, and ſcarcely any aſtringency: the taſte is almoſt merely herbaceous, ſo as ſufficiently to warrant the epithet given to this plant *fatuum.* It is hardly in uſe in Britain.

1228. Cochlearia, or *Scurvy-graſs.*

11 ſpecies; viz. * officinalis, * danica, * anglica, * groenlandica, fibirica, acaulis, * coronopus, * armoracia, macrocarpa, glaſtifolia, draba. Europe.

* C. root-leaves heart-circular; ſtem-leaves oblong, a little indented.—Notwithſtanding this plant is a native of the ſea coaſt, it is cultivated in our gardens without any ſenſible alteration of its properties. It poſſeſſes a *officinalis.*

conſiderable degree of acrimony, and this acrimony ſeems to reſide in a very ſubtile eſſential oil. Its effects as an antiſcorbutic are univerſally known, and it is a powerful remedy in the pituitous aſthma, and in what Sydenham calls the ſcorbutic rheumatiſm. A diſtilled water and a conſerve are prepared from the leaves, and its juice is preſcribed along with that of oranges, by the name of antiſcorbutic juices. It may be eaten as a ſalad. Cows eat it. Horſes, goats, and ſheep, refuſe it.

armoracia. * C. root-leaves ſpear-ſhaped, ſcolloped; ſtem-leaves ſnipt.—The root of this plant, ſcraped, is in common uſe in England as a condiment for fiſh, roaſt beef, &c. and it is uſed for many other culinary purpoſes. An infuſion of it in cold milk makes one of the ſofteſt and beſt coſmetics. In paralytic and dropſical caſes, it is a uſeful ſtimulant and diuretic. A ſtrong infuſion of it excites vomiting. A diſtilled water is prepared from it. Horſes, cows, goats, ſheep, and ſwine refuſe it.

anglica. * C. all the leaves egg-ſpear-ſhaped.—This is a pungent ſtimulating medicine, capable of diſſolving viſcid juices, opening obſtructions of the viſcera and the more diſtant glands, and promoting the fluid ſecretions; it is particularly celebrated in ſcurvies, and is the principal herb employed in theſe kinds of diſorders in the northern countries.

1229. IBERIS, or *Candy-tuft.*

18 ſpecies; viz. ſemperflorens, cappadocica, ſempervirens, gibraltarica, ſaxatilis, vermiculata, rotundifolia, cepæfolia, carnoſa, ciliata, parviflora, nana, umbellata, * amara, linifolia, odorata, * nudicaulis, pinnata. S. Europe, Arabia, Perſia.

1230. ALYPUM, or *Mad-wort.*

31 ſpecies; viz. ſpinoſum, maritimum, halimifolium, tenuifolium, ſaxatile, lunarioides, argenteum, alpeſtre, ſerpyllifolium, atlanticum, orientale, hyperboreum, incanum, minimum, ſtrictum, calycinum, ſibiricum, ſpathulatum, montanum, tortuoſum, campeſtre, linifolium, clypeatum, cheiranthifolium, ſinuatum, creticum, gemonenſe, daſycarpum, utriculatum, veſicaria, deltoideum. Europe, N. America.

1231. CLYPEOLA, or *Treacle-muſtard.*

One ſpecies; viz. jonthlaſpi. Italy, France, Carolina.

1232. PELTARIA.

Three ſpecies; viz. alliacea, garcini, capenſis. Cape.

1233. BISCUTELLA, or *Buckler-muſtard.*

Ten ſpecies; viz. auriculata, apula, lyrata, raphanifolia, coronopifolia, lævigata, ſubſpathulata, montana, ſempervirens, peruviana. Europe, N. America.

1234. LUNARIA, or *Moon-wort, Honeſty.*

Two ſpecies; viz. rediviva, annua. N. of Europe.

ORDER II. SILIQUOSÆ.

1235. RICOTIA.

One ſpecies; viz. ægyptiaca. Egypt.

1236. DENTARIA, or *Tooth-wort.*

Seven ſpecies; viz. enneaphylla, glanduloſa, laciniata, * bulbifera, microphylla, pinnata, pentaphyllos. Alps of Auſtria, S. Europe.

1237. CARDAMINE, or *Lady's-ſmock.*

22 ſpecies; viz. * bellidifolia, alpina, aſarifolia, nudicaulis, nivalis, reſedifolia, trifolia, ſcutata, africana, chelidonia, thalictroides, macrophylla, * impatiens, parviflora, penſylvanica, græca, * hirſuta, latifolia, * pratenſis, * amara, granuloſa, virginica. Europe, America.

* C. leafets of the root-leaves roundiſh, thoſe of the ſtem-leaves ſpear-ſhaped, very entire.—This is a perennial plant which grows in meadow grounds, ſends forth purpliſh flowers in the ſpring, and in its ſenſible qualities reſembles the *naſturtium aquaticum.* Long ago it was employed as a diuretic, and of late it has been introduced in nervous diſeaſes. A dram or two of the powder is given twice or thrice a-day. It has little ſenſible operation, except that it ſometimes ſweats.—Goats and ſheep eat it. Horſes and ſwine refuſe it. Cows are not fond of it. *pratenſis.*

* C. leaves winged; ſuckers from the boſom of the leaves; leafets of the ſtem-leaves angular, ſitting.—Sheep eat it. Cows are not fond of it. The young leaves are acrid and bitteriſh, but do not taſte amiſs in ſalads. They are much uſed for that purpoſe in Lancaſhire. The leaves are pungent, bitter, and aromatic, in ſuch a degree as to promiſe very conſiderable uſes. *amara.*

1238. SISYMBRIUM, or *Water-creſſes.*

53 ſpecies, viz. * naſturtium, * ſylveſtre, paluſtre, * amphibium, pyrenaicum, tanacetifolium, ceratophyllum, coronopifolium, tenuifolium, ſagittatum, amplexicaule, ſupinum, polyceratium, filifolium, burſifolium, toruloſum, * murale, * monenſe, repandum, tillieri, vimineum, barrelieri, arenoſum, valentinum, parra, aſperum, lævigatum, millefolium, * ſophia, album, cinereum, altiſſimum, echartſbergenſe, pannonicum, eryſimoides, * irio, columnæ, loeſelii, obtuſangulum, orientale, barbareæ, lyratum, catholicum, heterophyllum, glaciale, ſtrictiſſimum, pendulum, hiſpanicum, pumilum, ſalſuginoſum, integrifolium, indicum, hiſpidum. Europe, Canaries, India.

* S. leaves winged; leafets egg-ſhaped.—This plant is very univerſally uſed as an early and wholeſome ſpring ſalad. It is an excellent antiſcorbutic and ſtomachic, with leſs acrimony than the ſcurvy-graſs. It is an ingredient in the antiſcorbutic juices. It is recommended as of ſingular efficacy for accelerating the circulation, ſtrengthening the viſcera, opening obſtructions of the glands, promoting the fluid ſecretions, and purifying the blood and humours; for theſe purpoſes the expreſſed juice, which contains the peculiar taſte and pungency of the herb, may be taken in doſes of an ounce or two, and continued for a conſiderable time. *naſturtium.*

* S. pods oblong egg-ſhaped; leaves wing-cleft, ſerrated; petals longer than the cup.—The ends of the *general fruit-ſtalks* are often ſwoln into a cauliflower-like ſubſtance, purpliſh, and containing ſmall grubs of the ſame colour. Cows refuſe it. Sheep and goats are not fond of it. *amphibium.*

* S. petals ſmaller than the cups; leaves doubly compound, winged.—The pods retain the ſeeds all winter, and ſmall birds feed upon them. The plant has been ſometimes preſcribed in hyſteric and dyſenteric caſes; and the ſeeds are given to deſtroy worms. Sheep and and cows eat it. Horſes and goats are not fond of it. Swine refuſe it. *ſophia.*

1239.

1293. Erysimum, *or Hedge-muſtard.*

14 ſpecies; viz. * officinale, * barbarea, præcox, * alliaria, repandum, * cheiranthoides, heiracifolium, odoratum, virgatum, diffuſum, anguſtifolium, junceum, bicorne, quadricorne. Europe, Barbary, Canary, Carolina.

officinale. * E. pods preſſed to the ſpike-ſtalk; leaves notched.—This plant is warm and acrid to the taſte; and when cultivated is uſed as a ſpring pot-herb. Birds are fond of the ſeeds. Sheep and goats eat it. Cows, horſes, and ſwine refuſe it. By means of it a hoarſeneſs, occaſioned by loud ſpeaking, is ſaid to have been cured in three days by Rondeletius.

barbarea. * E. pods indiſtinctly four-cornered; leaves lyre-ſhaped, the terminating ſegment circular.—The common people in Sweden are ſaid to uſe this plant in ſalads, early in the ſpring, and late in the autumn; they alſo boil them as kale. It is ſown in gardens as an early ſpring ſalad; and alſo in England, where it is called French creſs. Cows eat it. Horſes and ſwine refuſe it. Goats and ſheep are not fond of it.

alliaria. * E. leaves heart-ſhaped.—The Pruſſians are ſaid to eat the leaves along with ſalted meats in the ſpring. They are uſeful with lettuce and the colder ſalads. The ſeeds excite ſneezing. Cows and goats eat it. Horſes, ſheep, and ſwine, refuſe it. When it grows in poultry yards the fowls eat it, and it gives an intolerably rank taſte to their fleſh. In Wales it is much uſed as a frying herb.

cheiranthoides. * E. ſtem very much branched; leaves ſpear-ſhaped, oblique, waved and toothed; pods expanding.—The country people give the ſeeds of this plant to deſtroy worms, and with good effect. Horſes, cows, goats, ſheep, and ſwine, eat it.

1240. Cheiranthus, or *Stock July-flower.*

34 ſpecies; viz. eryſimoides, helveticus, alpinus, lanceolatus, * cheiri, fruticuloſus, calloſus, ſtrictus, tenuifolius, mutabilis, apricus, chius, maritimus, parviflori, ſalinus, bicuſpidatus, incanus, feneſtralis, annuus, littoreus, contortuplicatus, leucanthenus, triſtis, trilobus, pulchellus, pinnatifidus, tricuſpidatus, tomentoſus, odoratiſſimus, ſinuatus, taraxacifolius, cuſpidatus, quadrangulus, farſetia. Alps, S. Europe, Egypt, Madeira.

cheiri. * C. leaves ſpear-ſhaped, acute, ſmooth; branches angular; ſtem ſhrub-like.—This plant has found a place in our gardens, where it has produced a conſiderable number of varieties, but none which have a more delightful ſcent than the wild one. The flowers have a pleaſant ſmell, and a ſubacrid, bitteriſh, not agreeable taſte; they are ſaid to be cordial, anodyne, aperient, and emmenagogue, but are wholly neglected in the preſent practice.

1241. Heliophila.

12 ſpecies; viz. integrifolia, incana, circæoides, amplexicaulis, flava, caneſcens, puſilla, filiformis, pendula, pinnata, coronopifolia, digitata. C. of G. Hope.

1242. Hesperis, or *Dames-violet, Rocket.*

Ten ſpecies; viz. triſtis, lanciniata, matronalis, * inodora, tatarica, africana, ramoſiſſima, arenaria, verna, lacera. Siberia, S. Europe, Africa.

1243. Arabis, or *Baſe Tower-muſtard.*

21 ſpecies; viz. alpina, grandiflora, * thaliana, crantziana, recta, ſerpillifolia, reptans, coerulea, bellidifolia, nutans, lyrata, hiſpida, * ſtricta, halleri, ovivenſis, canadenſis, lucida, pendula, * turrita, ſaxatilis, aſpera. N. Europe, N. America.

1244. Turritis, or *Tower-muſtard.*

Eight ſpecies; viz. * glabra, lævigata, ſtricta, * hirſuta, patula, pubeſcens, ciliata, alpina. Europe.

1245. Brassica, or *Cabbage.*

24 ſpecies; viz. * orientalis, auſtriaca, * campeſtris, arvenſis, alpina, * napus, * rapa, * oleracea, richerii, cretica, ſuffruticoſa, chinenſis, violacea, ſubhaſtata, polymorpha, teretifolia, erucaſtrum, eruca, pinnatifida, elongata, cheiranthus, veſicaria, lyrata, craſſifolia. Europe, China.

* B. the root a regular continuation of the ſtem, ſpindle-ſhaped.—The roots of the cultivated variety may be eaten like the turnip, but they have a ſtronger taſte; and its ſeeds, which are called cole-ſeed, afford a large quantity of expreſſed oil, called *rape oil:* what remains after expreſſing the oil, is called *oil-cake*, and is uſed for fattening oxen. In Norfolk, the cakes are broken to pieces, and ſtrewed on the land as a manure. It is thought to be a very efficacious one, and is ſold from 4l. to 6l. per ton. About half a ton is laid on an acre. Cows, goats, and ſwine eat it. *napus.*

* B. the root a regular continuation of the ſtem, cylindrical, fleſhy. *Turnip.*—The roots of it are either eaten raw, boiled, or roaſted. Pepper is commonly uſed with them. They relax the bowels, and are ſuppoſed to ſweeten the blood. They are hurtful to pregnant and hyſterical women, and to thoſe who are ſubject to flatulencies. The juice well fermented affords by diſtillation an ardent ſpirit. The rind is acrimonious. If the roots are kept in ſand, or in a cellar, during the winter, they ſend out white ſhoots, and yellowiſh leaves, which being rather ſweet, and not unpleaſant to the palate, are uſed as ſalad, when other eſculent plants are not to be had. But the greateſt uſe of turnips is in feeding oxen and ſheep in the winter. *rapa.*

* B. the root a regular continuation of the ſtem, cylindrical, fleſhy. *Sea and Common Cabbage.*—Early in the ſpring the ſea-cabbage is preferred to the cultivated kinds, but when gathered on the ſea coaſt, it muſt be boiled in two waters, to take away the ſaltneſs. The roots may be eaten like thoſe of the preceding ſpecies, but they are not ſo tender. The different varieties of cultivated garden cabbage originate from this, all of which are much in uſe at our tables. The red cabbage is chiefly uſed for pickling. In ſome countries they bury the white cabbage when fully grown in the autumn, and thus preſerve it all winter. The Germans cut them to pieces, and along with ſome aromatic herbs and ſalt preſs them cloſe down in a tub, where they ſoon ferment, and are then eaten under the name of *ſour-crout.* If cabbages are ſowed or planted for ſeveral years together in the ſame ſoil, the heads become ſmaller, and the roots knotty. This is occaſioned by the larvæ of flies. Horſes eat the leaves, but do not ſeem fond of them. Cows grow fat upon them. *oleracea.*

The *braſſica eruca* was formerly much cultivated in gardens for medicinal uſe, and for ſalads; but is at preſent leſs common. In appearance it reſembles muſtard, but it is eaſily diſtinguiſhable, by the ſmoothneſs of its leaves and its diſagreeable ſmell. The ſeeds have a pungent taſte of the muſtard kind but weaker; they

have long been celebrated as aphrodiſiacs; and may probably have in ſome caſes a title to this virtue, in common with other acrid plants.

1246. Sinapis, or *Muſtard.*

19 ſpecies; viz. *arvenſis, orientalis, braſſicata, *alba, *nigra, pyrenaica, pubeſcens, hiſpida, chinenſis, juncea, allioni, erucoides, cornua, hiſpanica, japonica, incana, fruteſcens, radicata, lævigata. Europe, China, Madeira.

arvenſis. * S. pods with many angles, ſwoln and bunched out by the ſeeds; ſmooth, longer than the 2-edged beak.—The Scandinavians are ſaid to boil and eat it as a cabbage, and in Ireland the tender tops are collected for the ſame purpoſe. Cows, goats, and ſwine eat it. Sheep are very fond of it. Horſes generally refuſe it.

alba. * S. pods rough with hair; beak very long, ſlanting, ſword-ſhaped.—It is ſown in the winter and early in the ſpring, to ſupply our tables with ſalading. The ſeeds have nearly the ſame properties as thoſe of the next ſpecies.

nigra. * S. pods ſmooth, laid flat to the ſpike-ſtalk.—The ſeeds of this plant reduced to powder, make the common muſtard ſo much in requeſt at our tables. They yield a conſiderable quantity of expreſſed oil, which partakes but little of the acrimony of the plant. The ſeeds when unbruiſed impart but little taſte to boiling water. Taken inwardly, in the quantity of a table ſpoonful or more, they gently looſen the bowels, and are of ſervice in aſthma, chronic rheumatiſm, and palſy. The powdered ſeeds curdle milk, and give a ſtrong impregnation to boiling water. This infuſion taken in conſiderable quantity vomits, in ſmaller doſes it is an uſeful aperient and diuretic. Cataplaſms formed with crumb of bread, vinegar, and powdered muſtard ſeed, are very commonly applied to the ſoles of the feet, as ſtimulants, in fevers that require ſuch treatment; they are uſed with advantage, topically applied, in fixed rheumatic and ſciatic pains. Upon the whole, whereever we want a ſtrong ſtimulus, that acts upon the nervous ſyſtem, without exciting much heat, we know none preferable to muſtard ſeed. Its acrimony conſiſts in an eſſential oil.

1247. Raphanus, or *Radiſh.*

Eight ſpecies; viz. ſativus, caudatus, *raphaniſtrum, fibiricus, tenellus, arcuatus, lanceolatus, piloſus. Europe, Egypt, China.

* R. pods round, jointed, ſmooth, of one cell.—In wet ſeaſons it grows in great quantity amongſt the barley in Sweden, and the common people who eat barley bread, are afflicted with very convulſive complaints, in thoſe provinces, and in thoſe ſeaſons, wherein this plant abounds. Horſes eat it. Cows refuſe it. *raphaniſtrum.*

1248. Cordylocarpus.

Two ſpecies; viz. muricatus, lævigatus.

1249. Cleome, or *Baſe-muſtard.*

23 ſpecies; viz. juncea, heptaphylla, pentaphylla, triphylla, polygama, icoſandra, viſcoſa, dodecandra, felina, chelidonii, gigantea, aculeata, ſpinoſa, ſerrata, ornithopodioides, violacea, arabica, tenella, filifolia, gujanenſis, monophylla, capenſis, procumbens. Portugal, Cape, Eaſt and Weſt Indies.

In the claſs Tetradynamia are

34 Genera, including 436 Species, of which 58 are found in Britain.

CLASSIS XVI.

MONADELPHIA (f).

Ordo I. TRIANDRIA.

1253. Galaxia. Monogyna. Spatha 1 f. 2-phylla. Cor. 1-petala, 6-fida.

1251. Sisyrinchium. Monogyna. Spatha 2-phylla. Petala 6, ſubæqualia.

CLASS XVI.

MONADELPHIA.

Order I. TRIANDRIA, or 3 Stamens.

G. One piſtil. Sheath 1 or 2-leaved. Cor. 1-petaled, 6-cleft.

S. One piſtil. Sheath 2-leafed. Petals 6, nearly equal.

1252.

(f) In this claſs the filaments are all united together at the bottom, but ſeparate at the top. The union at the bottom gives riſe to the name Monadelphia or *one brotherhood.* The orders are determined by the number of ſtamens. The plants of this claſs were conſidered by Tournefort as having only one petal. But all the petals are diſtinct at the baſe; though, by the intervention of the united filaments, they cohere all together as one body; on which account they may properly be conſidered as having five petals. Linnæus remarks, that the fruit does not afford ſufficient marks whereby to diſtinguiſh the genera in this claſs; but that the calyx is of the utmoſt importance, as it furniſhes invariable characters. Withering obſerves, that the petals are truly a continuation of the cylindrical ſheath formed by the united filaments, which incloſes the ſtyles and germens as it deſcends; when riſing upwards it ſpreads out into petals.

1252. Ferraria. Monogyna. Spatha 2-phylla. Petala 6, tribus exterioribus latioribus.

1254. Aphyteia. Monogyna. Cal. 3-fidus. Petala 3. Bacca polyſperma.

1250. Tamarindus. Monogyna. Cal. 4-partitus. Petala 3. Legumen.

Ordo II. PENTANDRIA.

1263. Erodium. Monogyna. Arilli 5, monoſpermi, ad baſin receptaculi roſtrati. Cal. 5-phyll. Cor. 5-petala. Nect. ſquamæ 5.

1256. Symphonia. Monogyna. Bacca 5-locularis, 5 ſperma. Cal. 5-phyll. Cor. 5-petala.

1255. Ozophyllum. Monogyna. Capſ. 5-locularis. Cal. 5-dentatus. Cor. 5-petala, infundibiliformis.

1261. Ochroma. Monogyna. Capſ. 5-locularis. Cal. duplex. Cor. 5-petala. Antheræ anfractuoſæ.

1257. Lerchea. Monogyna. Capſ. 3-locularis, polyſperma. Cal. 5-fidus. Cor. 1-petala.

1258. Waltheria. Monogyna. Capſ. 1-locularis, 1-ſperma. Cal. duplex. Cor. 5-petala.

1262. Passiflora. Trigyna. Cal. 5-partitus. Cor. 5-petala, calyci inſerta. Nectar. filamentoſum.

1259. Hermannia. Pentagyna. Capſ. 5-locularis. Cal. 5-fidus. Petala 5, cucullata, obliqua. Filamenta dilatata.

1260. Melochia. Pentagyna. Capſ. 5-locularis, 1-ſperma. Cal. ſub-duplex. Petala 5 patentia. Filamenta ſubulata.

Linum, Anagallis, Lyſimachia, Pelargonium betonicum, &c. Geranium puſillum. Mahernia, Leea, Ayenia, Buttneria.

Ordo III. HEPTANDRIA.

1264. Pelargonium. Monogyna. Arilli 5, monoſpermi, ad baſin receptaculi roſtrati. Cal. 5-partitus, nectariferus. Cor. 5-petala, inæqualis.

Ordo IV. OCTANDRIA.

1266. Aitonia. Monogyna. Bacca ſicca, unilocularis. Cal. 4-partitus. Petala 4.

1265. Pistia. Monogyna. Capſ. 1-locul. Cal. ſpathaceus, 1-phyllus. Cor. 0.

Erica monadelphia, Guarea, Perſoonia.

Ordo V. DECANDRIA.

1271. Geranium. Monogyna. Arilli 5, monoſpermi, ad baſin receptaculi roſtrati. Cal. 5-phyllus, Cor. 5-petala.

1270. Senræa. Monogyna. Capſ. 5-locularis. Cal. duplex. Cor. 5-petala.

1267. Crinodendrum. Monogyna. Capſ. unilocularis, triſperma. Cal. 0. Cor. 6-petala.

1268. Conarus. Monogyna. Capſ. 1-ſperma. Cal. 5-partitus. Cor. 5-petala.

1269. Hugonia. Pentagyna. Drupa 1-ſperma. Cal. 5-part. inæqualis. Cor. 5-petala.

Oxalis et nonnullæ Papilionaceæ, Gærtneria, Trichilia, Turræa, Sandoricum, Swietenia. Strigilia, Melia, Samyda, Caſearia, Erythroxylon, Malphigia, Baniſteria, Hiræa, Triopteris, Averrhoa.

F. One piſtil. Sheath 2-leafed. Petals 6, the 3-outermoſt broadeſt.

A. One piſtil. Cal. 3-cleft. Petals 3. Berry many-ſeeded.

J. One piſtil. Cal. 4-parted. Petals 3. Leguminous.

Order II. PENTANDRIA, or 5 Stamens.

E. One piſtil. Seed-coats 5, 1-ſeeded, at the baſe of a beaked receptacle. Cal. 5-leafed. Cor. 5-petaled. Nect. 5 ſcales.

S. One piſtil. Berry 5-celled, 5-ſeeded. Cal. 5-leafed. Cor. 5-petaled.

O. One piſtil. Capſ. 5 celled. Cal. 5-toothed. Cor. 5-petaled, funnel-ſhaped.

O. One piſtil. Capſ. 5-celled. Cal. double. Cor. 5-petaled. Anthers turning.

L. One piſtil. Capſ. 3-celled, many-ſeeded. Cal. 5-cleft. Cor. 1-petaled.

W. One piſtil. Capſ. 1-celled, 1-ſeeded. Cal. double. Cor. 5-petaled.

P. Three piſtils. Cal. 5-parted. Cor. 5-petals inſerted in the cal. Nectary like a filament.

H. Five piſtils. Capſ. 5-celled. Cal. 5-cleft. Petals 5, cone-ſhaped, oblique. Filaments dilated.

M. Five piſtils. Capſ. 5-celled, 1-ſeeded. Cal. nearly double. Petals 5, expanding. Filaments awl-ſhaped.

Order III. HEPTANDRIA, or 7 Stamens.

P. One piſtil. Seed-coats 5, 1-ſeeded, beaked at the baſe of the receptacle. Cal. 5-parted, bearing the nectary. Cor. 5-petaled, unequal.

Order IV. OCTANDRIA, or 8 Stamens.

A. One piſtil. Berry dry, celled. Cal. 4-parted. Petals 4.

P. One piſtil. Capſ. 1-celled. Cal. ſheath-like, 1-leaved. No Cor.

Order V. DECANDRIA, or 10 Stamens.

G. One piſtil. Seed-coats 5, 1-ſeeded, beaked at the baſe of the receptacle. Cal. 5-leaved. Cor. 5-petaled.

S. One piſtil. Capſ. 5-celled. Cal. double. Cor. 5-petaled.

C. One piſtil. Capſ. 1-celled, 3-ſeeded. No cal. Cor. 6-petaled.

C. One piſtil. Capſ. 1-ſeed. Cal. 5-parted. Cor. 5-petaled.

H. Five piſtils. Drupe 1-ſeeded. Cal. 5-parted, unequal. Cor. 5-petaled.

Ordo VI. ENDECANDRIA.

1272. Brownea. Monogyna. Cal. 2-fidus. Cor. exterior, 5-fida; interior 5-petala. Legumen.

Ordo VII. DODECANDRIA.

1274. Monsonia. Monogyna. Cal. ſimplex, 5-phyllus. Cor. 5-petala, dentata. Arilli 5, monoſpermi, ad baſin receptaculi roſtrati.

1276. Helicteris. Monogyna. Cal. ſimplex, 5-fidus. Cor. 5-petala. Capſ. 5, ſpirales.

1275. Plagianthus. Monogyna. Cal. ſimplex, 5-fidus. Cor. 5-petala. Bacca.

1273. Acia. Monogyna. Cal. ſimplex, 5-partitus. Cor. 5-petala. Drupa.

1281. Pterospermum. Monogyna. Cal. ſimplex. Cor. 5-petala. Capſ. 5-locularis. Semina alata.

1277. Cienfuegia. Monogyna. Cal. duplex. Cor. 5-petala. Capſ. 3-locularis, 3-ſperma.

1280. Pentapetes. Monogyna. Cal. duplex. Cor. 5-petala. Capſ. 5-locularis, diſſepimentis contrariis.

1279. Dombeia. Monogyna. Cal. duplex. Cor. 5-petala. Capſ. 5, bivalves, coalitæ.

1278. Assonia. Pentagyna. Cal. duplex. Cor. 5-petala. Capſ. 5, bivalves, coalitæ.

Haleſia, *Styrax*, *Sterculia*, *Kleinhofia*.

Ordo VIII. POLYANDRIA.

1282. Carolinea. Monogyna. Cal. ſimplex, ſubtruncatus. Capſ. lignoſa, 1-locul. polyſperma.

1301. Gordonia. Monogyna. Cal. ſimplex, 5-phyllus. Capſ. 5-locularis. Sem. bina, alata.

1305. Morisonia. Monogyna. Cal. ſimplex, 2-fidus. Bacca capſularis, pedicellata. Petala 4.

1309. Gustavia. Monogyna. Cal. ſimplex, 4 ſ. 6-fidus. Bacca ficca, 4 ſ. 5-locul. polyſperma. Petala 4 ſ. 6.

1307. Crossostylis. Monogyna. Cal. ſimplex, 4-partitus. Bacca unilocul. polyſperma.

1304. Myrodia. Monogyna. Cal. ſimplex, rumpens. Drupa 2 ſ. 3-locularis. Petala 5.

1308. Barringtonia. Monogyna. Cal. ſimplex, 2-phyllus. Drupa nuce tetragona. Petala 4.

1303. Mesua. Monogyna. Cal. ſimplex, 4-phyllus. Nux tetragona, 1-ſperma. Petala 4.

1306. Poureatia. Monogyna. Cal. ſimplex, 5-partitus. Drupa ficca, 1-ſperma, 5-alata. Petala 5.

1300. Stuartia. Pentagyna. Cal. ſimplex, patens. Capſ. 5-locularis. Sem. ſolitaria.

1287. Palavia. Monogyna. Cal. ſimplex, 5-fidus. Capſulæ monoſpermæ, conglomeratæ abſque ordine.

1285. Lagunæa. Monogyna. Cal. ſimplex, 5-fidus. Capſ. 5-locularis, diſſepimentis contrariis.

1286. Sida. Submonogyna. Cal. ſimplex, angulatus. Capſ. multilocularis, 1-ſperma.

1284. Bombax. Monogyna. Cal. ſimplex. Capſ. 5-locularis, polyſperma. Stylus indiviſus. Semina lanata.

Order VI. ENDECANDRIA, or 11 Stamens.

B. One piſtil. Cal. 2-cleft. Outer cor. 5-cleft; inner 5-petaled. Leguminous.

Order VII. DODECANDRIA, or 12 Stamens.

M. One piſtil. Cal. ſimple, 5-leaved. Cor. 5-petaled, toothed. Seed-coats 5, 1-ſeeded, beaked at the baſe of the receptacle.

H. One piſtil. Cal. ſimple, 5-cleft. Cor. 5-petaled. Capſ. 5, ſpiral.

P. One piſtil. Cal. ſimple, 5-cleft. Cor. 5-petaled. A berry.

A. One piſtil. Cal. ſimple, 5-parted. Cor. 5-petaled. Drupe.

P. One-piſtil. Cal. ſimple. Cor. 5-petaled. Capſ. 5-celled. Seeds winged.

C. One piſtil. Cal. double. Cor. 5-petaled. Capſ. 3-celled, 3-ſeeded.

P. One piſtil. Cal. double. Cor. 5-petaled. Capſ. 5-celled, with oppoſite partitions.

D. One piſtil. Cal. double. Cor. 5-petaled. Capſules 5, 2-valved, united.

A. Five piſtils. Cal. double. Cor. 5-petaled. Capſ. 5, 2-valved, united.

Order VIII. POLYANDRIA, or many Stamens.

C. One piſtil. Cal. ſimple, nearly-lopped. Capſ. woody, 1-celled, many-ſeeded.

G. One piſtil. Cal. ſimple, 5-leaved. Capſ. 5-celled. Seeds 2, winged.

M. One piſtil. Cal. ſimple, 2-cleft. Capſular berry, pedicled. Petals 4.

G. One piſtil. Cal. ſimple, 4 or 6-cleft. Berry dry, 4 or 5 celled, many-ſeeded. Petals 4 or 6.

C. One-piſtil. Cal. ſimple, 4-parted. Berry 1-celled, many-ſeeded.

M. One piſtil. Cal. ſimple, breaking. Drupe 2 or 3-celled. Petals 5.

B. One celled. Cal. ſimple, 2-leaved. Drupe with a 4-gon nut. Petals 4.

M. One piſtil. Cal. ſimple, 4-leaved. Nut 4-gon, 1-ſeeded. Petals 4.

P. One piſtil. Cal. ſimple, 5-parted. Drupe dry, 1-ſeeded, 5-winged. Petals 5.

S. Five piſtils. Cal. ſimple, expanding. Capſ. 5-celled. Seeds ſolitary.

P. One piſtil. Cal. ſimple, 5-cleft. Capſ. 1-ſeeded, incorporated without order.

L. One piſtil. Cal. ſimple, 5-cleft. Capſ. 5-celled, with oppoſite partitions.

S. Nearly 1-piſtil. Cal. ſimple, angular. Capſ. many-celled, 1-ſeeded.

B. One piſtil. Cal. ſimple. Capſ. 5-celled, many-ſeeded. Style undivided. Seeds cottony.

1283. Adansonia. Monogyna. Cal. ſimplex. Capſ. 10-locularis, polyſperma. Pulpa farinacea.

1296. Gossypium. Monogyna. Cal. exterior, 3-fidus. Capſ. 3 ſ. 4-locularis, polyſperma, coadunata.

1292. Ruigia. Decagyna. Cal. exterior, 3-phyllus. Capſ. 10-locularis, globoſo-verticillatæ.

* 1291. Lavatera. Polygyna. Cal. exterior, 3-fidus. Capſ. 1-ſpermæ, verticillatæ.

1288. Malachra. Polygyna. Cal. exterior, 3-phyllus. Capſ. 5, monoſpermæ.

* 1290. Malva. Polygyna. Cal. exterior, 3-phyllus. Capſ. 1-ſpermæ, verticillatæ, plures.

1293. Malope. Polygyna. Cal. exterior, 3-phyllus. Capſ. 1-ſpermæ, conglomeratæ abſque ordine.

1295. Urena. Monogyna. Cal. exterior 5-fidus. Capſ. 5-locularis, 5-partibilis, loculamentis clauſis.

1298. Pavonia. Monogyna. Cal. exterior, 8-phyllus. Capſ. 5-locularis, 5-partibilis, loculamentis 2-valvibus.

1297. Hibiscus. Monogyna. Cal. exterior, 8-phyllus. Capſ. 5-locularis, polyſperma.

1299. Achania. Monogyna. Cal. exterior, 8-phyllus. Bacca 5-locularis.

1294. Kitaibelia. Polygyna. Cal. exterior, 7 ſ. 9-fidus. Capſ. monoſpermæ, in capitulum quinquelobum glomeratæ.

* 1289. Althæa. Polygyna. Cal. exterior, 6-9-fidus. Capſ. 1-ſpermæ, verticillatæ.

1302. Camellia. Monogyna. Cal. exterior, imbricatus. Capſ. loculis polyſpermis. Stylus indiviſus.

Hypericum Brathys, Mimoſæ nonnullæ.

A. One piſtil. Cal. ſimple. Capſ. 10-celled, many-ſeeded. A farinaceous pulp.

G. One piſtil. Cal. exterior, 3-cleft. Capſ. 3 or 4-celled, many-ſeeded, joined together at the baſe.

R. Ten piſtils. Cal. exterior, 3-leaved. Capſ. 10-celled, globular in whirls.

* L. Many piſtils. Cal. exterior, 3-cleft. Capſ. 1-ſeeded, in whirls.

M. Many piſtils. Outer cal. 3-leaved. Capſ. 5, 1-ſeeded.

* M. Many piſtils. Outer cal. 3-leaved. Several capſ. 1-ſeeded, growing in whirls.

M. Many piſtils. Outer cal. 3-leaved. Capſ. 1-ſeeded, incorporated and without order.

U. One piſtil. Outer cal. 5-cleft. Capſ. 5-celled, 5-diviſible, with cloſed cells.

P. One piſtil. Outer cal. 8-leaved. Capſ. 5-celled, 5-diviſible, with 2-valved cells.

H. One piſtil. Outer cal. 8-leaved. Capſ. 5-celled, many-ſeeded.

A. One piſtil. Outer cal. 8-leaved. Berry 5-celled.

K. Many piſtils. Outer cal. 7 or 9-cleft. Capſ. 1-ſeeded, incorporated into a 5-lobed knob.

* A. Many piſtils. Outer cal. 6-9-cleft. Capſ. 1-ſeeded, growing in whirls.

C. One piſtil. Outer cal. tiled. Capſ. with many-ſeeded cells. Style undivided.

Order I. TRIANDRIA.

1250. Tamarindus, or *Tamarind-tree.*

One ſpecies; viz. indica. Egypt, Eaſt and Weſt Indies.—The fruit of this ſpecies is a pod reſembling that of a bean, including ſeveral hard ſeeds, together with a dark-coloured viſcid pulp of a pleaſant acid taſte; the Eaſt India tamarinds are larger than the Weſt India ſort; the former containing ſix or ſeven ſeeds each, the latter rarely above three or four. The pulp of theſe fruits, taken from the quantity of two or three drams to an ounce or more, proves gently laxative or purgative; and at the ſame time, by its acidity quenches thirſt, and allays immoderate heat. It increaſes the action of the purgative ſweets, caſſia and manna, and weakens that of the reſinous cathartics. Some have ſuppoſed it capable of abating the virulence of antimonial preparations; but experience ſhows that it has rather a contrary effect, and that all vegetable acids augment their power. Tamarinds are an ingredient in the electuary of caſſia, the lenitive electuary, and decoction of tamarinds with ſenna.

1251. Sisyrinchium, or *Bermudana.*

Eight ſpecies; viz. elegans, collinum, grandiflorum, bermudiana, anceps, micranthum, palmifolium, ſtriatum. Bermuda, Weſt Indies.

1252. Ferraria.

Four ſpecies; viz. undulata, ferrariola, pavonia, ixioides. Cape, Mexico.

1253. Galaxia.

Three ſpecies; viz. ovata, graminea, narciſſoides. Cape of Good Hope.

1254. Aphyteja.

One ſpecies; viz. hydnora. C. of G. Hope.

Order II. PENTANDRIA.

1255. Ozophyllum.

One ſpecies; viz. trifoliatum.

1256. Symphonia.

One ſpecies; viz. globulifera. Surinam, Guiana.

1257. Lerchea.

One ſpecies; viz. longicauda. Eaſt Indies.

1258. Waltheria.

Six ſpecies; viz. americana, indica, lophanthus, ovata, anguſtifolia, elliptica. Eaſt and Weſt Indies, S. America.

1259. Hermannia.

30 ſpecies; viz. althæifolia, plicata, candicans, diſticha, ſalvifolia, micans, involucrata, ſcordifolia, denudata, diſermæfolia, alnifolia, cuneifolia, holoſericea, hirſuta, ſcabra, multiflora, flammea, angularis, hyſſopifolia,

folia, trifurcata, odorata, lavandulifolia, linifolia, filifolia, trifoliata, triphylla, procumbens, veſicaria, groſſularifolia, inciſa. Cape of Good Hope.

1260. MELOCHIA.

14 ſpecies; viz. pyramidata, tomentoſa, crenata, depreſſa, truncata, venoſa, hirſuta, concatenata, odorata, lupulina, caracaſana, nodiflora, corchorifolia, ſupina. Eaſt and Weſt Indies, Brazil.

1261. OCHROMA, or *Down-tree*, or *Cork-wood*.

One ſpecies; viz. lagopus. Jamaica, Hiſpaniola.

1262. PASSIFLORA, or *Paſſion-flower*.

46 ſpecies; viz. ſerratifolia, pallida, adulterina, cuprea, tiliæfolia, maliformis, quadrangularis, alata, lauri-folia, coccinea, mucronata, glanduloſa, multiflora, perfoliata, rubra, normalis, lunata, murucuja, veſpertilia, oblongata, capſularis, rotundifolia, orbiculata, punctata, lutea, anguſtifolia, minima, ſuberoſa, peltata, hederacea, glauca, holoſericea, hirſuta, fœtida, ciliata, ſerrulata, aurantia, cuneifolia, incarnata, tomentoſa, mixta, cœrulea, filamentoſa, ſerrata, pedata, heterophylla. Weſt Indies, S. America.

1263. ERODIUM.

34 ſpecies; viz. craſſifolium, ſtephanianum, tataricum, ſupracanum, petræum, abſinthoides, glanduloſum, bipinnatum, alpinum, ciconum, cicutarium, pimpinellifolium, romanum, moſchatum, præcox, pulverulentum, hirtum, laciniatum, gruinum, chium, aſplenioides, hymenodes, murcicum, guttatum, glaucophyllum, incarnatum, arduinum, ribifolium, arboreſcens, heliotropioides, malacoides, maritimum, malopoides, chamædryoides.

ORDER III. HEPTANDRIA.

1264. PELARGONIUM.

120 ſpecies; viz. longifolium, longiflorum, dipetalum, oxaloides, ficaria, ciliatum, auriculatum, auritum, hirtum, punctatum, bifolium, hirſutum, atrum, trifidum, heterophyllum, triphyllum, nervifolium, pinnatum, barbatum, melananthon, carneum, rapaceum, lobatum, triſte, appendiculatum, flavum, œnotheræ, chamædrifolium, ovale, trichoſtomon, blattarium, erioſtemon, elegans, ſtipulaceum, articulatum, tabulare, alchimilloides, odoratiſſimum, groſſularioides, anceps, althæoides, columbinum, coronopifolium, capillare, tricolor, ſenecioides, myrrhifolium, lacerum, multicaule, coriandrifolium, caucalifolium, minimum, glaucum, diverſifolium, betulinum, acetoſum, ſcandens, ſtenopetalum, hybridum, zonale, inguinans, heterogamum, monſtrum, craſſicaule, peltatum, lateripes, tetragonum, cordatum, cucullatum, anguloſum, acerifolium, papilionaceum, cortuſæfolium, fuſcatum, faniculæfolium, patulum, grandiflorum, variegatum, cotyledonis, echinatum, auſtrale, vitifolium, capitatum, glutinoſum, hiſpidum, tomentoſum, ribifolium, quercifolium, graveolens, aſperum, balſameum, radula, denticulatum, bicolor, tricuſpidatum, ſcabrum, ſpinoſum, rigidum, criſpum, hermannifolium, adulterinum, ſemitrilobum, tripartitum, fulgidum, gibboſum, exſtipulatum, ternatum, lævigatum, fragile, inciſum, carnoſum, ferulaceum, alternans, ceratophyllum, crithmifolium, ramoſiſſimum, abrotanifolium, fruticoſum, hirtum, tenuifolium.

ORDER IV. OCTANDRIA.

1265. PISTIA, or *Water Houſe-leek*.

One ſpecies; viz. ſtratiotes. Aſia, Africa, South America.

1266. AITONIA.

One ſpecies; viz. capenſis. Cape of Good Hope.

ORDER V. DECANDRIA.

1267. CRINODENDRUM.

One ſpecies; viz. patagua. Chili.

1268. CONNARUS, or *Ceylon Sumach*.

Seven ſpecies; viz. africanus, aſiaticus, pentagynus, decumbens, pinnatus, ſantaloides, mimoſoides. Ceylon, Africa.

1269. HUGONIA.

Three ſpecies; viz. myſtax, ſerrata, tomentoſa. India.

1270. SENRÆA.

One ſpecies; viz. incana.

1271. GERANIUM, or *Cranes-bill*.

39 ſpecies; viz. ſpinoſum, ſeſſiliflorum, ſibiricum, * ſanguineum, tuberoſum, anemonefolium, macrorhizum, * phæum, fuſcum, reflexum, lividum, * nodoſum, ſtriatum, angulatum, ibericum, * ſylvaticum, paluſtre, aſphodeloides, aconitifolium, collinum, * pratenſe, maculatum, piloſum, caneſcens, incanum, argenteum, varium, * pyrenaicum, bohemicum, divaricatum, * lucidum, molle, carolinianum, * columbinum, * diſſectum, * rotundifolium, puſillum, * robertianum, purpureum. Europe, Africa, North America.

ORDER VI. ENDECANDRIA.

1272. BROWNEA.

Four ſpecies; viz. coccinea, grandiceps, roſa de monte, pauciflora. South America.

ORDER VII. DODECANDRIA.

1273. ACIA.

Two ſpecies; viz. dulcis, amara. Guiana.

1274. MONSONIA.

Five ſpecies; viz. tenuifolia, ſpecioſa, lobata, ovata, ſpinoſa. C. of G. Hope.

1275. PLAGIANTHUS.

One ſpecies; viz. divaricatus. South Sea Iſles.

1276. HELICTERIS, or *Screw-tree*.

Eight ſpecies; viz. baruenſis, jamaicenſis, iſora, hirſuta, anguſtifolia, pentandra, carthaginenſis, apetala. Malabar, China, Jamaica.

1277. CIENFUEGIA.

One ſpecies; viz. digitata. Senegal.

1278. ASSONIA.

One ſpecies; viz. populnea. Iſle of Bourbon.

1279. DOMBEYA.

12 ſpecies; viz. palmata, acutangula, angulata, tiliæfolia, tomentoſa, umbellata, ferruginea, erythroxylon, decanthera, velutina, ovata, punctata. Chili.

1280.

1280. Pentapetes.
One ſpecies; viz. phœnicea. Arabia, India, St Helena.

1281. Petrospermum.
Two ſpecies; viz. ſuberifolium, acerifolium.

Order VIII. POLYANDRIA.

1282. Carolinea.
Two ſpecies; viz. princeps, inſignis. Weſt Indies.

1283. Adansonia, or *Sour-gourd, Monkies-bread.*
One ſpecies; viz. digitata. Senegal, Egypt.

1284. Bombax, or *Silk Cotton-tree.*
Six ſpecies; viz. pentandrum, erianthos, ceiba, heptaphyllum, globoſum, goſſypinum. Eaſt and Weſt Indies, South America.

1285. Langunea.
Three ſpecies; viz. lobata, ternata, aculeata. Coaſt of Coromandel.

1286. Sida, or *Indian Mallow.*
99 ſpecies; viz. linifolia, anguſtifolia, acuta, canarienſis, lanceolata, ſpinoſa, fruteſcens, carpinifolia, jamaicenſis, orientalis, glomerata, maculata, ſuberoſa, capenſis, microphylla, micans, puſilla, rhombifolia, caneſcens, retuſa, alnifolia, ciliaris, periplocifolia, excelſior, hernandioides, nudiflora, triquetra, fragrans, lignoſa, reflexa, humilis, repens, bivalvis, ulmifolia, multiflora, microſperma, viſcoſa, fœtida, calycina, criſpa, perſica, ſylvatica, arborea, mauritiana, occidentalis, americana, abutilon, abutiloides, aſiatica, populifolia, hirta, indica, molliſſima, ſonneratiana, pubeſcens, althæifolia, glutinoſa, exſtipularis, nutans, borbonica, flaveſcens, radicans, arguta, multicaulis, piloſa, rotundifolia, ſupina, truncata, herbacea, emarginata, alba, cordifolia, hederifolia, verticillata, urens, umbellata, pyramidata, paniculata, dumoſa, ramoſa, ſpicata, terminalis, veſicaria, craſſifolia, biflora, obtuſa, gigantea, javenſis, haſtata, criſtata, dilleniana, triloba, ternata, pteroſperma, ricinoides, jatrophoides, napæa, dioica, phyllanthus. Eaſt and Weſt Indies, Cape, America.

1287. Palavia.
Two ſpecies; viz. malvifolia, moſchata. Lima, Peru.

1288. Malachra.
Six ſpecies; viz. capitata, faſciata, alcæfolia, radiata, bracteata, plumoſa. Weſt Indies.

1289. Althæa, or *Marſh mallow.*
Nine ſpecies; viz. * officinalis, narbonenſis, cannabina, hirſuta, ludwigii, acaulis, roſea, pallida, ficifolia. Europe, Hiſpaniola.

officinalis. * A. leaves undivided, angular, cottony.—This plant grows wild in marſhes and other moiſt places in ſeveral parts of England, though frequently cultivated for medicinal uſe in gardens. All the parts of it have a ſlimy taſte, and abound with a ſoft mucilaginous ſubſtance which is readily extracted by water: the mucilage of the roots appears to be the ſtrongeſt; and hence this part is generally made uſe of in preference to the others.

This plant has the general virtues of an emollient medicine, and proves ſerviceable where the natural mucus of the inteſtines is abraded. It is chiefly recommended in ſharp deſluctions upon the lungs, hoarſeneſs, dyſenteries, and likewiſe in nephritic and calculous complaints; not, as ſome have ſuppoſed, that this medicine has any peculiar power of diſſolving or expelling the calculus, but as, by lubricating and relaxing the veſſels, it procures a more free and eaſy paſſage. Althæa root is ſometimes employed externally for ſoftening and maturating hard tumours; chewed, it is ſaid to give eaſe in difficult dentition of children.

1290. Malva, or *Mallow.*
55 ſpecies; viz. ſpicata, polyſtachya, tomentoſa, ſcoparia, gangetica, coromandeliana, americana, calycina, cuneifolia, anguſtifolia, ſubhaſtata, ſcabra, peruviana, limenſis, capitata, bryonifolia, umbellata, abutiloides, abulenſis, lobata, faſtigiata, bonarienſis, ſtricta, lactea, operculata, fragrans, capenſis, balſamica, groſſularifolia, virgata, miniata, retuſa, tridactylides, althæoides, caroliniana, proſtrata, cretica, parviflora, nicæenſis, * rotundifolia, acaulis, ſherardiana, * ſylveſtris, mauritiana, hiſpanica, verticillata, criſpa, papaver, ſtipulæca, alcea, * moſchata, elegans, tournefortiana, ægyptia, trifida. Europe, Barbary, Cape, China, America.

ſylveſtris. * M. ſtem rough; leaves 5 or 7 lobed, toothed; outer calyx leafets partly united at the baſe.—The leaves of this plant have a ſomewhat mucilaginous ſweetiſh taſte. They are ranked the firſt of emollient herbs: they were formerly in ſome eſteem as food of a laxative quality; at preſent decoctions of them are ſometimes employed in dyſenteries, heat and ſharpneſs of urine, and in general for obtunding acrimonious humours; their principal uſe is in emollient glyſters, cataplaſms, and fomentations. The leaves enter the officinal decoction for glyſters, and a conſerve was formerly prepared from the flowers.

1291. Lavatera, or *Mallow-tree.*
12 ſpecies; viz. * arborea, micans, hiſpida, olbia, triloba, luſitanica, maritima, thuringiaca, cretica, flava, punctata, trimeſtris. Europe.

1292. Ruiza.
Three ſpecies; viz. cordata, lobata, variabilis. Iſle of Bourbon.

1293. Malope, or *Baſe Mallow.*
Three ſpecies; viz. malacoides, multiflora, trifida. Hetruria, Mauritania.

1294. Kitaibelia.
One ſpecies; viz. vitifolia.

1295. Urena, or *Indian Mallow.*
Eight ſpecies; viz. lobata, reticulata, tricuſpis, americana, ſinuata, multifida, procumbens, viminea. China, E. Indies, Surinam.

1296. Gossypium, or *Cotton-tree.*
Ten ſpecies; viz. herbaceum, indicum, micranthum, arboreum, vitifolium, hirſutum, religioſum, latifolium, barbadenſe, peruvianum. Levant, E. and W. Indies.

1297. Hibiscus, or *Syrian Mallow.*
66 ſpecies; viz. moſcheutos, incanus, laſiocarpus, paluſtris, militaris, haſtatus, ferrugineus, cordifolius, populneus, tiliaceus, elatus, lampas, membranaceus, lunarifolius, roſa ſinenſis, ſpiralis, braſilienſis, unilateralis, acuminatus, phœniceus, ovalifolius, clandeſtinus, rigidus,

rigidus, micranthus, goſypinus, ovatus, æthiopicus, microphyllus, urens, calycinus, mutabilis, ſyriacus, rhombifolius, liliiflorus, bifurcatus, trilobus, diverſifolius, domingenſis, ficulneus, ſabdariffa, ſpecioſus, cannabinus, fraternus, ſororius, ſurattenſis, radiatus, maninot, digitatus, flaveſcens, ſpicatus, micans, abelmoſchus, columnaris, pedunculatus, eſculentus, longifolius, clypeatus, ſenegalenſis, tubuloſus, obtuſifolius, vitifolius, tricuſpis, virginicus, pentacarpos, veſicarius, trionum. Syria, Cape, E. and W. Indies, N. America.

The ſeeds of the *hibiſcus abelmoſchus* are the product of a plant indigenous in Egypt, and in many parts both of the Eaſt and Weſt Indies. They are of a ſmall ſize and reniform ſhape; they are very remarkable from poſſeſſing a peculiar and very fragrant odour; the ſmell which they give out may be compared to that of muſk and amber conjoined; thoſe brought from the iſland of Martinico are generally eſteemed the moſt odorous, but we have ſeen ſome, the product of hot-houſes in Britain, which in point of flavour ſeemed not inferior to any imported from abroad.

Theſe ſeeds, although introduced into ſome of the foreign pharmacopœias, have hitherto been uſed principally, if not only, as a perfume; and as their medical powers ſtill remain to be aſcertained, it is perhaps with propriety, that hitherto no place has been given them in the liſt either of the London or Edinburgh colleges. But their flavour as well as other ſenſible qualities point t hem out as a ſubject well deſerving a particular inveſtigation.

1298 Pavonia.

15 ſpecies; viz. præmorſa, leptocarpa, typhalea, haſtata, ſpinifex, papilionacea, cancellata, racemoſa, corymboſa, paniculata, odorata, coccinea, columella, urens, zeylanica. E. and W. Indies, Africa, S. America.

1299. Achania, or *Baſe Hibiſcus*.

Three ſpecies; viz. malvafiſcus, mollis, piloſa. Jamaica, S. America.

1300. Stuartia.

Two ſpecies; viz. malachodendron, pentagyna.

1301. Gordonia, or *Boblolly-bay*.

Four ſpecies; viz. laſianthus, hæmatoxylon, pubeſcens, franklini. North America.

1302. Camellia, or *Japan-roſe*.

Two ſpecies; viz. japonica, ſaſanqua. China, Japan.

1303. Mesua, or *Indian Roſe-cheſnut*.

One ſpecies; viz. ferrea. Egypt, India.

1304. Myrodia.

Two ſpecies; viz. turbinata, longiflora. Guiana.

1305. Morisonia.

One ſpecies; viz. Americana.

1306. Pourretia.

One ſpecies; viz. arborea.

1307. Crossostylis.

One ſpecies; viz. biflora. South ſea iſles.

1308. Barringtonia.

One ſpecies; viz. ſpecioſa. Chili, Moluc. South ſea iſles.

1309. Gustavia.

Two ſpecies; viz. anguſta, faſtuoſa. Surinam, Cayenne.

In the claſs Monadelphia are

60 Genera, including 682 Species, of which 16 are found in Britain.

CLASSIS XVII.

DIADELPHIA (G).

Ordo I. PENTANDRIA.

851. Monnieria. Cal. 5-partitus. Cor. ringens. Filamentum ſuperus antheris 2; inferius 3. Capſulæ 5.

CLASS XVII.

DIADELPHIA.

Order I. PENTANDRIA.

M. Cal. 5-parted. Cor. gaping. Superior filam. with 2 anthers, inferior with 3. Capſules 5.

Ordo

(G) This claſs comprehends the butterfly-ſhaped flowers, and the leguminous plants of ſome authors. Linnæus takes the character of the claſs from the number of the ſtamens, and the character of the orders from their number. From the title of this claſs, Diadelphia or *two brotherhoods*, it might be ſuppoſed, that the filaments are always found in two ſets. This, however, is by no means always correctly the caſe. The papilionaceous or butterfly ſhape of the corolla or bloſſom, as in a garden pea, will therefore be a ſurer guide. The claſs is not artificial, but perfectly natural, and the ſtructure of the flowers extremely ſingular: their ſituation is generally obliquely pendent. The ſeeds of this claſs furniſh food for men and other animals: they are farinaceous and flatulent. The leaves are food for cattle. None of them are poiſonous.

Ordo II. HEXANDRIA.

* 849. Fumaria. Cal. 2-phyllus. Cor. ringens, baſi gibboſa nectarifera. Filamenta antheris 3.

1267. Saraca. Cal. o. Cor. 4-fida. Filamenta utrinque 3, connexa.

Ordo III. OCTANDRIA.

* 850. Polygala. Cal. 2 laciniæ, alæformes. Cor. vexillum, cylindricum. Stamina connexa. Capſ. obcordata, 2 locularis.

852. Securidæa. Cal. 3-phyllus. Vexillum nullum. Legum. 1-ſpermum, ala ligulata.

1416. Dalbergia. Staminum filamenta 2, apice 4-fida. Fructus pedicellatus, non dehiſcens, leguminoſus, membranaceo-compreſſus, ſeminiferus.

Ordo IV. DECANDRIA.

Sect. I. *Stamina omnia connexa.*

853. Nissolia. Legum. 1-ſpermum, terminatum ala ligulata.

854. Pterocarpus. Legum. foliaceum. Stamina bina trianthera.

861. Amorpha. Alæ carinaque nullæ.

855. Erythrina. Alæ carinaque breviſſimæ. Cal. poro mellifero.

1286. Abrus. Filamenta 9, baſi infima connexa, latere ſuperiore diſtincta. Sem. ſphærica.

* 858. Spartium. Filamenta adhærentia germini. Stigma adnatum, villoſum.

* 859. Genista. Piſtillum deprimens carinam. Stigma involutum.

865. Lupinus. Antheræ alternæ rotundæ; alternæ oblongæ. Legum. coriaceum.

* 864. Anthyllis. Cal. turgidus, includens ſiliquam.

856. Piscidia. Legumen, alis 4 longitudinalibus.

857. Borbonia. Legumen mucronatum. Stigma emarginatum.

* 881. Ulex. Cal. diphyllus. Legum. vix calyce longius.

876. Arachis. Cor. reſupinata. Legum. coriaceum.

895. Ebenus. Cor. alis obliteratis. Legum. monoſpermum.

860. Aspalathus. Legumen muticum, ovatum, ſubdiſpermum.

* 863. Ononis. Legumen rhombeum, ſeſſile. Vexillum ſtriatum.

862. Crotalaria. Legumen pedicellatum, turgidum.

Sect. II. *Stigma pubeſcens (nec priorum notæ).*

880. Colutea. Legumen inflatum, ſupra baſin dehiſcens.

866. Phaseolus. Carina ſtyluſque ſpirales.

867. Dolichos. Vexillum baſi callis duobus.

Order II. HEXANDRIA.

* F. Cal. 2-leafed. Cor. gaping, with a bulging baſe, nectariferous. Filaments with 3 anthers.

S. No cal. Cor. 4-cleft. Filaments on both ſides 3, connected.

Order III. OCTANDRIA.

* P. Cal. 2 ſegments, wing-ſhaped. Cor. ſtandard cylindrical. Stamens connected. Capſ. heart-ſhape reverſed, 2-celled.

S. Cal. 3-leafed. No ſtandard. Legume 1-ſeeded, wing ſtrap-ſhaped.

D. Filam. of the ſtamens 2, with the apex 4-cleft. Fruit pedicled, not open, leguminous, compreſſedly membranaceous, ſeed-bearing.

Order IV. DECANDRIA.

Sect. I. *All the ſtamens connected.*

N. A Legume, *i. e.* leguminous plant, 1-ſeeded, terminated by a ſtrap-ſhaped wing.

P. Legume leafy. Two ſtamens, 3-anthered.

A. Wings and keel none.

E. Wings and keel very ſhort. Cal. with a melliferous little hole.

A. Filam. 9, connected at the loweſt baſe, on the upper ſide diſtinct. Seeds ſpherical.

* S. Filam. adhering to the germen. Stigma connected, woolly.

* G. Piſtil depreſſing the keel. Stigma rolled inwards.

L. Anthers alternately round and oblong. Legume leather-like.

* A. Cal. ſwelling, including a pod.

P. Legume, with 4 longitudinal wings.

B. Legume dagger-pointed. Stigma notched at the end.

* U. Cal. 2-leafed. Legume ſcarce longer than the calyx.

A. Cor. horizontally turned upſide down. Legume leather-like.

E. Cor. with obſcure wings. Legume 1-ſeeded.

A. Legume awnleſs, oval, nearly 2-ſeeded.

* O. Legume diamond-ſhaped, ſitting. Standard ſtreaked.

C. Legume pedicled, turgid.

Sect. II. *Stigma pubeſcent*, i. e. *downy (not marked like the above).*

C. Legume inflated, open above the baſe.

P. Keel and ſtyle ſpiral.

D. Standard, with 2 calli or hardneſſes at the baſe.

* 871. Orobus. Stylus linearis, teretiuſculus, ſupra villoſus.
* 870. Pisum. Stylus ſupra carinatus villoſuſque.
* 872. Lathyrus. Stylus ſupra planus villoſuſque.
* 873. Vicia. Stylus ſub ſtigmate barbatus.

Sect. III. *Legumen ſub-biloculare (nec priorum).*

* 892. Astragalus. Legum. 2-loculare, rotundatum.
893. Biserrula. Legum. 2-loculare, planum, dentatum.
891. Phaca. Legum. ſemibiloculare.

Sect. IV. *Legumina ſubmonoſperma (nec priorum).*

894. Psoralea. Cal. punctis glanduloſis.
* 896. Trifolium. Legum. vix calyce longius, 1 ſ. 2-ſpermum. Flores capitati.
882. Glycyrrhiza. Cal. 2-labiatus, ſuperiore 3-fido.

Sect. V. *Legumen ſubarticulatum.*

888. Æschynomene. Legum. articulis monoſpermis. Cal. bilabiatus.
* 887. Hedysarum. Legum. articulis ſubrotundis, compreſſis. Carina obtuſiſſima.
883. Coronilla. Legum. iſthmis interceptum, rectum.
* 884. Ornithopus. Legum. articulatum, arcuatum.
886. Scorpiurus. Legum. iſthmis interceptum, teretiuſculum, involutum.
* 885. Hippocrepis. Legum. compreſſo-membranaceum; altera ſutura emarginaturis ad medium exciſa.
* 899. Medicago. Legum. ſpirale, membranaceo-compreſſum. Piſtillum carinam deflectens.

Sect. VI. *Legumen uniloculare polyſpermum (nec priorum).*

898. Trigonella. Vexillum alæque patentes quaſi tripetale. Carina minuta.
868. Glycine. Carina vexillum reflectens.
869. Clitoria. Vexillum amplum, alas obtegens. Cor. reſupinata.
879. Robinia. Vexillum reflexo-patens, ſubrotundum.
889. Indigofera. Carina utrinque denticulo.
875. Cicer. Calycis 4-laciniæ ſuperiores vexillo incumbentes.
* 874. Ervum. Cal. 5-partitus, ſubæqualis, longitudine fere corollæ.
1319. Liparia. Calycis lacinia infima elongata. Alæ inferius bilobæ.
877. Cytisus. Legum. pedicellatum. Cal. bilobiatus.
1417. Mullera. Pericarpium elongatum, carnoſum, moniliforme, globulis monoſpermis.
890. Galega. Legum. lineare, ſtriis obliquè tranſverſis.
* 897. Lotus. Legum. teres, farctum ſeminibus cylindricis.
878. Geoffroya. Drupa, nucleo ligneo.

* O. Style ſtrap-ſhaped, rather tapering, woolly above.
* P. Style keeled and woolly above.
* L. Style above flat and woolly.
* V. Style barbed under the ſtigma.

Sect. III. *Legume nearly 2-celled, (not marked as above).*

* A. Legume 2-celled, rounded.

B. Legume 2-celled, flat, toothed.

P. Legume half 2-celled.

Sect. IV. *Leguminous, nearly 1-ſeeded (not as above).*

P. Cal. with glandular points.
* T. Legume ſcarce longer than the cal. 1 or 2-ſeeded. Flowers growing in heads.
G. Cal. 2-lipped, upper 3-cleft.

Sect. V. *Legume nearly jointed.*

Æ. Legume, with 1-ſeeded joints. Cal. 2-lipped.

* H. Legume, with joints nearly round, compreſſed. Keel very obtuſe.
C. Legume interrupted by necks, ſtraight.

* O. Legume jointed, bowed.

S. Legume interrupted by necks, tapering, rolled inwards.
* H. Legume compreſſed-membranous; one ſeam notched, cut at the middle.
* M. Legume ſpiral, membranous-compreſſed. Piſtil bending away the keel.

Sect. VI. *Legume 1-celled, many-ſeeded (not as above).*

T. Standard and wings expanding, as if 3-petaled. Keel minute.
G. Keel bending back the ſtandard.
C. Standard large, covering the wings. Cor. horizontally turned upſide down.
R. Standard bent back, expanding, nearly round.

I. Keel toothed on both ſides.
C. Four upper ſegments of the cal. leaning on the ſtandard.
* E. Cal. 5-parted, nearly equal, almoſt of the length of the cor.
L. Lower ſegments of the cal. long. Wings 2-lobed below.
C. Legume pedicled. Cal. 2-lobed.

M. Pericarp. elongated, fleſhy, bracelet-ſhaped, with 1-ſeeded globules.
G. Legume ſtrap-ſhaped, with ſtreaks obliquely tranſverſe.
* L. Legume tapering, filled with cylindrical ſeeds.

G. Drupe, with a woody kernel.

Order I. PENTANDRIA.

851. Monniera.
One ſpecies; viz. trifolia.

Order II. HEXANDRIA.

1267. Saraca.
One ſpecies; viz. indica. India.

849. Fumaria, or *Fumitory*.
14 ſpecies; viz. cucullaria, ſpectabilis, nobilis, bulboſa, ſempervirens, lutea, fibirica, * capnoides, enneaphylla, * officinalis, * capreolata, ſpicata, * claviculata, veſicaria. Europe, Barb. Cape, N. America.

officinalis. * F. ſeed-veſſels in bunches, 1 ſeed in each; ſtem ſpreading.—Cows and ſheep eat it. Goats are not fond of it. Horſes and ſwine refuſe it. The leaves are ſucculent, ſaline, and bitter. The expreſſed juice, in doſes of two or three ounces, is uſeful in hypochondriacal, ſcorbutic, and cachectic habits. It corrects acidity, and ſtrengthens the tone of the ſtomach. Some prefer it to all other medicines as a ſweetener of the blood. There is no doubt of its utility in obſtructions of the viſcera and the diſeaſes ariſing therefrom. An infuſion of the leaves is uſed as a coſmetic to remove freckles and clear the ſkin.

Order III. OCTANDRIA.

851. Polygala, or *Milk-wort*.
38 ſpecies; viz. incarnata, aſpalatha, braſilienſis, trichoſperma, amara, * vulgaris, major, monſpeliaca, paniculata, fibirica, bracteolata, umbellata, myrtifolia, oppoſitifolia, ſpinoſa, teretifolia, theezans, trinervia, penaca, diverſifolia, microphylla, æſtuans, chinenſis, chamæbuxus, alopecuroides, mixta, ſquarroſa, heiſteria, ſtipulacea, ſenega, lutea, virideſcens, triflora, glaucoides, ciliata, ſanguinea, verticillata, cruciata. Europe, Cape, India, N. America.

vulgaris. * P. flowers in bunches; ſtems herbaceous, ſimple, trailing; leaves ſtrap-ſpear-ſhaped.—This plant has been found to poſſeſs the properties of the Senega rattleſnake root (*polygala ſenega*), but in an inferior degree. The powdered root may be given in doſes of half a dram. Cows, goats, and ſheep eat it. Swine refuſe it. An infuſion of the herb, which is very bitter, taken in the morning faſting, about one fourth of a pint daily, promotes expectoration, and is good for a catarrhous cough.

The *polygala ſenega* grows ſpontaneouſly in Virginia, and bears the winters of our own climate. This root is uſually about the thickneſs of the little finger, variouſly bent and contorted, and appears as if compoſed of joints, whence it is ſuppoſed to reſemble the tail of the animal whoſe name it bears: A kind of membranous margin runs on each ſide, the whole length of the root. Its taſte is at firſt acid, afterwards very hot and pungent.

The Senegavo Indians are ſaid to prevent the fatal effects which follow from the bite of the rattleſnake, by giving it internally, and by applying it externally to the wound. It has been ſtrongly recommended in pleuriſies, peripneumonies, and other inflammatory diſtempers. Its more immediate effects are thoſe of a diuretic, diaphoretic, and cathartic; ſometimes it proves emetic: the two laſt operations may be occaſionally prevented by giving the root in ſmall doſes along with aromatic ſimple waters, as that of cinnamon. The uſual doſe of the powder is 30 grains or more.

Some have likewiſe employed this root in hydropic caſes, and not without ſucceſs. There are examples of its occaſioning a plentiful evacuation by ſtool, urine, and perſpiration; and by this means removing the diſeaſe, after the common diuretics and hydragogues had failed. Where this medicine operates as a cathartic it generally proves ſucceſsful; if it acts by liquefying the blood and juices, without occaſioning a due diſcharge, it ſhould either be abſtained from, or aſſiſted by proper additions.

852. Securidæa, or *Hatchet-vetch*.
Two ſpecies; viz. erecta, volubilis. W. Indies.

1416. Dalbergia.
Two ſpecies; viz. lanceolaria, monetaria. Surinam, Ceylon.

Order IV. DECANDRIA.

853. Nissolia.
Two ſpecies; viz. arborea, fruticoſa. S. Amer.

1286. Abrus, or *Jamaica Wild Liquorice*.
One ſpecies; viz. precatorius. E. and W. Indies.

854. Pterocarpus, or *Red Sanders*.
Five ſpecies; viz. draco, lunatus, ſantalinus, ecaſtaphyllum, buxifolius. E. and W. Indies.

855. Erythrina, or *Coral Tree*.
Five ſpecies; viz. herbacea, corollodendrum, picta, criſta galli, planiſiliqua. Carolina, E. and W. Indies, Brazil.

856. Piscidia, or *Dogwood Tree*.
Two ſpecies; viz. erythrina, carthaginenſis. Weſt Indies.

857. Borbonia.
Six ſpecies; viz. ericifolia, lævigata, trinervia, lanceolata, cordata, trenata. C. of G. Hope.

858. Spartium, or *Broom*.
16 ſpecies; viz. contaminatum, ſepiarium, junceum, monoſpermum, ſphærocarpon, purgans, aphyllum, ſcorpius, angulatum, patens, ſupranulium, complicatum, * ſcoparium, radiatum, cytiſoides, ſpinoſum. S. Europe, Barbary, Cape, Madeira,

ſcoparium. * S. leaves in threes, and ſolitary; branches without prickles.—The young flowers are ſometimes preſerved as pickles. The plant, when burnt, affords a tolerable pure alkaline ſalt. Dr Mead relates the caſe of a dropſical patient, that was cured by taking half a pint of a decoction of green broom-tops, with a ſpoonful of whole muſtard ſeed, every morning and evening. The patient had been tapped three times, and tried the uſual remedies before. An infuſion of the ſeeds, drank freely, has been known to produce ſimilar happy effects; but whoever expects theſe effects to follow in every dropſical caſe, will be greatly deceived. A ſtrong lixivium of the aſhes was uſed in the Swediſh army in the year 1759, to cure dropſies, conſequential to a catarrhal epidemic fever. The urine became plentiful, and the dropſies ſoon diſappeared. Some uſe the

ſeeds

ſeeds toaſted, ſo as to make a kind of coffee. The plant, when growing large, merits a place among our flowering ſhrubs, on account of the profuſion of its golden-coloured bloſſoms. Cows, horſes, and ſheep, refuſe it.

859. GENISTA, or *Dyers Broom.*

14 ſpecies; viz. canarienſis, candicans, linifolia, ſagitalis, tridentata, * tinctoria, ſibirica, florida, * piloſa, humifuſa, * anglica, germanica, hiſpanica, luſitanica. Europe, Canaries.

tinctoria. * G. branches ſcored, cylindrical, upright; leaves ſpear-ſhaped, ſmooth; legumen cylindrical.—A yellow colour may be prepared from the flowers; and for wool that is to be dyed green, the dyers prefer it to all others. A dram and a half of the powdered ſeeds operates as a mild purgative. A decoction of the plant is ſometimes diuretic, and therefore has proved ſerviceable in dropſical caſes. Horſes, cows, goats, and ſheep, eat it.

The wood or root of the *geniſta canarienſis* is chiefly brought to us from the Canary iſlands. In the ſhops of the apothecaries it uſually receives the appellation of *lignum rhodium.* It is in long crooked pieces full of knobs, which when cut, appear of a yellow colour like box, with a reddiſh caſt. The largeſt, ſmootheſt, moſt compact, and deepeſt coloured pieces, ſhould be choſen; and the ſmall, thin, or pale ones, rejected. The taſte of this wood is lightly bitteriſh, and ſomewhat pungent; its ſmell very fragrant, reſembling that of roſes: long kept, it ſeems to loſe its ſmell; but, on cutting or rubbing one piece againſt the other, it ſmells as well as at firſt. Diſtilled with water, it yields an odoriferous eſſential oil, in very ſmall quantity. Rhodium is at preſent in eſteem, only upon account of its oil, which is employed as a high and agreeable perfume in ſcenting pomatums and the like. But if we may reaſon from analogy, this odoriferous ſimple might be advantageouſly applied to more uſeful purpoſes; a tincture of it in rectified ſpirit of wine, which contains in ſmall volume the virtues of a conſiderable deal of the wood, bids fair to prove a ſerviceable cordial, not inferior perhaps to any thing of this kind.

860. ASPALATHUS, or *African Broom.*

35 ſpecies; viz. ſpinoſa, verrucoſa, capitata, glomerata, aſtroites, chenopoda, albens, thymifolia, ericifolia, nigra, carnoſa, ciliaris, geniſtoides, hyſtrix, galioides, retroflexa, uniflora, araneoſa, aſparagoides, ſericea, caneſcens, heterophylla, indica, ebenus, cretica, quinquefolia, tridentata, piloſa, anthylloides, laxata, argentea, calloſa, orientalis, mucronata, pinnata. Crete, Cape, E. Indies.

881. ULEX, or *Furze, Whins, Gorſe.*

Two ſpecies; viz. * europæus, capenſis. Germany, France, Cape.

europæus. * U. leaves woolly, acute; thorns ſcattered.—Gorſe is in ſome reſpects a very hardy plant, and will make fences upon the bleakeſt mountains and cloſe to the ſea ſide, where the ſpray of the ſea deſtroys almoſt every other ſhrub; but it is impatient of cold, is often deſtroyed by ſevere froſt, and is rarely found in the northern parts of our iſland. In Cornwall, where fuel is ſcarce, it is cultivated to advantage, and it is generally cut to make faggots for heating ovens, which it does very ſoon, burning rapidly, and with a great degree of heat. The aſhes are uſed to make ley. Team horſes may be ſupported by this plant, if it is cut young and bruiſed in a mill to break the thorns. Goats, cows, ſheep, and horſes feed upon the tender tops.

861. AMORPHA, or *Shrubby Baſe Indigo.*

One ſpecies; viz. fruticoſa. Carolina.

862. CROTALARIA, or *Rattle-wort.*

23 ſpecies; viz. perforata, perfoliata, amplexicaulis, ſagittalis, chinenſis, juncea, imbricata, retuſa, ſeſſiliflora, triflora, verrucoſa, biflora, oppoſita, linifolia, bifaria, latifolia, lunaris, laburnifolia, cordifolia, incana, incaneſcens, heterophylla, quinquefolia. Eaſt and Weſt Indies, Africa, America.

863. ONONIS, or *Reſt-harrow.*

31 ſpecies; viz. antiquorum, * ſpinoſa, * arvenſis, repens, minutiſſima, mitiſſima, alopecuroides, variegata, pubeſcens, hircina, cernua, umbellata, argentea, involucrata, filiformis, capenſis, proſtrata, reclinata, ceniſia, cherleri, viſcoſa, ornithopodioides, pinguis, natrix, tridentata, criſpa, hiſpanica, fruticoſa, rotundifolia, microphylla, mauritanica. Europe, Cape.

ſpinoſa. * O. flowers in bunches, ſolitary; leaves ſolitary or three together; branches thorny.—A decoction of the roots has been recommended in caſes of ſtone and jaundice. Cows and goats eat it. Sheep are very fond of it. Horſes and ſwine refuſe it. A horſe is ſaid to have refuſed the whole branch, but ate of the younger ſhoots when picked off.

864. ANTHYLLIS, or *Lady's Finger, Kidney-vetch.*

15 ſpecies; viz. tetraphylla, * vulneraria, montana, cornicina, lotoides, gerardi, quinqueflora, involucrata, linifolia, barba-jovis, heterophylla, viſciflora, cytiſoides, hermaniæ, erinacea. Europe.

vulneraria * A. herbaceous; leaves winged, unequal; flowers in a double head.—The country people get a yellow dye from it. It makes an excellent paſturage for ſheep. Where the ſoil was a reddiſh clay, Linnæus obſerved the bloſſoms to be red, but in white clay white. Goats and cows eat it.

876. ARACHIS, or *Ground Nut.*

One ſpecies; viz. hypogæa. Carolina, S. Amer.

895. EBENUS, or *Ebony of Crete.*

One ſpecies; viz. cretica. Crete, Levant, Barb.

865. LUPINUS, or *Lupine.*

Seven ſpecies; viz. perennis, albus, varius, hirſutus, piloſus, anguſtifolia, luteus. S. Europe, Egypt, Virginia.

The ſeeds of the *lupinus albus* have a leguminous taſte, accompanied with a diſagreeable bitter one. They are ſaid to be anthelmintic, both internally taken, and applied externally. Hoffman cautions againſt their internal uſe, and tells us that they have ſometimes occaſioned death. Simon Paulli alſo obſerves, that he ſaw a boy of eight or ten years of age, after taking a dram of theſe ſeeds in powder, ſeized with exquiſite pains of the abdomen, a difficulty of reſpiration, and almoſt total loſs of voice; and that he was relieved from theſe complaints by a glyſter of milk and ſugar, which brought away a vaſt quantity of worms. But Mr Geoffroy obſerves, very juſtly, that either theſe

theſe ſymptoms were owing to the worms, and not to the medicine; or that theſe ſeeds, if they have any noxious quality, loſe it, with their bitterneſs, in boiling, ſince they were commonly uſed among the Greeks as food, and recommended by Galen as very wholeſome.

866. PHASEOLUS, or *Kidney Bean.*

17 ſpecies; viz. vulgaris, lunatus, bipunctatus, inamoenus, farinoſus, vexillatus, helvalus, ſemierectus, alatus, caracalla, aconitifolius, nanus, radiatus, max, mungo, lathyroides, ſphæroſpermus. E. and W. Indies, Africa, America.

867. DOLICHOS, or *Cow-itch.*

31 ſpecies; viz. benghalenſis, lablab, ſinenſis, uncinatus, luteolus, unguiculatus, tranquebaricus, enſiformis, tetragonolobus, ſeſquipedalis, altiſſimus, pruriens, urens, minimus, lineatus, capenſis, ſcarabæoides, incurvus, bulboſus, trilobus, ariſtatus, filiformis, purpureus, regularis, lignoſus, polyſtachios, enſiformis, ſaja, catiang, biflorus, repens. Egypt, E. and W. Indies, Cape, America.

The *dolichos pruriens* is a plant growing in great abundance in warm climates, particularly in the Weſt India iſlands; and there it is very troubleſome to cattle and other domeſtic animals: for on account of the ſpiculæ of the ſeed-pod, it excites, when touched, a very uneaſy itching. Theſe ſpiculæ have been long uſed in South America, in caſes of worms; and have of late been frequently employed in Britain. The ſpiculæ of one pod, mixed with ſyrup or molaſſes, and taken in the morning faſting, is a doſe for an adult. The worms are ſaid to appear with the ſecond or third doſe; and by means of a purge in ſome caſes, the ſtools are ſaid to have conſiſted almoſt entirely of worms; and in caſes of lumbrici it is ſaid to produce a ſafe and effectual cure. Thoſe who have uſed it moſt affirm, that they have never ſeen any inconvenience reſulting from the internal uſe of it, notwithſtanding the great uneaſineſs it occaſions, on the ſlighteſt touch, to any part of the ſurface.

868. GLYCINE, or *Kidney-bean tree.*

15 ſpecies; viz. ſubterranea, monoica, triloba, villoſa, javanica, comoſa, tomentoſa, bituminoſa, nummularia, labialis, ſtriata, ſuaveolens, apios, fruteſcens, monophylla. Cape, Eaſt and Weſt Indies, North America.

869. CLITORIA.

Five ſpecies; viz. ternatea, braſiliana, virginiana, mariana, galætia. Eaſt and Weſt Indies, America.

870. PISUM, or *Pea.*

Four ſpecies; viz. ſativum, arvenſe, * maritimum, ochrus. Europe, North America.

maritimum. * P. leaf-ſtalks flattiſh above; ſtem angular; ſtipulæ arrow-ſhaped; fruit-ſtalks many flowered.—In 1555, during a time of great ſcarcity, the people about Orford in Suſſex were preſerved from periſhing by eating the ſeeds of this plant which grew there in great abundance upon the ſea coaſt. Cows, horſes, ſheep and goats eat it.

871. OROBUS, or *Bitter Vetch.*

12 ſpecies; viz. lathyroides, hirſutus, luteus, vernus, * tuberoſus, * ſylvaticus, anguſtifolius, albus, caneſcens, niger, pyrenaicus, ſylvaticus. Europe.

tuberoſus. * O. leaves winged, ſpear-ſhaped; ſtipula half-arrow-ſhaped, very entire; ſtem ſimple.—The roots, when boiled, are ſavoury and nutritious; ground to powder they may be made into bread. They are held in high eſteem by the Highlanders of Scotland, who chew them as our people do tobacco, and find that they prevent the uneaſy ſenſation of hunger. They imagine that they promote expectoration, and are very efficacious in curing diſorders of the lungs. They know how to prepare an intoxicating liquor from them. Horſes, cows, goats, and ſheep eat it.

LATHYRUS, or *Chickling Vetch.*

21 ſpecies; viz. * apliaca, * niſſolia, amphicarpos, cicera, ſativus, inconſpicuus, ſetifolius, angulatus, articulatus, odoratus, annuus, tingitanus, clymenum, * hirſutus, tuberoſus, * pratenſis, * ſylveſtris, * latifolius, heterophyllus, * paluſtris, piſiformis. Europe, Barbary, Ceylon.

pratenſis. * L. tendrils with two leaves, quite ſimple, leafets ſpear-ſhaped.—This has been recommended as a new plant for the experiments of the farmers, and premiums have been offered for its cultivation. But it does not ſeem to be a plant at all agreeable to cattle, as where they have a choice of food they ſeldom touch it. Beſides it produces very few ſeeds, aud thoſe are for the moſt part devoured by a ſpecies of curculio.

873. VICIA, or *Vetch, Bean, Tare.*

20 ſpecies; viz. piſiformis, dumetorum, * ſylvatica, caſſubica, * cracca, gerardi, onobrychioides, niſſoliana, biennis, benghalenſis, * ſativa, * lathyroides, * lutea, * hybrida, peregrina, * ſepium, * bithynica, narbonenſis, faba, ſerratifolia. Europe, Egypt, India.

ſativa. * V. legumens moſtly in pairs, upright; leafets inverſely ſpear-ſhaped, blunt, notched; ſtipulæ toothed; ſeeds compreſſed.—In Gloceſterſhire and Worceſterſhire, they ſow it as paſturage for horſes, and eat it off early enough to allow of turnips being ſown the ſame year.—The ſeeds are excellent food for pigeons. Horſes, cows, ſheep, and goats, eat it.

ſepium. * V. legumens moſtly four together, upright; leafets egg-ſhaped, very entire, the outer ones gradually ſmaller.—This plant ſhoots earlier in ſpring than any plant eaten by cattle, vegetates late in the autumn, and continues green all winter; but it is difficult to collect the ſeeds, as the pods burſt and ſcatter them about, and moreover, hardly a third part of them will vegetate, being made the nidus of an inſect. A patch of them ſown in drills in a garden was cut five times in the courſe of the ſecond year, and produced at the rate of 24 tons per acre of green food, which when dry would weigh near $4\frac{1}{6}$ tons.

The ſeeds of the *vicia faba*, or common bean, are a ſtrong flatulent food, ſufficiently nutritious, but not eaſy of digeſtion, eſpecially when growing old. A water diſtilled from the flowers has been celebrated as a coſmetic, and ſtill retains its character among ſome female artiſts.

874. ERVUM, or *Bitter Vetch.*

Six ſpecies; viz. lens, * tetraſpermum, * hirſutum, ſolonienſe, monanthos, ervilia. Europe, Aſia.

hirſutum. * E. fruit-ſtalks many flowered; ſeeds 2, globular.—Horſes, cows, goats, and ſheep eat it. In wet ſeaſons whole fields of corn have been overpowered and wholly deſtroyed by it.

875.

875. Cicer, or *Chick-peaſe.*
One ſpecies; viz. arietinum. S. Europe, Levant.

1319. Liparia.
Five ſpecies; viz. ſphærica, graminifolia, umbellata, villoſa, ſericea. C. of G. Hope.

876. Cytisus, or *Trefoil tree.*
17 ſpecies; viz. laburnum, nigricans, wolgaricus, ſeſſilifolius, cajan, patens, hirſutus, capitatus, auſtriacus, ſupinus, prolifer, argenteus, pendulinus, purpureus, glaber, græcus, tener. Europe, Cape, E. Indie.

1417. Mullera.
One ſpecies; viz. moniliformis. Surinam.

878. Geoffroya, or *Baſe Cabbage tree.*
One ſpecies; viz. ſpinoſa. Jamaica, Brazil.

879. Robinia, or *Falſe Acacia.*
Nine ſpecies; viz. pſeud-acacia, violacea, hiſpida, mitis, holodendron, caragana, ſpinoſa, fruteſcens, pygmæa. Siberia, Tartary, N. America, W. Indies.

880. Colutea, or *Bladder-ſenna.*
Four ſpecies; viz. arboreſcens, fruteſcens, perennans, herbacea. Auſtria, Italy, Levant, Africa.

882. Glycirrhiza, or *Liquorice.*
Four ſpecies; viz. echinata, glabra, hirſuta, aſperrima. Spain, Italy, Levant, Apulia.

883. Coronilla, or *Joint-podded Colutea.*
11 ſpecies; viz. emerus, juncea, valentina, glauca, coronata, minima, argentea, ſecuridæa, varia, cretica, ſcandens. S. Europe, America.

884. Ornithopus, or *Birds-foot.*
Four ſpecies viz. * perpuſillus, compreſſus, ſcorpioides, tetraphyllus. S. Europe, Jamaica, Barbary.

885. Hippocrepis, or *Horſe-ſhoe Vetch.*
Four ſpecies; viz. uniſiliquoſa, multiſiliquoſa, * comoſa, balearica. S. Europe.

886. Scorpiurus, or *Caterpillars.*
Four ſpecies; viz. vermiculata, muricata, ſulcata, ſubvilloſa. S. Europe.

888. Æschynomene, or *Baſe Senſitive plant.*
Eight ſpecies; viz. grandiflora, arborica, coccinea, aſpera, americana, indica, ſeſban, pumila. Egypt, E. and W. Indies.

887. Hedysarum, or *French Honeyſuckle.*
67 ſpecies; viz. alhagi, bupleurifolium, linifolium, nummularifolium, moniliferum, ſtyracifolium, reniforme, ſororium, veſpertilionis, gangeticum, maculatum, latebroſum, vaginale, imbricatum, triquetrum, ſtrobiliferum, diphyllum, pulchellum, ſpartium, lineatum, retroflexum, umbellatum, biarticulatum, heterocarpon, viſcidum, canadenſe, caneſcens, marilandicum, fruteſcens, viridiflorum, hirtum, junceum, violaceus, paniculatum, nudiflorum, repens, hamatum, triflorum, barbatum, lagopodioides, microphyllum, racemoſum, caudatum, tomentoſum, ſericeum, virgatum, piloſum, ſtriatum, volubile, gyrans, argentalum, alpinum, obſcurum, coronarium, flexuoſum, humile, ſpinoſiſſimum, virginicum, fruticoſum, pumilum, * onobrychis, ſaxatile, caput galli, criſta galli, trinitum, cornutum, incanum. S. Europe, E. and W. Indies, N. America.

* H. leaves winged; legumens with one ſeed, prickly; wings as long as the calyx; ſtem growing long.—This plant is cultivated like clover for feeding cattle, and is particularly advantageous in dry hilly ſituations and chalky ſoils. *onobrychis*

889. Indigofera, or *Indigo.*
23 ſpecies; viz. ſericea, ovata, trifoliata, pſoraloides, procumbens, ſarmentoſa, denudata, mexicana, trita, filiformis, digitata, ſtricta, fruteſcens, enneaphylla, pentaphylla, glabra, cytiſoides, hirſuta, anguſtifolia, anil, tinctoria, diſperma, argentea. Arabia, E. and W. Indies, Cape, Carolina.

890. Galega, or *Goats-rue.*
12 ſpecies; viz. officinalis, cinerea, littoralis, virginiana, villoſa, ſpinoſa, maxima, purpurea, caribæa, cœrulea, tinctoria, ſenticoſa. S. Europe, E. and W. Indies, America.

The *galega officinalis* was celebrated as an alexipharmac; but its ſenſible qualities diſcover no foundation for any virtues of this kind; the taſte is merely leguminous, and in Italy, where it grows wild, it is ſaid to be uſed as food.

891. Phaca, or *Baſe Milk-vetch.*
Ten ſpecies; viz. bætica, alpina, ſalſuta, ſibirica, auſtralis, trifoliata, veſicaria, proſtrata, microphylla, muricata. Lapland, Siberia, S. Europe.

892. Astragalus, or *Liquorice*, or *Milk-vetch.*
45 ſpecies; viz. alopecuroides, chriſtianus, capitatus, piloſus, ſulcatus, galegiformis, chinenſis, onobrychis, uliginoſus, carolinianus, aſper, canadenſis, cicer, microphyllus, * glycyphyllos, hamoſus, contortuplicatus, bæticus, laxmanni, ſtella, ſeſameus, auſtriacus, leontinus, pentaglottis, epiglottis, * hypoglottis, ſyriacus, arenarius, glaux, ſinicus, alpinus, ammodytes, trimeſtris, verticillaris, montanus, veſicarius, phyſodes, caprinus, * uralenſis, monſpeſſulanus, incanus, campeſtris, depreſſus, uncatus, exſcapus. Europe, Egypt, Barbary.

893. Bisserrula, or *Baſe Hatchet-vetch.*
One ſpecies; viz. pelecinus. South of Europe.

894. Psoralea.
23 ſpecies; viz. rotundifolia, pinnata, aculeata, bracteata, ſpicata, axillaris, ſtachydes, aphylla, tenuifolia, capitata, hirta, repens, bituminoſa, glanduloſa, palæſtina, americana, tetragonalia, corylifolia, pentaphylla, proſtrata, dalea, enneaphylla, lævigata. S. Europe, India, Africa, America.

896. Trifolium, or *Trefoil, Clover.*
46 ſpecies; viz. cœrulea, indica, meſſanenſe, polonica, * officinalis, italica, cretica, * ornithopodioides, lupinaſta, reflexum, ſtrictum, * hybridum, * repens, comoſum, alpinum, * ſubterraneum, globoſum, cherleri, lappaceum, rubens, * pratenſe, alpeſtre, pannonicum, ſquarroſum, incarnatum, * ochroleucum, anguſtifolium, * arvenſe, ſtellatum, clypeatum, * ſcabrum, * glomeratum, * ſtriatum, alexandrinum, uniflorum, ſpinoſum, reſupinatum, tomentoſum, * fragiferum, montanum, agrarium, ſpacticeum, * procumbens, * filiforme, biflorum, * ſuffocatum. Europe, India, Africa, North America.

T. capſules in bunches, often 2-ſeeded, wrinkled, acute; ſtem upright.—This plant is more fragrant when *officinalis.*

when dry than when green. A water diſtilled from the flowers, poſſeſſes but little odour in itſelf, but improves the flavour of other ſubſtances. Horſes are extremely fond of it. Cows, goats, ſheep, and ſwine eat it.

repens. * T. heads like umbels; legumens 4-ſeeded; ſtem creeping.—Horſes, cows, and goats eat it. Sheep are not fond of it. Swine refuſe it. The leaves ſtand upright againſt rain. Wherever this plant abounds ſpontaneouſly, it is conſidered as an indication of the goodneſs of the ſoil, and this is a thing well known to farmers. The richneſs of meadows and paſtures is naturally owing to their abounding principally with the trefoils, and others of the ſame claſs, with a due mixture of the more acceptable graſſes.

pratenſe. * T. ſpikes crowded; bloſſoms unequal; calyx with four of the teeth equal; ſtipulæ awned; ſtems aſcending.—In a great ſcarcity of proviſions, bread has been made of the flowers. The heads are uſed in Sweden to dye woollen green. With alum they give a light, with copperas a dark green.

897. LOTUS, or *Birds-foot Trefoil.*

18 ſpecies; viz. maritimus, filiguoſus, tetragonolobus, conjugatus, tetraphyllus, edulis, peregrinus, anguſtiſſimus, arabicus, ornithopodioides, jacobæus, creticus, hirſutus, græcus, rectus, * corniculatus, cytiſoides, dorycnium. Europe, Arabia, Madeira.

corniculatus. * L. heads of the flowers flatted at the top; ſtems herbaceous, trailing: legumens cylindrical, expanding.—The flowers of this plant become greeniſh when dried, in which reſpect they reſemble the flowers of the plants which produce indigo. Cows, goats, and horſes eat it. Sheep and ſwine are not fond of it. In Hertfordſhire it is cultivated as paſturage for ſheep. There is no doubt but it might be cultivated to great advantage. In moiſt meadows it grows to a great height, and makes extremely good hay.

898. TRIGONELLA, or *Fenugreek.*

12 ſpecies; viz. ruthenica, platycarpos, ſtriata, polycerata, hamoſa, ſpinoſa, corniculata, monſpeliaca, laciniata, fœnum græcum, ſylveſtris, indica. Siberia, S. Europe, Egypt, India.

The *trigonella fœnum græcum* is cultivated chiefly in the ſouthern parts of France, Germany, and Italy; from whence the ſeeds are brought to us. They are of a yellow colour, rhomboidal figure, a diſagreeable ſtrong ſmell, and a mucilaginous taſte. Their principal uſe is in cataplaſms, fomentations, and the like, and in emollient glyſters.

899. MEDICAGO, or *Medich, Moon-trefoil.*

24 ſpecies; viz. arborea, virginica, radiata, circinnata, * ſativa, * falcata, * lupulina, marina, polymorpha, proſtrata, orbicularis, ſcutellata, tornata, turbinata, intertexta, * arabica, coronata, ciliaris, hirſuta, rigidula, * minima, * muricata, nigra, laciniata. Europe, North America.

* M. flowers in bunches; legumens narrow, regular, twiſted; ſtem upright, ſmooth.—Modern writers upon huſbandry ſtrongly recommend the cultivation of this plant, for the purpoſe of feeding cattle; but it is not yet generally adopted. *ſativa.*

* M. flowers in bunches; legumens creſcent-ſhaped; ſtem proſtate.—In hot, dry, barren ſandy places it is well worth the trouble of ſowing for the purpoſe of making hay; a practice long ſince adopted in ſome parts of Sweden. Cows, horſes, goats, and ſheep eat it. *falcata.*

* M. ſpikes oval; ſeed-veſſels kidney-ſhaped, with 1 cell and 1 ſeed; ſtems trailing.—Cows, horſes, goats, and ſheep eat it; but it is leſs grateful to them than the other ſpecies. It is cultivated in Norfolk under the name of *nonſuch*, and is uſually ſown mixed with rye-graſs. The crop is then called black and white nonſuch. It has been ſown in the Iſle of Wight. It is ſometimes ſown along with clover, and rye graſs. *lupulina.*

In the claſs Diadelphia are

56 Genera, including 710 Species, of which 59 are found in Britain.

CLASSIS XVIII.

POLYADELPHIA (H).

ORDO I. PENTANDRIA.

900. THEOBROMA. Cal. 3-phyllus. Cor. 5-petala, nectariis 5. Stam. 5. Antheris 3. Piſtill. 3.

1418. ABROMA. Pentagyna. Capſ. 5-locularis, 1-valvis, apice dehiſcens. Semina reniformia. Receptaculo hirſuto.

CLASS XVIII.

POLYADELPHIA.

ORDER I. PENTANDRIA.

T. Cal. 3-leaved. Cor. 5-petaled. Nectaries 5. Stam. 5. Anthers 3. Piſtills 3.

A. Piſtils 5. Capſ. 5-celled, 1-valved, open at the extremity. Seeds kidney-ſhaped. Receptacle ſhaggy.

(H) This claſs comprehends the plants whoſe flowers have ſtamens united by the filaments into three or more ſets. The orders depend upon the number of ſtamens. There is only a ſingle genus of Britiſh plants belonging to this claſs, viz. the *hypericum.*

Ordo II. DODECANDRIA.

1268. Monsonia. Cal. 5-phyllus. Cor. 5-petala. Stam. 5. Antheris 3. Piſtill. 5-fidum.

Ordo III. ICOSANDRIA.

901. Citrus. Cal. 5-dentatus. Cor. 5-petala. Stam. 20. in cylindrum paſſim connata. Piſtill. 1. Bacca locularis, pulpa veſiculari.

Ordo IV. POLYANDRIA.

1269. Melaleuca. Cal. 5-partitus ſuperus. Cor. 5-petala. Capſ. ſemiveſtita calyce baccato.

1270. Hopea. Cal. 5-fidus, ſuperus. Cor. 5-petala. Drupa nucleo 3-loculari.

Durio. Cal. 5-fidus, urceolatus, inferus. Cor. 5-petala, parva. Stylus 1. Stam. phalanges 5, ex ſeptem. Pomum 5-loculare.

1320. Glabraria. Cal. 5-fidus, inferus. Cor. 5-petala. Stylus 1. Stam. phalanges 5 ex ſenis. Drupa.

1321. Munchhausia. Cal. inferus, 6-fidus. Cor. 6-petala. Capſ. 6-locularis.

677. Symplocos. Cal. 5-fidus, inferus. Cor. 5-petala. Stam. 4-plici ſerie corollæ adnata.

* 902. Hypericum. Cal. 5-partitus, inferus. Cor. 5-petala. Styli. 1, 3, ſ. 5. Capſ. locularis.

903. Ascyrum. Cal. 2-phyllus, inferus. Cor. 4-petala. Styli. 2. Capſ. 2-valvis.

Order II. DODECANDRIA.

M. Cal. 5-leaved. Cor. 5-petaled. Stam. 5. Anthers 3. Piſtil. 5-cleft.

Order III. ICOSANDRIA.

C. Cal. 5-toothed. Cor. 5-petaled. Stam. 20, everywhere united into a cylinder. Piſtil 1. Berry celled, in a veſicular pulp.

Order IV. POLYANDRIA.

M. Cal. 5-parted ſuperior. Cor. 5-petaled. Capſ. half covered with a berrylike cal.

H. Cal 5-cleft ſuperior. Cor. 5-petaled. Drupe with a 3-celled nut.

D. Cal. 5-cleft, pitcher-ſhaped, inferior. Cor. 5-petaled, ſmall. Style 1. Stam. phalanxes 5 of 7. Apple many-celled.

G. Cal. 5-cleft, inferior. Cor. 5-petaled. Style 1. Stem. phalanxes 5 of 6. Drupe.

M. Cal. inferior 6-cleft. Cor. 6-petaled. Capſ. 6-celled.

S. Cal. 5-cleft, inferior. Cor. 5-petaled. Stam. connected with the corol. by a 4-fold ſeries.

* H. Cal. 5-parted inferior. Cor. 5-petaled. Styles 1, 3, or 5. Capſ. celled.

A. Cal. 2-leaved, inferior. Cor. 4-petaled. Styles 2. Capſ. 2-valved.

Order I. PENTANDRIA.

900. Theobroma, or *Chocolate-nut-tree.*

Two ſpecies; viz. cacao, guamma. Jamaica, S. America.—The nuts of the *theobroma cacao* are the fruit of an American tree reſembling the almond. The tree, though ſmall, bears a large fruit, ſhaped like a cucumber, which contains 30 or more of the nuts. Theſe, by preſſure, yield a conſiderable quantity of a fluid oil. Boiled in water, they give out a large portion of a ſebaceous matter, which congeals on the ſurface of the liquor as it cools. The principal uſe of theſe nuts is for the preparation of the dietetic liquor chocolate. This is a mild, unctuous, nutritious fluid, capable of ſoftening acrimonious humours, and of great ſervice in conſumptive diſorders, eſpecially if made with milk, and with only a ſmall proportion of aromatics.

1418. Abroma.

One ſpecies; viz. auguſta. California.

Order II. DODECANDRIA.

1268. Monsonia.

Three ſpecies; viz. filia, ſpecioſa, lobata. C. of G. Hope.

Ordo III. ICOSANDRIA.

901. Citrus, or *Lemon-orange, Shaddock.*

Four ſpecies; viz. medica, aurantium, decumana, japonica. Aſia, India.

The citron or the *citrus medica* is an evergreen tree or ſhrub, of the ſame genus with the orange and lemon; it was firſt brought from Aſſyria and Media (whence the fruit is called *mala aſſyria, mala medica*) into Greece, and thence into the ſouthern parts of Europe, where it is now cultivated. Citrons are rarely made uſe of among us; they are of the ſame quality with lemons, except that their juice is ſomewhat leſs acrid. They are with us frequently employed as a condiment.

The juice of lemons is ſimilar in quality to that of oranges, from which it differs little otherwiſe than its being more acid. The yellow peel is an excellent aromatic, and is frequently employed in ſtomachic tinctures and infuſions: it is conſiderably leſs hot than orange peel, and yields in diſtillation with water a leſs quantity of eſſential oil; its flavour is nevertheleſs more periſhable, yet does not ariſe ſo readily with ſpirit of wine; for a ſpirituous extract made from lemon peel poſſeſſes the aromatic taſte and ſmell of the ſubject, in much greater perfection than an extract prepared in the ſame manner from

from the peel of oranges. In the ſhops a ſyrup is prepared from the juice, and the peel is candied: the peel is an ingredient in the bitter infuſions and wines: the eſſential oil enters the volatile aromatic ſpirit, or *ſpiritus amoniæ compoſitus*, as it is now called, and ſome other formulæ.

The orange or the *citrus aurantium* is a beautiful evergreen tree, or rather ſhrub; it is a native of the warmer climates, and does not eaſily bear the winters of this.

The flowers are highly odoriferous, and have been for ſome time paſt of great eſteem as a perfume; their taſte is ſomewhat warm, accompanied with a degree of bitterneſs. They yield their flavour by infuſion to rectified ſpirit, and in diſtillation both to ſpirit and water: the bitter matter is diſſolved by water, and on evaporating the decoction, remains entire in the extract. An oil diſtilled from theſe flowers is brought from Italy, under the name of *oleum* or *eſſentia neroli*.

Orange flowers were at one time ſaid to be an uſeful remedy in convulſive and epileptic caſes: but experience has not confirmed the virtues attributed to them. The leaves of the orange have alſo been recommended for the ſame purpoſe, but have by no means anſwered the expectations entertained by ſome.

The outer yellow rind of the fruit is a grateful aromatic bitter; and proves an excellent ſtomachic and carminative, promoting appetite, warming the habit, and ſtrengthening the tone of the viſcera. Orange peel appears to be very conſiderably warmer than that of lemons, and to abound more with eſſential oil: to this circumſtance, therefore, regard ought to be had in the uſe of theſe medicines. The flavour of the firſt is likewiſe ſuppoſed to be leſs periſhable than that of the other; hence the London college employ orange-peel in the ſpirituous bitter tincture, which is deſigned for keeping; whilſt in the bitter watery infuſion, lemon-peel is preferred. A ſyrup and diſtilled water are for the ſame reaſon prepared from the rind of oranges in preference to that of lemons.

The outer rind of the orange is the baſis of a conſerve both in the Edinburgh and London pharmacopœias; and this is perhaps one of the moſt elegant and convenient forms for exhibiting it.

The juice of oranges is a grateful acid liquor, of conſiderable uſe in febrile or inflammatory diſtempers for allaying heat, abating exorbitant commotions of the blood, quenching thirſt, and promoting the ſalutary excretions; it is likewiſe of uſe in genuine ſcorbutus or ſea-ſcurvy. Although the ſeville or *bitter orange*, as it is called, has alone a place in our pharmacopœias, yet the juice of the china, or ſweet orange, is much more employed. It is more mild and leſs acid; and it is employed in its moſt ſimple ſtate with great advantage, both as a cooling medicine, and as an uſeful antiſeptic in fevers of the worſt kinds, as well as in many other acute diſeaſes, being highly beneficial, in alleviating thirſt.

Order IV. POLYANDRIA.

1320. Glabraria.
One ſpecies; viz. terſa. E. Indies.

1321. Munchhausia.
One ſpecies; viz. ſpecioſa.

Durio.
One ſpecies; viz. zibethinus. E. Indies.

1269. Melaleuca, or *Cayputi-tree*.
Five ſpecies; viz. leucadendron, latifolia, anguſtifolia, lucida, villoſa, ſcoparia, virgata. New S. Wales, New Zealand.

1270. Hopea.
One ſpecies; viz. tinctoria. Carolina.

677. Symplocos.
One ſpecies; viz. martinicenſis. Jamaica, Martinico.

902. Hypericum, or *St John's Wort*.
42 ſpecies; viz. balearicum, kalmianum, cayanenſe, bacciferum, calycinum, guineenſe, petiolatum, patulum, aſcyron, * androſæmum, olympicum, petiolatum, canarienſe, hircinum, ægyptium, orientale, ſcabrum, repens, prolificum, oricoides, canadenſe, virginicum, mexicanum, reflexum, * quadrangulare, * perforatum, * humifuſum, criſpum, * montanum, barbatum, * hirſutum, tomentoſum, perfoliatum, * elodes, * pulchrum, nummularium, japonicum, erectum, coris, mutilum, ſetoſum, monogynum. Europe, Azores, China, N. America.

* H. ſtem 2-edged; leaves blunt; with pellucid dots. —This plant has long held a place in the materia medica, but its uſe is very much undetermined. The ſemi-tranſparent dots on the leaves are the receptacles of an eſſential oil. The leaves given in ſubſtance are ſaid to deſtroy worms. The flowers tinge ſpirits and oils of a fine purple colour, which is probably derived from the little glands upon the anther, and upon the edges of the petals. Cows, goats, and ſheep eat it. Horſes and ſwine refuſe it. *perforatum.*

903. Ascyrum, or *St Peter's Wort*.
Three ſpecies; viz. crux andreæ, hypericoides, villoſum. N. America.

In the claſs Polyadelphia are

12 Genera, which include 65 Species. Of theſe 8 are found in Britain.

CLASSIS XIX.

SYNGENESIA. (1)

Ordo I. POLYGAMIA ÆQUALIS.

Sect. I. *Semifloſculoſi Tournefortii, corollis ligulatis omnibus.*

922. Scolymus. Recept. paleacum. Pappus nullus. Cal. imbricatus, ſpinoſus.

* 921. Cichorium. Recept. ſubpaleaceum. Pappus ſub 5-dentatus. Cal. calyculatus.

920. Catananche. Recept. paleaceum. Pappus ariſtatus, ſeſſilis. Cal. imbricatus, ſcarioſus.

917. Seriola. Recept. paleaceum. Pappus ſubpiloſus. Cal. ſimplex.

* 918. Hypochæris. Recept. paleaceum. Pappus plumoſus. Cal. imbricatus.

904. Geropogon. Recept. paleaceum. Pappus plumoſus diſci, 5-ariſtatus radii. Cal. ſimplex.

915. Andryala. Recept. villoſum. Pappus piloſus, ſeſſilis. Cal. ſubæqualis, rotundatus.

* 905. Tragopogon. Recep. nudum. Pappus plumoſus, ſtipitatus. Cal. ſimplex.

* 907. Picris. Recept. nudum. Pappus plumoſus, ſtipitatus. Cal. calyculatus.

* 912. Leontodon. Recept. nudum. Pappus plumoſus, ſtipitatus. Cal. imbricatus ſquamis laxis.

906. Scorzonera. Recept. nudum. Pappus plumoſus, ſtipitatus. Cal. imbricatus, margine ſcarioſo.

* 914. Crepis. Recept. nudum. Pappus piloſus. Cal. calyculatus, ſquamis difformibus.

910. Chondrilla. Recept. nudum. Pappus piloſus, ſtipitatus. Cal. calyculat. multiflorus.

* 911. Prenanthes. Recept. nudum. Pappus piloſus. Cal. calyculat. ſub 5-florus.

* 909. Lactuca. Recept. nudum. Pappus piloſus, ſtipitatus. Cal. imbricatus, margine ſcarioſo.

CLASS XIX.

SYNGENESIA, or compound flowers.

Order I. POLYGAMIA ÆQUALIS, or with both ſtamens and piſtils in the ſame florets.

Sect. I. *Semifloſcular of Tournefort, all the florets ligulate, or ſtrap-ſhaped.*

S. Recept. chaffy. No down. Cal. tiled, prickly.

* C. Recept. nearly chaffy. Down nearly 5-toothed. Cal. calycled, i. e. having a double calyx.

C. Recept. chaffy. Down awned, ſitting. Cal. tiled, ſkinny.

S. Recept. chaffy. Down ſomewhat hairy. Cal. ſimple.

* H. Recept. chaffy. Down feathered. Cal. tiled.

G. Recept. chaffy. Down of the diſc feathered, of the radius 5-awned. Cal. ſimple.

A. Recept. woolly. Down hairy, ſitting. Cal. nearly equal, rounded.

* T. Recept. naked. Down feathered, pedicled. Cal. ſimple.

* P. Recept. naked. Down feathered, pedicled. Cal. calycled.

* L. Recep. naked. Down feathered, pedicled. Cal. tiled with looſe ſcales.

S. Recept. naked. Down feathered, pedicled. Cal. tiled, with a ſkinny border.

* C. Recept. naked. Down hairy. Cal. calycled, with irregular ſcales.

C. Recept. naked. Down hairy, pedicled. Cal. calycled, many-flowered.

* P. Recept. naked. Down hairy. Cal. calycled, nearly 5-flowered.

* L. Recep. naked. Down hairy, pedicled. Cal. tiled, with a ſkinny border.

(1) This claſs comprehends thoſe flowers which botaniſts have very generally agreed to call *compound*. The eſſential character of a compound flower, conſiſts in the anthers being united ſo as to form a cylinder, and a ſingle ſeed being placed upon the receptacle under each floret. The dandelion and thiſtle are compound flowers; that is, each of theſe flowers is compoſed of a number of ſmall flowers called *florets*. The plants of this claſs are ſuppoſed to have various ſpecific virtues. Moſt of them are bitter; almoſt none of them are poiſonous. The *lactuca viroſa* when growing in ſhady ſituations, is however ſaid to be an exception to this laſt rule.

The elaſticity of the calyx in the *picris*, *carduus*, and many other genera, is too remarkable to paſs unnoticed by the ſlighteſt obſerver. It ſeems as if the expanſion of the plants firſt burſt the calyx open, and when theſe wither it cloſes again. The downy hairs that crown the ſeeds, before upright, now begin to expand, and by this expanſion again open the leaves of the calyx, and bend them quite back. The ſeeds now eſcape, and the calyx, becoming dry and withered no longer retains its elaſtic power.

The hairy or downy appendages of the ſeeds occaſion them to be wafted about in the air, and diſſeminated far and wide. The ſtructure of this down deſerves our notice; there is hardly a child that is inſenſible to its curious and beautiful appearance in the *leontodon* or dandelion.

In this claſs the orders are determined by the ſtate of the florets with regard to ſtamens and piſtils.

* 913. HIERACIUM. Recept. nudum. Pappus piloſus, ſeſſilis. Cal. imbricatus, ovatus.
* 908. SONCHUS. Recept. nudum. Pappus piloſus, ſeſſilis. Cal. imbricatus, gibbus.
* 919. LAPSANA. Recept. nudum. Pappus nullus. Cal. calyculatus.
* 916. HYOSERIS. Recept. nudum. Pappus calyculo coronatus. Cal. ſubæqualis.

Sect. II. *Capitati.*

930. ATRACTYLIS. Corolla radiata.
1419. BARNADESIA. Cor. radiata. Cal. nudus, imbricatus, pungens. Pappus radii plumoſus; diſci ſetoſus, retrofractus.
* 929. CARLINA. Cal. radiatus, radiis coloratus.

926. CNICUS. Cal. bracteis obvallatus.
* 923. ARCTIUM. Cal. ſquamis apice incurvato-hamoſis.
931. CARTHAMUS. Cal. ſquamis ſquarroſus foliaceis.
928. CYNARA. Cal. ſquamis ſquarroſus canaliculatis, ſpinoſis.
* 925. CARDUUS. Cal. ſquamis ſpinoſis, ventricoſus.
* 927. ONOPORDON. Cal. ſquamis ventricoſus ſpinoſis. Recept. favoſum.
* 924. SERRATULA. Cal. ſquamis acutiuſculis muticis imbricatus, ſubcylindricus.

Sect. III. *Diſcoidei.*

934. ETHULIA. Recept. nudum. Pappus nullus. Cal. æqualis.
936. AGERATUM. Recept. nudum. Pappus 5-ariſtatus. Cal. ſubæqualis. Corollulæ 4-fidæ.
933. BACALIA. Recept. nudum. Pappus piloſus. Cal. calyculatus.
939. CHRYSOCOMA. Recept. nudum. Pappus piloſus. Cal. imbricatus. Piſt. breviſſima.
* 935. EUPATORIUM. Recept. nudum. Pappus plumoſus. Cal. imbricatus. Piſt. longiſſima.
* 942. SANTOLINA. Recept. palceaceum. Pappus nullus. Cal. imbricatus, hemiſphæricus.
941. CALEA. Recept. paleaceum. Pappus piloſus. Cal. imbricatus.
943. ATHANASIA. Recept. paleaceum. Pappus paleaceus. Cal. imbricatus.
1287. SPILANTHUS. Recept. paleaceum. Pappus bidentatus. Cal. ſubæqualis.
* 932. BIDENS. Recept. paleaceum. Pappus ariſtatus. Cal. imbricatus.
938. STÆHELINA. Recept. paleaceum. Pappus plumoſus, ramoſus. Antheræ caudatæ.
937. PTERONIA. Recept. ſetis partitis. Pappus ſubplumoſus. Cal, imbricatus,
940. TRACHONANTHUS. Recept. piloſum. Pappus piloſus, veſtiens. Cal. turbinatus, monophyllus.

ORDO II. POLYGAMIA SUPERFLUA.

Sect. I. *Diſcoidei.*

* 945. ARTEMISIA. Recept. ſubnudum. Papp. nullus. Cor. radii nulla.
* H. Recept. naked. Down hairy, ſitting. Cal. tiled, oval.
* S. Recept. naked. Down hairy, ſitting. Cal. tiled, bulged.
* L. Recept. naked. No down. Cal. calycled.

* H. Recept. naked. Down crowned with a calycled Cal. nearly equal.

Sect. II. *Capitate, or growing in heads.*

A. Cor. radiated.
B. Cor. radiated. Cal. naked, tiled, pungent. Down of the radius feathered; of the diſc briſtly, broken backwards.
* C. Cal. radiate (or with the outer different from the central florets); radii (outer florets) coloured.
C. Cal. ſurrounded by floral leaves.
* A. Cal. with ſcales hooked, curved at the point.

C. Cal. ſcurfy, with leafy ſcales.

C. Cal. ſcurfy, with channelled ſcales, thorny.

* C. Cal. bellied, with thorny ſcales.
* O. Cal. bellied, with thorny ſcales. Recept. honeycombed.
* S. Cal. tiled with ſharp awnleſs ſcales, nearly cylindrical.

Sect. III. *Diſcoid (florets tubular.)*

E. Recept. naked. No down. Cal. equal.

A. Recept. naked. Down 5-awned. Cal. nearly equal. Cor. 4-cleft.
C. Recept. naked. Down hairy. Cal. calycled.

C. Recept. naked. Down hairy. Cal. tiled. Piſt. very ſhort.
* E. Recept. naked. Down feathered. Cal. tiled. Piſt. very long.
* S. Recept. chaffy. No down. Cal. tiled, hemiſpherical.
C. Recept. chaffy. Down hairy. Cal. tiled.

A. Recept. chaffy. Down chaffy. Cal. tiled.

S. Recept. chaffy. Down 2-toothed. Cal. nearly equal.
* B. Recept. chaffy. Down awned. Cal. tiled.

A. Recept. chaffy. Down feathered, branched. Anthers tailed.
P. Recept. with parted briſtles. Down nearly feathered. Cal. tiled.
T. Recept. hairy. Down hairy, covering. Cal. turban-like, 1-leaved.

ORDER II. POLYGAMIA SUPERFLUA.

(See p. 66).

Sect. I. *Diſcoid (without ligulate florets.)*

* A. Recept. nearly naked. No down. No cor. in the florets of the radius.

948. Carpesium. Recept. nudum. Papp. nullus. Cor. radii 5-fidæ.

* 944. Tanacetum. Recept. nudum. Papp. ſub-margin. Cor. radii 3-fidæ.

968. Cotula. Recept. ſubnudum. Papp. marginatus. Cor. diſci 4-fidæ.

949. Baccharis. Recept. nudum. Papp. piloſus. Cor. femineæ hermaphroditis mixtæ.

* 950. Conyza. Recept. nudum. Papp. piloſus. Cor. radii 3-fidæ.

* 946. Gnaphalium. Recept. nudum. Papp. plumoſus. Cal. ſcarioſus, ſquam. concavis.

947. Xeranthemum. Recept. paleaceum. Papp. ſub-ſetaceus. Cal. ſcarioſus, radio explanato.

969. Anacyclus. Recept. paleaceum. Papp. nullus. Sem. marginata, emarginata.

Sect. II. *Semiflosculosi, sub-bilabiati.*

960. Perdicium. Recept. nudum. Papp. piloſus. Cor. trifidæ, exteriore majore, 3-loba.

Sect. III. *Radiati.*

* 962. Bellis. Recept. nudum. Papp. nullus. Cal. ſquamis æqualibus ſimplex.

* 967. Matricaria. Recept. nudum. Papp. nullus. Cal. ſquamis imbricatus acutis.

* 966. Chrysanthemum. Recept. nudum. Papp. nullus. Cal. ſquamis intimis ſcarioſis.

1420. Unxia. Recept. nudum. Papp. nullus. Cal. 5-phyllus. Flores radii et diſci quinque.

* 959. Doronicum. Recept. nudum. Papp. piloſus. Pappus radii nullus.

958. Arnica. Recept. nudum. Papp. piloſus. Stamina radii caſtrata.

* 956. Inula. Recept. nudum. Papp. piloſus. Antheræ baſi biſetæ.

* 951. Erigeron. Recept. nudum. Papp. piloſus. Cor. radii capillares.

* 955. Solidago. Recept. nudum. Papp. piloſus. Cor. radii ſubſeni, remoti.

* 957. Cineraria. Recept. nudum. Papp. piloſus. Cal. æqualis, ſimplex.

* 953. Senecio. Recept. nudum. Papp. piloſus. Cor. ſquamis apice ſphacelatis.

* 952. Tussilago. Recept. nudum. Papp. piloſus. Cal. ſquamis ſub-membranaceis.

* 955. Aster. Recept. nudum. Papp. piloſus. Cal. ſub-ſquarroſus.

1421. Mutisia. Recept. nudum. Papp. plumoſus. Cal. cylindricus imbricatus. Corollæ radii ovali-oblongæ; diſci trifidæ.

1322. Bellium. Recept. nudum. Papp. ariſtatus, 8-phylluſque. Cal. ſimplex.

964. Tagetes. Recept. nudum. Papp. ariſtatus. Cal. 1-phyllus. Radius 5 florus.

961. Helenium. Recept. ſeminudum. Papp. 5-ariſtatus. Cal. multipartitus. Radiis cor. 3-fidis.

965. Pectis. Recept. nudum. Papp. ariſtatus. Cal. 5-phyllus. Radius 5-florus.

965. Leysera. Recept. ſemipaleaceum. Papp. plumoſus. Cal. ſcarioſus.

C. Recept. naked. No down. Cor. of the outer florets 5-cleft.

* T. Recept. naked. Down with a ſlight border. Cor. of the ray 3-cleft.

C. Recept. nearly naked. Down with a border. Cor. of the diſc 4-cleft.

B. Recept. naked. Down hairy. Cor. female, mixed with hermaphrodites.

* C. Recept. naked. Down hairy. Cor. of the ray 3-cleft.

* G. Recept. naked. Down feathered. Cal. ſkinny, with concave ſcales.

X. Recept. chaffy. Down a little briſtly. Cal. ſkinny, the ray flattened.

A. Recept. chaffy. No down. Seeds bordered and not bordered.

Sect. II. *Florets half tubular, nearly 2-lipped.*

P. Down hairy. Cor. 3-cleft, the outer largeſt, 3-lobed.

Sect. III. *Radiate.*

* B. Recept. naked. No down. Cal. ſimple with equal ſcales.

* M. Recept. naked. No down. Cal. tiled with ſharp ſcales.

* C. Recept. naked. No down. Cal. inner ſcales ſkinny.

U. Recept. naked. No down. Cal. 5-leaved. Flowers of the ray and diſc (extremity and center) five.

* D. Recept. naked. Down hairy. No down of the ray.

A. Recept. naked. Down hairy. Stamens of the ray without anthers.

* I. Recept. naked. Down hairy. Anthers at the baſe 2-briſtled.

* E. Recept. naked. Down hairy. Cor. of the ray hairy-like.

* S. Recept. naked. Down hairy. Cor. of the ray nearly in ſixes, remote.

* C. Recept. naked. Down hairy. Cal. equal, ſimple,

* S. Recept. naked. Down hairy. Cor. with ſcales, brittle at the point.

* T. Recept. naked. Down hairy. Cal. with ſcales nearly membranous.

* A. Recept. naked. Down hairy. Cal. nearly ſcurfy.

M. Recept. naked. Down feathered. Cal. cylindrical, tiled. Cor. of the ray oval-oblong, of the diſc 3-cleft.

B. Recept. naked. Down awned, and 8-leaved. Cal. ſimple.

T. Recept. naked. Down awned, Cal. 1-leaved. Ray 5-flowered.

H. Recept. half naked. Down 5-awned. Cal. many-parted. Cor. with 3-cleft rays.

P. Recept. naked. Down awned. Cal. 5-leaved. Ray 5-flowered.

L. Recept. half chaffy. Down feathered. Cal. ſkinny.

973. Sigesbeckia. Recept. paleaceum. Papp. nullus. Radius dimidiatus.

1321. Eclipta. Recept. paleaceum. Papp. nullus. Cor. diſci 4-fidæ.

* 970. Anthemis. Recept. paleaceum. Papp. nullus. Cal. hemiſphæricus.

* 971. Achillea. Recept. paleaceum. Papp. nullus. Radius ſub 5-florus. Cal. oblongus.

977. Buphthalmum. Recept. paleaceum. Papp. marginatus. Stigma hermaphrodit. ſimplex.

978. Amellus. Recept. paleaceum. Papp. piloſus. Cal. imbricatus.

972 Tridax. Recept. paleaceum. Papp. piloſus. Cor. radii 3-partitæ.

975. Verbesina. Recept. paleaceum. Papp. ariſtatus. Floſculi radii circiter 5.

974. Zinnia. Recept. paleaceum. Papp. ariſtatus. Radius 5-florus, perſiſtens. Cal. imbricat.

Tetragonotheca, vide *Polymniam.*

S. Recept. chaffy, No down. Ray extending half-round.

E. Recept. chaffy. No down. Cor. of the diſc 4-cleft.

* A. Recept. chaffy. No down. Cal. hemiſpherical.

* A. Recept. chaffy. No down. Ray nearly 5-flowered. Cal. oblong.

B. Recept. chaffy. Down bordered. Stigm. hermaphrodite, ſimple.

A. Recept. chaffy. Down hairy. Cal. tiled.

T. Recept. chaffy. Down hairy. Cor. of the ray 3-parted.

V. Recept. chaffy. Down awned. Florets of the ray about 5.

Z. Recept. chaffy. Down awned. Ray 5-flowered, permanent. Cal. tiled.

Ordo III. POLYGAMIA FRUSTRANEA.

Order III. POLYGAMIA FRUSTRANEA.

Sclerocarpus. Recept. nudum. Papp. nullus. Cal. ſulcatus.

982. Gorteria. Recept. nudiuſculum. Papp. piloſus. Radius corollæ ligulatus.

* 984. Centaurea. Recept. ſetoſum. Papp. piloſus. Radius corollæ tubuloſus.

1271. Zoegea. Recept. ſetoſum. Papp. ſetaceus. Radius corollæ ligulatus.

980. Rudbeckia. Recept. paleaceum. Papp. marginatus. Cal. ſerie duplici.

981. Coreopsis. Recept. paleaceum. Papp. ariſtatus. Cal. calyculatus.

979. Helianthus. Recept. paleaceum. Papp. ariſtatus. Cal. ſquarroſus.

983. Osmites. Recept. paleaceum. Papp. obſoletus. Cal. imbricatus.

S. Recept. naked. No down. Cal. furrowed.

G. Recept. naked. Down hairy. Cor. of the ray ſtrap-ſhaped.

* C. Recept. briſtly. Down hairy. Cor. of the ray tubular.

Z. Recept. briſtly. Down briſtly. Cor. of the ray ſtrap-ſhaped.

R. Recept. chaffy. Down with a margin. Cal. in a double ſeries.

C. Recept. chaffy. Down awned. Cal. calycled

H. Recept. chaffy. Down awned. Cal. ſcurfy.

O. Recept. chaffy. Down obſcure. Cal. tiled.

Ordo IV. POLYGAMIA NECESSARIA.

Order IV. POLYGAMIA NECESSARIA.

* 995. Filago. Recept. nudum. Papp. nullus. Floſc. fœmin. inter ſquamas calycis.

996. Micropus. Recept. nudum. Papp. nullus. Floſc. fœmin. ſquamis calycis vaginati.

985. Milleria. Recept. nudum. Papp. nullus. Floſc. fœmineus ſubſolitarius.

1323. Baltimora. Recept. nudum. Papp. nullus. Cal. cylindricus. Radius 5-florus.

993. Othonna. Recept. nudum. Papp. piloſus. Cal. monophyllus.

1224. Hippia. Recept. nudum. Papp. nullus. Sem. glabra, compreſſo-marginata. Radius obſoletus.

992. Osteospermum. Recept. nudum. Papp. nullus. Sem. globoſa, oſſea.

* 990. Calendula. Recept. nudum. Papp. nullus. Sem. membranacea.

991. Arctotis. Recept. ſubpiloſum. Papp. 5-phyllus. Sem. tomentoſa.

Eriocephalus. Recept. villoſum. Papp. nullus. Floſc. radii quini.

987. Polymnia. Recept. paleaceum. Papp. nullus. Cal. 5-phyllus.

989. Melampodium. Recept. paleaceum. Papp. vulvatus. Cal. 5-phyllus.

* F. Recept. naked. No down. Female florets between the ſcales of the calyx.

M. Recept. naked. No down. Female florets ſheathed by the ſcales of the cal.

M. Recept. naked. No down. Female florets nearly ſolitary.

B. Recept. naked. No down. Cal. cylindrical. Ray 5-flowered.

O. Recept. naked. Down hairy. Cal. 1-leaved.

H. Recept. naked. No down. Seeds ſmooth, compreſſed-bordered. Ray obſcure.

O. Recept. naked. No down. Seeds globular, bony.

* C. Recept. naked. No down. Seeds membranous.

A. Recept. ſomewhat hairy. Down 5-leaved. Seeds cottony.

E. Recept. woolly. No down. Florets of the ray 5.

P. Recept. chaffy. No down. Cal. 5-leaved.

M. Recept. chaffy. Down curtained. Cal. 5-leaved.

986. Silphium. Recept. paleaceum. Papp. 2-ariſtatus. Cal. ſquarroſus.

988. Chrysogonum. Recept. paleaceum. Papp. 3-ariſtatus. Sem. calyculis propriis.

Ordo V. POLYGAMIA SEGREGATA.

1001. Stoebe. Perianth. 1-florum. Papp. plumoſus. Polyg. æqualis.

1325. Odera. Recept. paleaceum. Papp. paleaceus. Perianth. proprium, floſculis tubulosis ligulatisque.

999. Echinops. Perianth. 1-florum. Papp. pubeſcens. Polyg. æqualis.

998. Elephantopus. Perianth. 4-florum. Papp. ſetoſus. Polyg. æqualis.

1000. Gundelia. Recept. 5-florum. Papp. nullus. Polyg. fruſtranea.

1422. Jungia. Recept. paleaceum. Perianth. commune, triflorum. Floſculi tubulosi, bilabiati; labio exteriori ligulato; labio interiori bipartito.

900. Sphæranthus. Recept. multiflorum. Papp. nullus. Polyg. neceſſaria.

Ordo VI. MONOGAMIA.

1002. Strumpfia. Cal. 5-dentatus. Cor. 5-petala, regularis. Bacca infera, 1-ſperma.

1003. Seriphium. Cal. imbricatus. Cor. 1-petala, regularis. Sem. 1, oblongum.

1004. Corymbium. Cal. 2-phyllus. Cor. 1-petala, regularis. Sem. 1, lanatum.

1006. Lobelia. Cal. 5-dentatus. Cor. 5-petala, regularis. Capſ. infera, 2-locularis.

1007. Viola. Cal. 5-phyllus. Cor. 5-petala irregularis. Capſ. ſupera, 3-valvis.

1008. Impatiens. Cal. 5-phyllus. Cor. 5-petala irregularis. Capſ. ſupera, 5-valvis.

S. Recept. chaffy. Down 2-awned. Cal. ſcurfy.

C. Recept. chaffy. Down 3-awned. Seeds with peculiar calyxes.

Order V. POLYGAMIA SEGREGATA.

S. Perianth. 1 flowered. Down feathered. Polygamy equal. (See page 66.)

O. Recept. chaffy. Down chaffy. Perianth. proper, with tubular and ſtrap-ſhaped florets.

E. Perianth. 1-flowered. Down pubeſcent. Polygamy equal.

E. Perianth. 4-flowered. Down briſtly. Polygamy equal.

G. Recept. 5-flowered. No down. Polygamy fruſtr. (See p. 66.)

J. Recept. chaffy. Perianth. common, 3-flowered. Florets tubular, 2-lipped; outer lip ſtrap-ſhaped, the inner 2-parted.

S. Recept. many-flowered. No down. Polygamy neceſſary. (See p. 66).

Order VI. MONOGAMIA.

S. Cal. 5-toothed. Cor. 5-petaled, regular. Berry inferior, 1-ſeeded.

S. Cal. tiled. Cor. 1-petaled, regular. One oblong ſeed.

C. Cal. 2-leafed. Cor. 1-petaled, regular. One cottony ſeed.

L. Cal. 5-toothed. Cor. 5-petaled, regular. Capſ. inferior, 2-celled.

V. Cal. 5-leaved. Cor. 5-petaled, irregular. Capſ. ſuperior, 3-valved.

I. Cal. 5-leaved. Cor. 5-petaled, irregular. Capſ. ſuperior, 5-valved.

Order I. POLYGAMIA ÆQUALIS.

904. Geropogon, or *Old Man's Beard.*

Three ſpecies; viz glabrum, hirſutum, calyculatum. Italy.

905. Tragopogon, or *Goats Beard.*

14 ſpecies; viz. * pratenſe, mutabile, undulatum, orientale, majus, * porrifolium, crocifolium, villoſum, dalechampii, picroides, aſperum, dandelion, lanatum, virginicum. Europe, North America.

pratenſe. * T. calyx as long as the rays of the bloſſom; leaves entire, quite ſtraight; fruit-ſtalk cylindrical. *Yellow goats-beard.*—Before the ſtems ſhoot up, the roots boiled like aſparagus have the ſame flavour, and are nearly as nutritious. Cows, ſheep, and horſes eat it. Swine devour it greedily. Goats are not fond of it.

906. Scorzonera, or *Vipers Graſs.*

14 ſpecies; viz. tomentoſa, humilis, parviflora, hiſpanica, graminifolia, purpurea, anguſtifolia, hirſuta, reſedifolia, laciniata, orientalis, taraxacifolium, tingitana, picroides. Europe, Arabia, Barbary.

907. Picris, or *Ox Tongue.*

Four ſpecies; viz. * echioides, * hieracioides, japonica, aſplenioides. Germany, France, Italy, Japan.

908. Sonchus, or *Sow-thiſtle.*

13 ſpecies; viz. * canadenſis, * arvenſis, * paluſtris, * oleraceus, maritimus, fruticoſus, tenerrimus, plumieri, alpinus, floridanus, ſibiricus, tataricus, tuberoſus. Europe, Madeira, N. Amer. Jam.

* S. fruit and calyxes rough with hair in a ſort of umbels; leaves naked, heart-ſhaped at the baſe. *Corn or ſow-thiſtle.*—The flowers follow the ſun very regularly. Cows and goats eat; horſes are very fond of it. *arvenſis.*

* S. fruitſtalks cottony; calyxes ſmooth. *Common ſow thiſtle.*—The leaves are good amongſt other pot-herbs. They are a very favourite food with hares and rabbits. Sheep, goats, and ſwine eat it. Horſes are very fond of it. *oleraceus.*

909. Lactuca, or *Lettuce.*

Ten ſpecies; viz. * ſcariola, * viroſa, * ſaligna, quercina, intybacea, ſativa, tuberoſa, canadenſis, indica, perennis. Europe, Eaſt Indies, North America.

* L. all the leaves horizontal, toothed; their mid-rib prickly on the back. *Wild lettuce.*—The juice ſmells like opium. It is milky, acrid, and bitter. Dr Cullen relates 24 caſes of dropſy, out of which 23 were cured by taking the extract prepared from the expreſſed juice in *viroſa.*

in doſes, from 18 grains to three drams in the 24 hours. It commonly proves laxative, promotes urine and gentle ſweats, and removes the thirſt. It muſt be prepared when the plant is in flower.

910. CHONDRILLA or *Gum Succory*.

Three ſpecies; viz. juncea, crepoides, nudicaulis. Germany, Switzerland, France.

911. PRENANTHES, or *Wild Lettuce*.

19 ſpecies; viz. tenuifolia, chinenſis, viminea, purpurea, * muralis, altiſſima, chondrilloides, japonica, alba, repens, pinnata, integra, debilis, dentata, haſtata, humilis, multiflora, lyrata, ſquarroſa. Europe, Japan, North America.

912. LEONTODON, or *Dandelion*.

10 ſpecies; viz. * taraxacum, bulboſum, aureum, haſtile, tuberoſum, * autumnale, alpinum, * hiſpidum, * hirtum, tomentoſum. Europe, Africa, N. Amer.

913. HIERACIUM, or *Hawkweed*.

39 ſpecies; viz. incanum, pumilum, * alpinum, * taraxaci, alpeſtre, venoſum, * piloſella, * dubium, * auricula, cymoſum, præmorſum, aurantiacum, gronovii, gmelini, ſanctum, capenſe, pontanum, paniculatum, porrifolium, chondrilloides, * murorum, humile, * paludoſum, lyratum, cerinthoides, amplexicaule, pyrenaicum, blattarioides, piloſum, auſtriacum, helveticum, * molle, ſtipitatum, * villoſum, glutinoſum, kalmii, ſprengerianum, * ſabandum, * umbellatum.

alpinum. * H. leaves oblong, entire, toothed; ſtalk almoſt naked; calyx hairy.—This differs from the other lacteſcent plants, being leſs bitter and more aſtringent. It is eſteemed hurtful to ſheep. Goats eat it. Sheep are not fond of it. Horſes and cows refuſe it.

914. CREPIS, or *Baſe Hawkweed*.

16 ſpecies; viz. pygmæa, burſifolia, barbata, veſicaria, alpina, rubra, * fœtida, aſpera, rhagadioloides, ſibirica, * tectorum, * biennis, virens, dioſcoridis, pulchra, neglecta. Siberia, Alps, Azores, Arabia.

915. ANDRYALA, or *Downy Sow-thiſtle*.

Three ſpecies; viz. integrifolia, raguſina, lanata. S. Europe, Archipelago, Canary.

916. HYOSERIS, or *Yellow-eye*.

Nine ſpecies; viz. fœtida, radiata, lucida, ſcabra, virginica, * minima, hedypnois, rhagadioloides, cretica. Europe, N. America, Madeira.

917. SERIOLA.

Four ſpecies; viz. lævigata, æthnenſis, cretenſis, urens. South of Europe.

918. HYPOCHÆRIS, or *Goſhmore*.

Four ſpecies; viz. helvetica, * maculata, * glabra, * radicata. Europe.

maculata. * H. ſtem almoſt bare, with a ſolitary branch; leaves egg-oblong, entire, toothed.—The leaves of this plant are boiled, and eaten as cabbage. Horſes are fond of this plant when green, but they do not like it when dry. Cows, goats, and ſwine eat it. Sheep are not fond of it. The country people believe it a cure for tetters and other cutaneous eruptions, poſſibly through a vulgar prejudice, founded on its ſpotted leaves.

919. LAPSANA, or *Nipple-wort*.

Five ſpecies; viz. * communis, zacintha, ſtellata, kolpinii, rhagadiolus. Siberia, South of Europe.

920. CATANANCHE, or *Candia Lion's-foot*.

Three ſpecies; viz. cœrulea, lutea, græca. South of Europe.

921. CICHORIUM, or *Succory, Endive*.

Three ſpecies; viz. * intybus, endivia, ſpinoſum. Europe.

* C. flowers in pairs, ſitting; leaves notched.—The leaves, when blanched, are eaten early in the ſpring in ſalads. They loſe their bitterneſs by cultivation. The roots, gathered before the ſtem ſhoots up, are eatable, and when dried, will make bread. Sheep, goats, and ſwine eat it. *intybus.*

The ſeed of the *cichorium endivia* is raiſed in gardens for culinary uſe. It is a gentle cooler and aperient, nearly of the ſame quality with the former ſpecies. The ſeeds are ranked among the four leſſer cold ſeeds.

922. SCOLYMUS, or *Golden Thiſtle*.

Two ſpecies; viz. maculatus, hiſpanicus. S. Eur.

923. ARCTIUM, or *Burdock*.

Three ſpecies; viz. lappa, perſonata, carduelis. Europe.

* A. leaves heart-ſhaped, without thorns, on leaf-ſtalks.—Before the flowers appear, the ſtems, ſtripped of their rind, are boiled, and eaten like aſparagus; when raw, they are good with oil and vinegar. A decoction of the roots is eſteemed by ſome very ſenſible phyſicians, as equal, if not ſuperior to that of ſarſaparilla. Boys catch bats by throwing the prickly heads up into the air. Cows and goats eat it. Sheep and horſes refuſe it. Swine are not fond of it. *lappa.*

924. SERRATULA, or *Saw-wort, Way-thiſtle*.

15 ſpecies; viz. * tinctoria, coronata, japonica, * alpina, ſalicifolia, multiflora, noveboracenſis, prælta, glauca, ſquarroſa, ſcarioſa, ſpicata, amara, centauroides, * arvenſis. Europe, N. America.

* S. leaves lyre-ſhaped and wing-cleft; the terminating ſegment very large; florets all alike.—This plant is very much uſed by the dyers to give a yellow colour, but is inferior to the reſeda; therefore its uſe is confined to the coarſer woollen cloths. Goats eat it. Horſes are not fond of it. Sheep, ſwine, and cows refuſe it. *tinctoria.*

* S. leaves toothed, thorny.—This ſpecies is ſaid to yield a very pure vegetable alkali when burnt. Goats eat it: neither cows, horſes, ſheep or ſwine are fond of it. Horſes ſometimes eat the young tops. *arvenſis.*

925. CARDUUS, or *Thiſtle*.

38 ſpecies; viz. leucographus, * lanceolatus, arabicus, * nutans, * acanthoides, criſpus, polyanthemus, * paluſtris, pycnocephalus, argentatus, auſtralis, diſſectus, cyanoides, canus, pectinatus, defloratus, monſpeſſulanus, pannonicus, tuberoſus, chius, parviflorus, linearis, caſabonæ, ſtellatus, * marianus, ſyriacus, * eriophorus, altiſſimus, virginianus, heterophyllus, * helenioides, ſerratuloides, tataricus, ciliatus, flaveſcens, rivularis, mollis, * acaulis. Europe, N. America, Barbary, Japan.

* C. leaves toothed, thorny at the edge; flowers in bunches, upright; fruitſtalks without thorns.—This, and almoſt all the other ſpecies of this genus, may be eaten like the burdock, before the flowers are formed. Swine eat it. Horſes are very fond of it. Cows refuſe it. *paluſtris.*

lanceolatus * C. leaves with winged-clefts, hiſpid; ſegments ſtradling; calyx egg-ſhaped, thorny, woolly; ſtem hairy.—Few plants are more diſregarded than this, and yet its uſe is very conſiderable. If a heap of clay is thrown up, nothing would grow upon it for ſeveral years, did not the ſeeds of this plant, wafted by wind, fix and vegetate thereon. Under the ſhelter of this other vegetables appear, and the whole ſoon becomes fertile. The flowers, like thoſe of the artichoke, have the property of curdling milk. Sheep and ſwine refuſe it. Neither horſes, cows, nor goats are fond of it.

marianus. * C. leaves embracing the ſtem, halberd-ſhaped and wing-cleft, thorny; calyx without any leaves near it; thorns channelled and ſet with other little thorns.—This plant is eaten as a ſalad when young. The young ſtalks, peeled and ſoaked in water to take off the bitterneſs, are excellent. The ſcales of the cup are as good as artichokes. The root is good to eat early in the ſpring.

acaulis. * C. ſtemleſs; calyx ſmooth.—Cows refuſe the plant. It kills all plants which grow beneath it, whence it is very injurious in meadows.

926. CNICUS, or *Bleſſed Thiſtle.*

Nine ſpecies; viz. oleraceus, eriſithales, ferox, pygmæus, acarna, ſpinoſiſſimus, centauroides, uniflorus, cernuus. Europe.

927. ONOPORDUM, or *Woolly* or *Cotton Thiſtle.*

Five ſpecies; viz. *acanthium, illyricum, arabicum, græcum, acaulon. Europe, Arabia.

acanthium. * O. calyx ſcales expanding, their points ſtanding out; leaves egg-oblong, indented.—The receptacle and the young ſtems may be boiled and eaten like artichoke. The ancients thought this plant a ſpecific in cancerous caſes. Cows, ſheep, and horſes refuſe it.

928. CYNARA, or *Artichoke.*

Four ſpecies; viz. ſcolymus, cardunculus, humilis, acaulis. S. Europe, Madeira, Barbary.

929. CARLINA, or *Carline Thiſtle.*

Eight ſpecies; viz. acaulis, lanata, corymboſa, *vulgaris, racemoſa, pyrenaica, xeranthemoides, atractyloides. Europe, Cape, Barbary.

vulgaris. * C. ſtem, with many flowers in a corymbus; flowers terminating; rays of the calyx yellow white.—Its flowers expand in dry, and cloſe in moiſt, weather. They retain this property a long time, and therefore are employed as hygrometers. It is ſaid to be an excellent remedy in hyſterical caſes. Goats eat it. Cows refuſe it. Its preſence indicates a very barren ſoil.

The *carlina acaulis* is a very prickly ſort of thiſtle, growing ſpontaneouſly in the ſouthern parts of France, Spain, Italy, and the mountains of Switzerland; from whence the dried roots are brought to us. This root is about an inch thick, externally of a pale ruſty brown colour, corroded, as it were, on the ſurface, and perforated with numerous ſmall holes, appearing, when cut, as if worm-eaten. It has a ſtrong ſmell, and a ſubacrid, bitteriſh, weakly aromatic taſte. Carlina is looked upon as a warm diaphoretic and alexipharmac; and has been for ſome time greatly eſteemed by foreign phyſicians, but never came much into uſe among us: the preſent practice has entirely rejected it, nor is it often to be met with in the ſhops.

930. ATRACTYLIS, or *Diſtaff Thiſtle.*

Eight ſpecies; viz. gummifera, humilis, cancellata, lancea, ovata, oppoſitifolia, purpurea, mexicana. S. Europe, Mexico, Japan.

1419. BARNADESIA.

One ſpecies; viz. ſpinoſa. S. America.

931. CARTHAMUS, or *Baſe Saffron.*

10 ſpecies; viz. tinctorius, lanatus, creticus, tingitanus, cœruleus, mitiſſimus, carduncellus, arboreſcens, ſalicifolius, corymboſus. S. Europe, Barbary, Madeira, Carolina.

The *carthamus tinctorius* is a ſoft kind of thiſtle, with only a few prickles about the edges of the leaves. It is cultivated in large quantity in ſome parts of Germany, from whence the other parts of Europe are ſupplied with the flowers as a colouring drug, and the ſeeds as a medicinal one. The flowers, well cured, are not eaſily diſtinguiſhable by the eye from ſaffron; but their want of ſmell readily diſcovers them. The ſeeds are white, ſmooth, of an oblong roundiſh ſhape, yet with four ſenſible corners, about a quarter of an inch in length, ſo heavy as to ſink in water; of a viſcid ſweetiſh taſte, which in a little time becomes acrid and nauſeous. Theſe ſeeds have been celebrated as a cathartic: they operate very ſlowly, and for the moſt part diſorder the bowels, eſpecially when given in ſubſtance. Triturated with aromatic diſtilled waters, they form an emulſion leſs offenſive, yet inferior in efficacy to more common purgatives.

1287. SPILANTHUS.

Seven ſpecies; viz. urens, pſeudo-acmella, acmella, ſalivaria, atripicifolia, inſipida, oleracea. E. Indies, Peru, Jamaica.

932. BIDENS, or *Water Hemp-agrimony.*

12 ſpecies; viz. *tripartita, minima, nodiflora, tenella, *cernua, frondoſa, piloſa, bipinnata, nivea, verticillata, ſcandens, bullata. Europe, E. and W. Indies, America.

933. CACALIA, or *Foreign Colts-foot.*

27 ſpecies; viz. papillaris, anteuphorbium, cuneifolia, kleinia, ficoides, laciniata, repens, ſuffruticoſa, laurifolia, cordifolia, aſclepiadea, appendiculata, tomentoſa, porophyllum, ſonchifolia, incana, ſaracenica, haſtata, ſuaveolens, atriplicifolia, alpina, echinata, albifrons, bipinnata, acaulis, radicans, articulata. Alps, E. Indies, N. America.

934. ETHULIA.

Five ſpecies; viz. conyzoides, ſparganophora, divaricata, tomentoſa, bidentis. India, Jamaica, Carolina.

935. EUPATORIUM, or *Hemp Agrimony.*

28 ſpecies; viz. dalea, hyſſopifolium, ſcandens, houſtonis, zeylanicum, ſeſſilifolium, album, chinenſe, rotundifolium, altiſſimum, haſtatum, ſyriacum, trifoliatum, *cannabinum, cinereum, purpureum, maculatum, ſcabrum, perfoliatum, cœleſtinum, aromaticum, ageratoides, odoratum, ivæfolium, urticæfolium, ſtœchadifolium, microphyllum, japonicum. Europe, America, E. and W. Indies, Japan.

* E. calyx 5-flowered; leaves with finger-like diviſions.—An infuſion of a handful of it vomits and purges ſmartly. An ounce of the root, in decoction, *cannabinum.*

is

is a full doſe. In ſmaller doſes the Dutch peaſants take it as an alterative, and as an antiſcorbutic. Goats eat it. Cows, horſes, ſheep, and ſwine refuſe it.

936. Ageratum, or *Baſe Hemp-agrimony.*
Two ſpecies; viz. conyzoides, ciliare. America.

937. Petronia.
17 ſpecies; viz. camphorata, oppoſitifolia, flexicaulis, retorta, hirſuta, glabrata, inflexa, ſcarioſa, glomerata, cinerea, villoſa, membranacea, ſpinoſa, cephalotes, pallens, minuta, faſciculata. C. of G. Hope.

938. Stachelina.
Eight ſpecies; viz. gnaphaloides, dubia, arboreſcens, fruticoſa, ilicifolia, corymboſa, chamæpeuce, imbricata. S. of France, Spain, Cape, S. America.

939. Chrysocoma, or *Goldylocks.*
13 ſpecies; viz. oppoſitifolia, comaurea, dichotoma, ſericea, patula, cernua, ciliata, tomentoſa, ſcabra, linoſyris, biflora, graminifolia, villoſa. Europe, Cape, Carolina.

940. Tarchonanthus, or *Shrubby African Flea-bane.*
Three ſpecies; viz. camphoratus, glaber, ericoides. C. of G. Hope.

941. Calea, or *Halbert-weed.*
Four ſpecies; viz. jamaicenſis, oppoſitifolia, amellus, ſcoparia. W. Indies, S. ſea iſles, Carolina.

942. Santolina, or *Lavender Cotton.*
Four ſpecies; viz. chamæcypariſſus, roſmarinifolia, alpina, anthemoides. S. of Europe.

943. Athanasia.
20 ſpecies; viz. ſquarroſa, ſeſſiliflora, pumila, crenata, uniflora, capitata, maritima, geniſtifolia, pubeſcens, annua, trifurcata, crithmifolia, linifolia, dentata, parviflora, pinnata, pectinata, dentata, filiformis, cinerea. S. Europe, Africa, Carolina.

Order II. POLYGAMIA SUPERFLUA.

944. Tanacetum, or *Tanſey.*
Seven ſpecies; viz. ſibiricum, incanum, cotuloides, annuum, monanthos, * vulgare, balſamita. Europe, C. of G. Hope.

vulgare. * T. leaves doubly winged, cut, ſerrated.—This plant is a warm deobſtruent bitter, and its flavour not ungrateful. The tender leaves are ſometimes uſed to give a colour and flavour to puddings. If a dead animal ſubſtance is rubbed with this plant, the fleſh-fly will not attack it. The Finlanders obtain a green dye from it. Cows and ſheep eat it. Horſes, goats, and ſwine refuſe it. The ſeeds are an excellent vermifuge.

The *tanacetum balſamita* was formerly a very common garden plant, and of frequent uſe both for culinary and medicinal purpoſes; but it is at preſent very little regarded for either, though it ſhould ſeem from its ſenſible qualities to be equal or ſuperior, as a medicine, to ſome aromatic herbs which practice has retained. The leaves have a bitteriſh warm aromatic taſte; and a very pleaſant ſmell, approaching to that of mint, or a mixture of mint and maudlin. Water elevates their flavour in diſtillation, and rectified ſpirit extracts it by infuſion. It has been recommended in hyſterical affections; and by ſome it has been ſuppoſed to be very powerful in correcting the influence of opium. The leaves ſhould be collected in the month of July or Auguſt.

945. Artemisia, or *Wormwood, Mugwort.*
29 ſpecies; viz. vermiculata, capillaris, judaica, æthiopica, contra, abrotanum, arboreſcens, ſantonica, * campeſtris, paluſtris, crithmifolia, maritima, glacialis, rupeſtris, ſpicata, pontica, auſtriaca, annua, tanacetifolia, * abſinthium, * vulgaris, pectinata, integrifolia, japonica, * cœruleſcens, dracunculus, chinenſis, maderaſpatana, minima. Eur. Cape, Egypt, China.

maritima. * A. leaves many-cleft, cottony; bunches on crooked footſtalks; female florets 3.—This plant, in its wild ſtate, ſmells like marum or camphor; but in our gardens it is leſs grateful, though ſtill much more grateful than the next ſpecies. It is uſed as an ingredient in diſtilled waters, and beat with thrice its weight of fine ſugar, it is formed into a conſerve. Its virtues are the ſame with thoſe of the next ſpecies, but in a weaker degree. Horſes eat it. Cows, goats, and ſheep, refuſe it.

abſinthium. * A. leaves compound, many-cleft; flowers ſomewhat globular, pendent; receptacle woolly.—The leaves and flowers of this ſpecies are very bitter: the roots are warm and aromatic. A conſiderable quantity of eſſential oil riſes from it in diſtillation. This oil is uſed both externally and internally to deſtroy worms. The leaves, put into ſour beer, ſoon deſtroy the aceſcency. They reſiſt putrefaction, and are therefore a principal ingredient in antiſeptic fomentations. An infuſion of them is a good ſtomachic; and, with the addition of fixed alkaline ſalt, a powerful diuretic in ſome dropſical caſes. The aſhes afford a more pure alkaline ſalt than moſt other vegetables, excepting bean-ſtalks, broom, and the larger trees. Linnæus mentions two caſes, wherein an eſſence prepared from this plant, and taken for a conſiderable time, prevented the formation of ſtones in the kidneys or bladder: the patients forbearing the uſe of wine and acids. It might be ſuſpected, that, like other bitters, its long continued uſe muſt weaken the action of the nervous ſyſtem; but in theſe inſtances no ſuch effect took place. An infuſion of it given to a woman that ſuckles, makes her milk bitter. It gives a bitterneſs to the fleſh of ſheep that eat it. Horſes and goats are not fond of it. Cows and ſwine refuſe it. Turkeys are fond of it. The plant, ſteeped in boiling water, and repeatedly applied to a bruiſe, will remove the pain in a ſhort time, and prevent the ſwelling and diſcoloration of the part.

vulgaris. * A. leaves wing-cleft, flat, cut, cottony underneath; bunches ſimple, bending; florets of the circumference 5.—In ſome countries this plant is uſed as a culinary aromatic. A decoction of it is taken by the common people to cure the ague. The Chineſe make uſe of it in healing wounds, applying the freſh plant bruiſed. A dram of the leaves, powdered, was given four times a-day, by Dr Home, to a woman who had been affected with hyſteric fits for many years. The fits ceaſed in a few days. Sheep and ſwine refuſe it. Neither horſes, cows, or goats, are fond of it. Dr Anderſon informs us, that ſheep are very fond of it, devouring it with great greedineſs, eſpecially the roots, which ſeem to form a moſt delicate morſel.

The *artemiſia abrotanum*, or ſouthernwood, is a ſhrub-

by plant, clothed with very finely divided leaves, of a light-green colour. The flowers, which are very ſmall and yellowiſh, hang downwards, ſeveral together, from the middle of the branches to the top. It is not, like ſome other ſpecies of the *artemiſia*, indigenous in Britain; but although a native of warm climates, it readily bears the viciſſitudes of ours, and is eaſily cultivated in gardens; from thence alone it is obtained when employed for medical purpoſes. The leaves fall off every winter, but the roots and ſtalks continue for many years.

Southernwood has a ſtrong ſmell, which to moſt people is not diſagreeable. It has a pungent, bitter, and ſomewhat nauſeous taſte. Theſe qualities are very completely extracted by rectified ſpirit; and the tincture, thus formed, is of a beautiful green colour. They are leſs perfectly extracted by watery liquors, the infuſion being of a light brown colour.

Southernwood, as well as ſome other ſpecies of the ſame genus, particularly the *abſinthium* and *ſantonicum*, has been recommended as an anthelmintic, and it has alſo been ſometimes uſed as a ſtimulant, detergent, and ſudorific. It has likewiſe been employed externally in diſcutient and antiſeptic fomentations. It has alſo been uſed under the form of lotion and ointment for cutaneous eruptions, and for preventing the hair from falling off. It is at preſent very little employed in practice.

The worm-ſeed of the *artemiſia auſtriaca* is the produce of a plant of the wormwood or mugwort kind, growing in the Levant. It is a ſmall, light, chaffy ſeed, compoſed, as it were, of a number of thin membranous coats, of a yellowiſh colour, an unpleaſant ſmell, and a very bitter taſte. Theſe ſeeds are celebrated for anthelmintic virtues, which they have in common with other bitters; and are ſometimes taken with this intention, either mixed with molaſſes or candied with ſugar: their unpleaſant taſte renders the form of a powder or decoction inconvenient.

946. Gnaphalium, or *Everlaſting*, or *Cudweed*.

59 ſpecies; viz. eximium, arboreum, grandiflorum, fruticans, criſpum, appendiculatum, coronatum, diſcolorum, muricatum, ericoides, teretifolium, mucronatum, ſtoechas, igneſcens, dentatum, ſerratum, patulum, petiolatum, craſſifolium, maritimum, repens, umbellatum, hiſpidum, cylindricum, orientale, arenarium, rutilans, milleflorum, imbricatum, cymoſum, nudifolium, * luteo-album, pedunculare, odoratiſſimum, ſanguineum, fœtidum, undulatum, criſpum, helianthemifolium, ſquarroſum, ſtellatum, obtuſifolium, * margaritaceum, plantagineum, * dioicum, alpinum, indicum, purpureum, denudatum, * ſylvaticum, verticillatum, oculus cati, piloſellum, declinatum, coronatum, * ſupinum, uliginoſum, glomeratum, japonicum. Eur. Ind. Africa, N. America.

947. Heranthemum, or *Auſtrian Sneeze-wort*.

16 ſpecies; viz. annuum, veſtitum, ſpeciofiſſimum, proliferum, imbricatum, caneſcens, retortum, ſpinoſum, ſeſamoides, virgatum, ſtachelina, variegatum, paniculatum, fulgidum, ſtoloniferum, recurvatum. S. Europe, Cape.

948. Carpesium.

Two ſpecies; vib. cernuum, abrotanoides. Auſtria, Spain, Italy, China.

949. Baccharis, or *Ploughman's Spikenard*.

Eight ſpecies; viz. ivæfolia, nerviifolia, arborea, halimifolia, dioſcoridis, indica, braſiliana, fœtida. Cape, India, America.

750. Conyza, or *Greater Fleabane*.

25 ſpecies; viz. * ſquarroſa, linifolia, ſordida, ſaxatilis, caneſcens, rupeſtris, ſcabra, alteroides, bifrons, lobata, bifoliata, pubigera, tortuoſa, candida, anthelmintica, balſamifera, cinerea, odorata, chinenſis, hirſuta, arboreſcens, fruticoſa, virgata, decurrens, aurita. Europe, Cape, E. and W. Indies, America.

951. Erigeron, or *Leſſer Fleabane*.

22 ſpecies; viz. viſcoſum, graveolens, glutinoſum, ſiculum, carolinianum, * canadenſe, bonarienſe, jamaicenſe, philadelphicum, ægyptiacum, gouani, * acre, * alpinum, uniflorum, gramineum, camphoratum, japonicum, ſcandens, tuberoſum, fœtidum, tricuneatum, pinnatum. Europe, China, Africa, America.

952. Tussilago, or *Colts-foot*.

12 ſpecies; viz. anandria, dentata, nutans, alpina, diſcolor, ſylveſtris, * farfara, japonica, frigida, alba, * hybrida, * petaſites. Europe, Japan, Newfoundland, Jamaica.

* T. ſtalk with one flower, tiled; leaves ſomewhat heart-ſhaped, angular, finely toothed.—This is the firſt plant that vegetates in marle, or limeſtone rubble. The downy ſubſtance on the under ſurface of the leaves, wrapped in a rag, dipped in a ſolution of ſaltpetre, and dried in the ſun, makes the beſt tinder; the leaves are the baſis of the Britiſh herb-tobacco. They are ſomewhat auſtere, bitteriſh, and mucilaginous to the taſte. They were formerly much uſed in coughs and conſumptive complaints; and perhaps, not without reaſon, for *Dr Cullen* has found them to do conſiderable ſervice in ſcrophulous caſes: he gives a decoction of the dried leaves, and finds it ſucceed where ſea-water has failed. And Fuller relates a caſe of a girl, with 12 ſcrophulous ſores, who was cured by drinking daily as much as ſhe could, for above four months, of a decoction of the leaves, made ſo ſtrong as to be ſweetiſh and glutinous. Goats and ſheep eat it. Cows are fond of it. Horſes and ſwine refuſe it. It may be deſtroyed by cutting off the crown of the root in March. *farfara.*

* T. panicle egg-ſhaped; female florets few.—Its roots abound with a reſinous matter. They have a ſtrong ſmell, and a bitteriſh acrid taſte. Horſes, cows, goats, and ſheep, eat it. Its large leaves afford ſhelter from ſhowers to poultry and other ſmall animals. *petaſites.*

953. Senecio, or *Groundſel*, *Ragwort*.

59 ſpecies; viz. hieracifolius, purpureus, cernuus, perſicifolius, virgatus, divaricatus, pſeudo-chyna, reclinatus, vulgaris, arabicus, peucedanifolius, japonicus, triflorus, ægyptius, lividus, trilobus, * viſcoſus, * ſylvaticus, nebrodenſis, glaucus, varicoſus, haſtatus, pubigerus, elegans, ſqualidus, erucifolius, incanus, abrotanifolius, canadenſis, diffuſus, * jacobæa, * tenuifolius, aureus, lyratus, alpinus, umbellatus, linifolius, roſmarinifolius, * paludoſus, nemorenſis, * ſarracenicus, ſibiricus, dorea, doronicum, longifolius, cruciatus, juniperinus, byzantinus, halimifolius, ilicifolius, rigidus, polifolius, angulatus, maritimus, eroſus, marginatus, lanatus, cordifolius, glaſtifolius. Europe, Africa, E. Indies, Japan, N. America.

* S.

vulgaris. * S. leaves winged, indented, embracing the ſtem; flowers ſcattered.—A ſtrong infuſion of this plant vomits. The bruiſed leaves are a good application to boils. The ſeeds are very acceptable to linnets and goldfinches when confined in cages. Cows are not fond of it. Goats and ſwine eat it. Horſes and ſheep refuſe it.

jacobæa. * S. leaves lyre-ſhaped, almoſt winged; ſegments finely jagged; ſtem upright.—If this plant is gathered before the flowers open, and uſed freſh, it dyes wool of a full green, but the colour is apt to fade. If woollen cloth is boiled in alum water, and then in a decoction of the flowers, it takes a beautiful deep yellow. Horſes and ſheep refuſe it. Cows are not fond of it. Horſes and cows, however, eat it when young.

954. ASTER, or *Starwort.*

38 ſpecies; viz. taxifolius, reflexus, crinitus, fruticuloſus, tenellus, alpinus, ſibiricus, * tripolium, amellus, divaricatus, hiſſopifolius, dumoſus, ericoides, tenuifolius, linariifolius, linifolius, acris, concolor, rigidus, novæangliæ, undulatus, grandiflorus, cordifolius, puniceus, annuus, vernus, indicus, lævis, mutabilis, tradeſcanti, novi-belgii, tardiflorus, miſer, macrophyllus, chinenſis, tataricus, hiſpidus, ſcaber. Europe, Cape, N. Aſia, America.

tripolium. * A. leaves ſtrap-ſpear-ſhaped, fleſhy, ſmooth, 3-fibred; calyx ſcales blunt, ſomewhat membranaceous.—Goats and horſes eat this ſpecies. Cows and ſwine refuſe it. Sheep are not fond of it.

955. SOLIDAGO, or *Golden Rod.*

14 ſpecies; viz. ſempervirens, canadenſis, altiſſima, lateriflora, bicolor, lanceolata, cæſia, mexicana, flexicaulis, latifolia, * virgaurea, minuta, rigida, noveboracenſis. Europe, N. America.

virgaurea. * S. ſtem ſerpentine, branched; leaves moſtly ſitting; flowers in crowded panicles.—This plant is found wild on heaths and in woods, producing ſpikes of yellow flowers in Auguſt. The leaves have a moderately aſtringent bitter taſte; and hence prove ſerviceable in debility and laxity of the viſcera, and diſorders proceeding from that cauſe.

957. CINERARIA, or *Sky-flower.*

26 ſpecies; viz. geifolia, cymbalarifolia, ſibirica, glauca, ſonchifolia, cordifolia, criſpa, * integrifolia, longifolia, * paluſtris, aurea, maritima, canadenſis, capillacea, linifolia, purpurata, amelloides, americana, alata, elongata, cacalioides, denticulata, perfoliata, lineata, haſtifolia, japonica. Europe, Africa, N. America, Jamaica.

956. INULA, or *Elecampane.*

29 ſpecies; viz. * helenium, odora, ſuaveolens, odorus-chriſti, britannica, * dyſenterica, undulata, indica, pulicaria, arabica, ſpiræifolia, ſquarroſa, bubonium, ſalicina, hirta, mariana, germanica, japonica, dubia, enſifolia, crithmifolia, provincialis, montana, æſtuans, bifrons, cœrulea, aromatica, pinifolia, fœtida. Europe, Cape, E. Indies, N. America.

helenium. * I. leaves embracing the ſtem, egg-ſhaped, wrinkled, cottony underneath; ſcales of the calyx egg-ſhaped.—This is a large downy plant, ſometimes found wild in moiſt rich ſoils. The elecampane, or root, eſpecially when dry, has an agreeable aromatic ſmell; its taſte on firſt chewing, is glutinous, and as it were ſomewhat rancid; in a little time it diſcovers an aromatic bitterneſs, which by degrees becomes conſiderably acrid and pungent. Elecampane root poſſeſſes the general virtues of alexipharmacs; it is principally recommended for promoting expectoration in humoral aſthmas and coughs; liberally taken, it is ſaid to excite urine, and looſen the belly. In ſome parts of Germany large quantities of this root are candied and uſed as a ſtomachic, for ſtrengthening the tone of the viſcera in general, and for attenuating tenacious juices; ſpirituous liquors extract its virtues in greater perfection than watery ones: the former ſcarce elevate any thing in diſtillation; with the latter an eſſential oil ariſes, which concretes into white flakes: this poſſeſſes at firſt the flavour of the elecampane, but is very apt to loſe it on keeping. An extract made with water, poſſeſſes the bitterneſs and pungency of the root, but in a leſs degree than one made with ſpirit. The root is eſteemed a good pectoral. Dr Hill ſays, he knows, from his own experience, that an infuſion of the freſh root, ſweetened with honey, is an excellent medicine in the hooping-cough. A decoction of the root cures ſheep that have the ſcab. Horſes and goats eat it. Cows, ſheep, and ſwine, refuſe it.

dyſenterica. * I. leaves embracing the ſtem, heart-oblong; ſtem woolly, forming a kind of panicle; ſcales of the calyx briſtle-ſhaped.—It has a peculiar ſcent, compared by ſome to that of ſoap. The Ruſſian ſoldiers in the Perſian expedition under General Keit were much troubled with the bloody flux, which was cured by the uſe of this plant. Cows are not fond of it. Sheep and goats refuſe it.

958. ARNICA, or *Leopard's Bane.*

11 ſpecies; viz. montana, piloſelloides, ſcorpioides, doronicum, maritima, crocea, ciliata, japonica, palmata, gerbera, coronopifolia. Europe, Africa, Japan.

The *arnica montana* had formerly a place in our pharmacopœias under the title of *doronicum germanicum.* Then, however, it was little known or uſed; and being juſtly conſidered as one of the deleterious vegetables, it was rejected: but it has again been introduced into the liſt both of the London and Edinburgh colleges on the authority of freſh obſervations, particularly of thoſe of Dr Collins of Vienna, who has lately publiſhed a diſſertation on the medical virtues of the arnica.

This plant grows in different parts of Europe, particularly in Germany. It has an acrid bitter taſte, and when bruiſed, emits a pungent odour, which excites ſneezing. On this account the country people in ſome parts of Germany uſe it in ſnuff, and ſmoke it like tobacco. It was formerly repreſented as a remedy of great efficacy againſt effuſions and ſuffuſions of blood from falls, bruiſes, and the like; and it was then alſo mentioned as a remedy in jaundice, gout, nephritis, &c. but in theſe affections it is now very little if at all employed.

Of late it has been principally recommended in paralytic affections, and in caſes where a loſs or diminution of ſenſe ariſes from an affection of the nerves, as in inſtances of amauroſis. In theſe it has chiefly been employed under the form of infuſion. From a dram to half an ounce of the flowers has been directed to be infuſed in a pint of boiling water, and taken in different

ent doſes in the courſe of the day; ſometimes it produces vomiting, ſometimes ſweating, ſometimes diureſis: but frequently its uſe is attended with no ſenſible operation, unleſs it can be conſidered as ſuch, that in ſome caſes of paralyſis, the cure is ſaid to be preceded by a peculiar prickling, and by ſhooting pains in the affected parts.

Beſides being employed in paralytic affections, it has alſo been of late repreſented as a very powerful antiſpaſmodic; and it is ſaid to have been ſucceſsfully employed in fevers, particularly thoſe of the intermittent kind, and likewiſe in caſes of gangrene. In thoſe diſeaſes it has been ſaid to prove as efficacious as the Peruvian bark, when employed under the form of a pretty ſtrong decoction, taken in ſmall doſes frequently repeated, or under the form of an electuary with honey.

But theſe alleged virtues of the arnica have not been confirmed by any trials made in Britain, with which we are acquainted; and we are of opinion that its real influence ſtill remains to be determined by future obſervations. It is, however, one of thoſe active ſubſtances from which ſomething may be expected.

959. Doronicum, or *Leopard's Bane.*

Three ſpecies; viz. * pardalianches, plantagineum, bellidiaſtrum. Europe, N. America.

960. Perdicium.

Five ſpecies; viz. ſemiflosculare, radiale, braſilienſe, magellanicum, tomentoſum. Cape, Japan, Jamaica, S. America.

1421. Mutisia.

One ſpecies; viz. clematis. New Granada.

961. Helenium, or *Baſe Sun-flower.*

One ſpecies; viz. autumnale. N. America.

962. Bellis, or *Daiſy.*

Two ſpecies; viz. *perennis, annua. Europe.

perennis. * B. ſtalk naked.—The leaves are ſlightly acrid. The roots have a penetrating pungency. No attention is paid to it, except what it claims from the beauty of its flowers. The flowers cloſe at night. Horſes, ſheep, and cows refuſe it.

1322. Bellium, or *Baſe Daiſy.*

Two ſpecies; viz. bellidioides, minutum. Levant, India.

964. Tagetes, or *African Marygold.*

Three ſpecies; viz. patula, erecta, minuta. Mexico, Chili.

963. Leysera.

Three ſpecies; viz. gnaphalodes, callicornia, paleacea. Cape, California, Carolina.

974. Zinnia.

Two ſpecies; viz. pauciflora, multiflora. N. America, Peru.

965. Pectis.

Three ſpecies; viz. ciliaris, punctata, linifolia. America.

966. Chrysanthemum, or *Corn Marygold.*

24 ſpecies; viz. frutescens, ſerotinum, atratum, alpinum, *leucanthemum, montanum, graminifolium, monſpelienſe, balſamita, *inodorum, achillæa, corymboſum, indicum, pinnatifidum, arcticum, pectinatum, *ſegetum, myconis, italicum, milleſoliatum, bipinnatum, coronarium, floſculoſum, japonicum. Europe, India, Africa, N. America.

* C. leaves embracing the ſtem, oblong, ſerrated upwards, toothed at the baſe.—The young leaves may be eaten in ſalads. Horſes and goats eat it. Cows and ſwine refuſe it. *leucanthemum.*

* C. leaves embracing the ſtem, jagged upwards, tooth-ſerrated towards the baſe.—This ſpecies was imported into Sweden along with corn from Jutland about the end of the laſt century. In Denmark there is a law to oblige the farmers to root it up from their corn fields. It may be deſtroyed by dunging the ground in autumn, followed by a ſummer fallow, and harrowing the land about five days after ſowing the grain. Its yellow flowers, however, which follow the ſun in a very remarkable manner, give a very remarkable brilliancy to the fields in tillage, and pleaſe the eye of the paſſing traveller.—A large quantity which grew on ſome arable land, was cut when in flower, dried and eaten by horſes as a ſubſtitute for hay. It is uſed by the Germans for dyeing yellow. *ſegetum.*

967. Matricaria, or *Feverfew.*

Six ſpecies; viz. * parthenium, * maritima, ſuaveolens, * chamomilla, argentea, aſteroides. Europe, Curaçoa, S. America.

* M. leaves compound, flat; leafets egg-ſhaped, cut; fruitſtalks branched.—The whole plant has a ſtrong ſmell and a bitter taſte, and yields an eſſential oil by diſtillation. A horſe refuſed it. *parthenium.*

* M. Receptacle conical, rays expanding; calyx ſcales equal at the edge.—Its properties reſemble thoſe of *anthemis nobilis.* The Finlanders uſe an infuſion of it in conſumptive caſes. Cows, goats and ſheep eat it. Horſes are not fond of it. Swine refuſe it. *chamomilla.*

1420. Unxia.

One ſpecies; viz. camphorata. Surinam.

968. Cotula, or *May-weed.*

13 ſpecies; viz. anthemoides, aurea, ſtricta, coronopifolia, umbellata, quinqueloba, viſcoſa, turbinata, tanacetifolia, verbeſina, capenſis, pilulifera, ſervicea. S. Europe, Barbary, Cape, Jamaica.

969. Anacyclus.

Four ſpecies; viz. creticus, orientalis, aureus, valentinus. Europe.

970. Anthemis, or *Chamomile.*

18 ſpecies; viz. cota, altiſſima, * maritima, tomentoſa, mixta, alpina, chia, * nobilis, * arvenſis, auſtriaca, * cotula, pyrethrum, valentina, repanda, trinervia, americana, * tinctoria, arabica. Europe, Africa, N. America.

* A. receptacle conical; chaff briſtle-ſhaped; ſeeds naked.—Toads are ſaid to be fond of this plant. It is very ungrateful and diſpleaſing to bees. Goats and ſheep are not fond of it. Horſes, cows, and ſwine refuſe it. It frequently bliſters the ſkin of reapers, and of children who happen to gather it. The heads rubbed between the fingers ſmell intolerably diſagreeable. *cotula.*

* A. leaves winged compound, ſtrap-ſhaped, acute, ſomewhatwoolly.—The leaves and flowers have a ſtrong not ungrateful ſmell, and a bitter naufeous taſte. They afford an eſſential oil. An infuſion of the flowers is often uſed as a ſtomachic, and as an antiſpaſmodic. In large quantities it excites vomiting. The powdered *nobilis.*

flowers

flowers in large doſes have cured agues, even when the bark had failed. Both the leaves and flowers poſſeſs very conſiderable antiſeptic properties, and are therefore uſed in antiſeptic fomentations and poultices. From their antiſpaſmodic powers they are frequently found to relieve pain, either applied externally or taken internally. Ray recommends the flowers in calculous caſes.

tinctoria. * A. leaves doubly winged, ſerrated, cottony underneath; ſtem ſupporting a corymbus.—The flowers afford a remarkably clean and good yellow dye. The flowers of the *chryſanthemum ſegetum* reſemble them much in appearance, but experience proves they cannot be ſubſtituted in their place. Horſes and goats eat it. Sheep are not fond of it. Cows and ſwine refuſe it.

Achillea, or *Milfoil, Yarrow.*

21 ſpecies; viz. ſantolina, ageratum, falcata, tomentoſa, pubeſcens, abrotanifolia, bipinnata, ægyptiaca, macrophylla, impatiens, clavennæ, * ptarmica, alpina, atrata, moſchata, nana, magna, * millefolium, nobilis, odorata, cretica. Europe, Africa.

ptarmica. * A. leaves ſtrap ſpear-ſhaped, embracing the ſtem, finely ſerrated.—The roots have a hot biting taſte. The young tops are ſharp and pleaſant in ſpring ſalads. The powdered leaves excite ſneezing. Horſes, cows, ſheep, goats and ſwine eat it.

millefolium * A. leaves doubly winged; ſegments of the wings ſtrap-ſhaped, toothed.—The flowers of this plant yield an eſſential oil. The leaves are celebrated by the materia medica writers for a variety of purpoſes, but they are little attended to at preſent. Sheep and ſwine refuſe it. Horſes, cows, and goats are not fond of it.

972. Tridax, or *Trailing Star-wort.*

One ſpecies; viz. procumbens. Vera Cruz.

978. Amellus, or *Star-flower.*

Two ſpecies; viz. lychnites, umbellatus. Cape, Jamaica, Carolina.

1321. Eclipta.

Four ſpecies; viz. erecta, punctata, latifolia, proſtrata. E. and W. Indies.

973. Sigesbeckia.

Two ſpecies; viz. orientalis, occidentalis. India, China, Virginia, Peru.

975. Verbesina, or *Indian Hemp-agrimony.*

11 ſpecies; viz. alata, chinenſis, virginica, lavenia, dichotoma, biflora, calendulacea, nodiflora, fruticoſa, gigantea, boſvallea. E. and W. Indies, China, North America.

977. Buphthalmum, or *Ox-eye.*

11 ſpecies; viz. fruteſcens, arboreſcens, ſericeum, ſpinoſum, aquaticum, maritimum, durum, ſalicifolium, grandiflorum, ſpecioſiſſimum, helianthoides. Europe, N. America, Arabia, Jamaica.

Order III. POLYGAMIA FRUSTRANEA.

979. Helianthus, or *Sun-flower.*

13 ſpecies; viz. annuus, indicus, multiflorus, tuberoſus, decapetalus, frondoſus, ſtrumoſus, gigantcus, altiſſimus, lævis, anguſtifolius, divaricatus, atrorubens. America.

980. Rudbeckia, or *Dwarf Sun-flower.*

Six ſpecies; viz. laciniata, triloba, hirta, purpurea, oppoſitifolia, anguſtifolia. N. America.

981. Coreopsis, or *Tick-ſeed Sun-flower.*

12 ſpecies; viz. verticillata, coronata, leucantha, chryſantha, tripteris, alba, reptans, baccata, auriculata, lanceolata, bidens, alternifolia. North America.

983. Osmites.

Four ſpecies; viz. bellidiaſtrum, camphorina, aſteriſcoides, calycina. C. of G. Hope.

Sclerocarpus.

One ſpecies; viz. africanus. Africa.

982. Gorteria.

12 ſpecies; viz. perſonata, rigens, ſquarroſa, ſetoſa, ciliaris, aſteroides, herbacea, hiſpida, ſpinoſa, cernua, uniflora, barbata. C. of G. Hope.

1271. Zoegea.

Two ſpecies; viz. leptaurea, capenſis. C. of G. Hope.

984. Centaurea, or *Blue-bottle, Knapweed.*

66 ſpecies; viz. crupina, moſchata, erucifolia, lippii, alpina, centaureum, purygia, capillata, uniflora, liniſolia, pectinata, * nigra, pullata, montana, * cyanus, paniculata, ſpinoſa, raguſina, cineraria, argentea, ſibirica, ſempervirens, * ſcabioſa, tatarica, ſtoebe, acaulis, orientalis, behen, repens, jacea, amara, alba, ſplendens, rhapontica, babylonica, glaſtifolia, conifera, ſonchifolia, ſeridis, romana, ſphærocephala, iſnardi, napifolia, aſpera, benedicta, eriophora, ægyptiaca, * calcitrapa, calcitrapoides, * ſolſtitialis, melitenſis, ſicula, centauroides, collina, rupeſtris, verutum, ſalmantica, cichoracea, muricata, peregrina, radiata, nudicaulis, crocodilium, pumila, tingitana, galactites. Europe, Egypt, Arabia, Perſia.

* C. calyx ſcales ſerrated; leaves ſtrap-ſhaped, very entire; the lower ones toothed.—The expreſſed juice of the petals is a good blue ink; it ſtains linen of a beautiful blue, but the colour is not permanent in the mode it has hitherto been applied. Mr Boyle ſays, the juice of the central florets, with the addition of a very ſmall quantity of alum, makes a laſting tranſparent blue, not inferior to ultramarine. Cows, goats, and ſheep eat it. Horſes and ſwine refuſe it. *cyanus.*

The *centaurea centaurium* is a large plant cultivated in gardens. The root has a rough, ſomewhat acrid taſte, and abounds with a red viſcid juice; its rough taſte has gained it ſome eſteem as an aſtringent; its acrimony as an aperient; and its glutinous quality as a vulnerary. The preſent practice takes little notice of it with any intention.

The *centaurea benedicta* is an annual plant cultivated in gardens; it flowers in June and July, and perfects its ſeeds in the autumn. The herb ſhould be gathered when in flower, dried in the ſhade, and kept in a very dry airy place, to prevent its rotting or growing mouldy, which it is very apt to do. The leaves have a penetrating bitter taſte, not very ſtrong or durable, accompanied with an ungrateful flavour, which they are in a great meaſure freed from by keeping. Water extracts, in a little time, even without heat, the lighter and more grateful parts of this plant; if the digeſtion be continued for ſome hours, the diſagreeable parts are taken up

up; a ſtrong decoction is very nauſeous and offenſive to the ſtomach. Rectified ſpirit gains a very pleaſant bitter taſte, which remains uninjured in the extract.

The virtues of this plant ſeem to be little known in the preſent practice. The nauſeous decoction is ſometimes uſed to provoke vomiting, and a ſtrong infuſion to promote the operation of other emetics. But this elegant bitter, when freed from the offenſive parts of the herb, may be advantageouſly applied to other purpoſes. Excellent effects have frequently been experienced from an infuſion of this plant, in loſs of appetite, where the ſtomach was injured by irregularities. A ſtronger infuſion made in cold or warm water, if drank freely, and the patient kept warm, occaſions a plentiful ſweat, and promotes all the ſecretions in general.

The ſeeds of this plant are alſo conſiderably bitter, and have been ſometimes uſed with the ſame intentions as the leaves.

Order IV. POLYGAMIA NECESSARIA.

985. Milleria.

Two ſpecies; viz. quinqueflora, biflora. Panama, Vera Cruz.

1323. Baltimora.

One ſpecies; viz. recta. Maryland, Virginia.

986. Silphium, or *Baſe Chryſanthemum.*

Eight ſpecies; viz. laciniatum, terebinthinaceum, perfoliatum, connatum, aſteriſcus, ſolidaginoides, trifoliatum, trilobatum. N. America.

987. Polymnia, or *Dwarf Sun-flower.*

Seven ſpecies; viz. canadenſis, carnoſa, uvedalia, tetragonotheca, abyſſinica, ſpinoſa, wedelia. Africa, Canada, Virginia.

988. Chrysogonum.

One ſpecies; viz. virginianum. Virginia.

989. Melampodium.

Two ſpecies; viz. americanum, auſtrale. Jamaica, St Domingo, S. America.

990. Calendula, or *Marygold.*

Nine ſpecies; viz. *arvenſis, ſancta, officinalis, pluvialis, hybrida, nudicaulis, graminifolia, fruticoſa, tomentoſa. Europe, Cape.

arvenſis. * C. ſeeds boat-ſhaped, prickly, turned inwards; the innermoſt crowded together, the outermoſt upright, furniſhed with a tail.—This is a very common plant in the corn fields, and in the vineyards in Portugal; and is uſed as food for milch cows. It is found in England near Falmouth, to which place it has probably been imported from Portugal, in conſequence of the frequent communication by the packets and otherwiſe. The milk yielded by the cows which are fed upon it is very good.

The herb of the *calendula officinalis* is common in gardens, where it is found in flower greateſt part of the ſummer. Marygold flowers are ſuppoſed to be aperient and attenuating, and alſo cardiac, alexipharmac, and ſudorific; they have been principally celebrated in uterine obſtructions, in the jaundice, and for throwing out the ſmall pox. Their ſenſible qualities give little foundation for theſe virtues; they have ſcarcely any taſte and no conſiderable ſmell. The leaves of the plant diſcover a viſcid ſweetiſhneſs, accompanied with a more durable ſaponaceous pungency and warmth: theſe ſeem capable of anſwering ſome uſeful purpoſes as a ſtimulating and aperient medicine; but at preſent they are ſo little employed in Britain, that they have now no place in our pharmacopœias, and they are alſo rejected from ſeveral of the lateſt and beſt foreign ones.

991. Arctotis.

12 ſpecies; viz. calendulacea, hypochondriaca, triſtis, coruſcans, ſuperba, ſerrata, tenuifolia, plantaginea, anguſtifolia, aſpera, paradoxa, dentata, anthemoides, tenuifolia, acaulis. Cape, Carolina.

992. Osteospermum, or *Hard-ſeeded Chryſanthemum.*

15 ſpecies; viz. ſpinoſum, piſiferum, moniliferum, ilicifolium, ciliatum, junceum, triquetrum, corymboſa, imbricatum, herbaceum, niveum, perfoliatum, polygaloides, calendulaceum, arctotoides. Cape, E. Indies.

993. Othonna, or *African Rag-wort.*

26 ſpecies; viz. bulboſa, tagetes, trifida, pectinata, abrotanifolia, athanaſiæ, ciliata, pinnata, trifurcata, munita, coronopifolia, cheirifolia, craſſifolia, parviflora, tenuiſſima, linifolia, digitata, lingua, lateriflora, heterophylla, cacalioides, ericoides, capillaris, virginea, fruteſcens, arboreſcens. Africa.

1324. Hippia, or *Shrubby Tanſy.*

Three ſpecies; viz. integrifolia, minuta, fruteſcens. Cape, E. Indies, America.

994. Eriocephalus.

Two ſpecies; viz. africanus, racemoſus. C. of G. Hope.

995. Filago, or *Cotton*, or *Cud-weed.*

Seven ſpecies; viz. acaulis, * germanica, pyramidata, * montana, * gallica, * arvenſis, leontopodium. Europe.

996. Micropus, or *Baſe Cud-weed.*

Two ſpecies; viz. ſupinus, erectus. Spain, Portugal, Italy, Levant.

Order V. POLYGAMIA SEGREGATA.

997. Elephantopus, or *Elephants-foot.*

Two ſpecies; viz. ſcaber, tomentoſus. E. and W. Indies.

1325. Oedera.

Two ſpecies; viz. prolifera, aliena. C. of G. Hope.

998. Sphæranthus, or *Globe-flower.*

Three ſpecies; viz. indicus, africanus, chinenſis. E. Indies, China.

999, Echinops, or *Globe-thiſtle.*

Four ſpecies; viz. ſphærocephalus, ſpinoſus, ritro, ſtrigoſus. Siberia, Auſtria, France, Spain, Italy.

1000. Gundelia.

One ſpecies; viz. tournefortii. Syria, Aleppo, Amer.

1422. Jungia.

One ſpecies; viz. ferruginea. S. America.

1001. Stoebe, or *Baſe Ethiopian Elychriſum.*

Nine ſpecies; viz. æthiopica, ericoides, proſtrata, gnaphaloides,

gnaphaloides, gomphrenoides, ſcabra, reflexa, rhinocerotis, diſticha. C. of G. Hope.

Order VI. MONOGAMIA.

1003. Seriphium.

Four ſpecies; viz. cinereum, plumoſum, fuſcum, ambiguum. Cape of Good Hope.

1002. Strumpfia.

One ſpecies; viz. maritima. America.

1004. Corymbium.

Four ſpecies; viz. ſcabrum, glabrum, filiforme, villoſum. C. of G. Hope.

1005. Jasione, or *Sheep's Scabious.*

Two ſpecies; viz. * montana, perennis. Eur. Cape.

1006. Lobelia, or *Cardinal flower.*

42 ſpecies; viz. ſimplex, pinifolia, *dortmanna, tupa, anceps, kalmii, paniculata, grandis, cornuta, phyteuma, columneæ, belliditlora, bulboſa, triquetra, longiflora, tomentoſa, ſecunda, patula, aſſurgens, cardinalis, lævigata, ferruginea, debilis, ſiphilitica, ſurinamenſis, inflata, cliffortiana, urens, minuta, volubilis, bulboſa, laurentia, erinus, erinoides, zeylanica, lutea, hirſuta, coronopifolia, comoſa, tenella, depreſſa. Cape, Eaſt and Weſt Indies, America.

The *lobelia ſiphilitica* grows in moiſt places in Virginia, and bears our winters. It is perennial, has an erect ſtalk three or four feet high, blue flowers, a milky juice, and a rank ſmell. The root conſiſts of white fibres about two inches long; reſembles tobacco in taſte, which remains on the tongue, and is apt to excite vomiting. It is uſed by the North American Indians as a ſpecific in the venereal diſeaſe. The form is that of decoction; the doſe of which is ordered to be gradually increaſed, till it bring on very conſiderable purgings, then to be intermitted for a little, and again uſed in a more moderate degree till the cure be completed. The ulcers are alſo waſhed with the decoction, and the Indians are ſaid to ſprinkle them with the powder of the inner bark of the ſpruce tree. The ſame ſtrictneſs of regimen is ordered as during a ſalivation or mercurial courſe. The benefit to be derived from this article, has not, as far as we know, been confirmed either in Britain or by the practitioners in Virginia; for there, as well as in this country, recourſe is almoſt univerſally had to the uſe of mercury; and it is probably from this reaſon that the London college have not received it into their liſt. It, however, ſeems to be an article which, in ſome caſes at leaſt, deſerves a trial.

1007. Viola, or *Violet.*

28 ſpecies; viz. palmata, pedata, pinnata, lanceolata, primulifolia, *hirta, *paluſtris, *odorata, *canina, montana, ceniſia, canadenſis, mirabilis, biflora, uniflora, decumbens, *tricolor, *grandiflora, calcarata, cornuta, arboreſcens, enneaſperma, ſuffruticoſa, calceolaria, oppoſitifolia, hybanthus, ipecacuanha, diandra. Alps, Pyrenees, Cape, America.

The *viola odorata* is often found wild in hedges and ſhady places, and flowers in March: the ſhops are generally ſupplied from gardens. In our markets we meet with the flowers of different ſpecies; theſe may be diſtinguiſhed from the others by their being large, of a pale yellow colour, and of no ſmell. The officinal flowers have a very pleaſant ſmell, and a deep purpliſh blue colour, denominated from them *violet.* They impart their colour and flavour to aqueous liquors: A ſyrup made from this infuſion has long maintained a place in the ſhops, and proves an agreeable and uſeful laxative for children.

1008. Impatiens, or *Balſam, Balſamine.*

Seven ſpecies; viz. chinenſis, latifolia, oppoſitifolia, cornuta, balſamina, triflora, noli-tangere. Europe, N. America, E. Indies, China.

In the claſs Syngeneſia are

115 Genera, including 1252 Species, of which 113 are found in Britain.

CLASSIS XX.

GYNANDRIA (k).

Ordo I. DIANDRIA.

* 1009. Orchis. Nectarium corniculatum.
* 1010. Satyrium. Nect. ſcrotiforme.
* 1011. Ophrys. Nect. ſubcarinatum.

CLASS XX.

GYNANDRIA.

Order I. DIANDRIA.

* O. Nectary horned.
* S. Nect. purſe-ſhaped.
* O. Nect. nearly keel-ſhaped.

(k) This elaſs is diſtinguiſhed from the others by the ſituation of the ſtamens (male parts of the flower) upon the piſtils (female parts). The ſtamens are either placed upon the ſtyle itſelf, or upon the receptacle, which in that caſe is lengthened into the appearance of the ſtyle which ſupports the piſtil with the ſtamens, and forms a part of the piſtil. The orders are determined by the number of ſtamens.

* 1012. Serapias. Nect. ovatum, ſubtus gibbum.
1013. Limodorum. Nect. pedicellatum.
* 1015. Cypripedium. Nect. inflato-ventricoſum.
1016. Epidendrum. Nect. turbinatum.
1014. Arethusa. Nect. connatum, cum corolla ringente.
1272. Gunnera. Digyna. Amenti cal. 0. Cor. 0. Sem. 1.
1423. Disa. Spatha 1-valvis. Petala 3; tertium minus, bipartitum, baſi gibboſum.
1424. Forstera. Cal. duplex; exterior inferus, 3-phyllus; interior ſuperus, 6-fidus. Cor. tubuloſa.

* S. Nect. oval, bulged beneath.
L. Nect. on a pedicle.
* C. Nect. inflate-bellied.
E. Nect, turban-ſhaped.
A. Nect. united at the baſe, with a gaping cor.

G. Two piſtils. Catkin no cal. No cor. One ſeed.
D. Sheath 1-valved. Three petals; the third leſs, bipartite, bulged at the baſe.
F. Cal. double, the outer inferior, 3-leafed; the inner ſuperior, 6-cleft. Cor. tubular.

Ordo II. TRIANDRIA.

Order II. TRIANDRIA.

1017. Sisirinchium. Monogyna. Cal. 0. Cor. 6-petala, plana. Stigmata 3. Capſ. 3-locularis, infera.
1018. Ferraria. Monogyna. Cal. 0. Cor. 6-petala, criſpa. Stigma cucullatum. Capſ. 3-locularis, infera.
1326. Salacia. Monogyna. Cal. 5-partitus. Cor. 5-petala. Antheræ germini inſidentes.
1273. Stilago. Monogyna. Cal. 1-phyllus. Cor. 0. Bacca.

S. No cal. Cor. 6-petaled, flat. Stigmas 3. Capſ. 3-celled, inferior.

F. One piſtil. No cal. Cor. 6-petaled, criſp. Stig. cone-ſhaped. Capſ. 5-celled, inferior.

S. One piſtil. Cal. 5-parted. Cor. 5-petaled. Anthers ſitting on the germen.
S. One piſtil. Cal. 1-leafed. No cor. Berry.

Ordo III. TETRANDRIA.

Order III. TETRANDRIA.

1019. Nepenthes. Monogyna. Cal. 4 partitus. Cor. nulla. Capſ. 4-locularis.

N. One piſtil. Cal. 4-parted. No cor. Capſ. 4-celled.

Ordo IV. PENTANDRIA.

Order IV. PENTANDRIA.

1327. Gluta. Monogyna. Cal. 1-phyllus. Cor. 5-petala. Germen columnæ, corollæ adglutinatæ, inſidens.
1020. Ayenia. Monogyna. Cal. 5-phyllus. Cor. 5-petala. Capſ. 5-cocca.
1021. Passiflora. Trigyna. Cal. 5-partitus. Cor. 5-petala. Bacca pedicellata.

G. One piſt. Cal. 1-leafed. Cor. 5-petaled. Germ fixed to a pillar attached to the cor.

A. One piſt. Cal. 5-leafed. Cor. 5-pet. Capſ. 5-celled.
P. Three piſt. Cal. 5-parted. Cor. 5-petaled. Berry pedicled.

Ordo V. HEXANDRIA.

Order V. HEXANDRIA.

* 1022. Aristolochia. Hexagyna. Cal. nullus. Cor. 1-petala. Capſ. 6-locularis.

Cui ſimilis, Cleome.

* A. Six piſt. No cal. Cor. 1-petaled. Capſ. 6-celled.

Ordo VI. OCTANDRIA.

Order VI. OCTANDRIA.

1425. Scopolia. Cal. 2-phyllus, multiflorus. Cor. 4-fida. Antheræ connatæ in duplici columna.

S. Cal. 2-leafed, many-flowered. Cor. 4-cleft. Anthers united in a double pillar.

Ordo VII. DECANDRIA.

Order VII. DECANDRIA.

1024. Kleinhovia. Monogyna. Cal. 5-phyllus. Cor. 5-petala. Nectarium ſtaminiferum. Capſ. 5-cocca.
1025. Helicteris. Monogyna. Cal. 1-phyllus. Cor. 5-petala. Capſ. 5, 1-loculares, polyſpermæ.

K. One piſt. Cal. 5-leaved. Cor. 5-petaled. Nect. bearing the ſtamens. Capſ. 5-celled.

H. One piſt. Cal. 1-leafed. Cor. 5-petaled. Five capſ. 1-celled, many-ſeeded.

Ordo VIII. DODECANDRIA.

Order VIII. DODECANDRIA.

1232. Cytinus. Monogynus. Cal. 4-fidus. Cor. 0. Bacca 8-locularis.

C. One piſt. Cal. 4-cleft. No cor. Berry 8-celled.

Ordo IX. POLYANDRIA.

1027. Xylopia. Monogyna. Cal. 1-phyllus. Cor. 6-petala. Drupa ſicca.

1026. Grewia. Monogyna. Cal. 5-phyllus. Cor. 5-petala. Bacca locularis.

1031. Pothos. Spatha. Cal. nullus. Cor. 4-petala. Bacca 1-ſperma.

1029. Dracontium. Spatha. Cal. nullus. Cor. 5-petala. Bacca polyſperma.

1030. Calla. Spatha. Cal. nullus. Cor. nulla. Stam. mixta piſtillis.

* 1028. Arum. Spatha. Cal. nullus. Cor. nulla. Stam. ſupra piſtilla.

1238. Ambrosinia. Spatha. Cal. nullus. Cor. nulla. Stamina alterius lateris diſſepimenti.

* 1032. Zostera. Folium. Cal. nullus. Cor. nulla. Sem. alterna, nuda.

Order IX. POLYANDRIA.

X. One piſt. Cal. 1-leaved. Cor. 6-petaled. Drupe dry.

G. One piſt. Cal. 5-leaved. Cor. 5-petaled. Berry celled.

P. Sheath. No cal. Cor. 4-petaled. Berry 1-ſeeded.

D. Sheath. No cal. Cor. 5-petaled. Berry many-ſeeded.

C. Sheath. No cal. No cor. Stam. mixed with piſtils.

* A. Sheath. No cal. No cor. Stam. above the piſtils.

A. Sheath. No cal. No cor. Stam. on one ſide of a diviſion.

* Z. A leaf. No cal. No cor. Alternate ſeeds, naked.

Order I. DIANDRIA.

1009. Orchis, *Orch* or *Butterfly Flower*.

50 ſpecies; viz. bicornis, biflora, cornuta, ſpathulata, flexuoſa, tripetaloides, ſagittalis, barbata, draconis, tenella, ſancta, ſuſannæ, ciliaris, habenaria, *bifolia, ornithis, flexuoſa, cucullata, globoſa, *pyramidalis, coriophora, cubitalis, *morio, *maſcula, *uſtulata, *militaris, fuſca, moravica, papilionacea, rubra, pallens, hiſpidula, ſpecioſa, *latifolia, incarnata, ſambucina, *maculata, odoratiſſima, *conopſea, flava, friſceſcens, ſtrateumatica, hyperborea, *abortiva, pſycodes, ſpectabilis, filicornis, tipuloides, japonica, falcata. Europe, Cape, Aſia, W. Indies.

maſcula. * O. lip of the nectary 4-lobed, finely ſcolloped; horn blunt; upper petals turned back.—This ſpecies is called *ſatyrion*, or *early orchis*. It is frequent in ſhady places and moiſt meadows. Each plant has two oval roots of a whitiſh colour, a viſcid ſweetiſh taſte, and a faint unpleaſant ſmell. They abound with a glutinous ſlimy juice. With regard to their virtues, like other mucilaginous vegetables, they defend the ſolids againſt acrimonious humours: they have alſo been celebrated, though on no good foundation, for analeptic and aphrodiſiac virtues, and frequently made uſe of with theſe intentions. Salep, a celebrated reſtorative among the Turks, is the prepared root of plants of this genus. It has been ſucceſsfully imitated by means of the roots of this ſpecies. Mr Moult, in a letter to Dr Percival, deſcribes his method of making ſalep. He obſerves, that the beſt time to gather the roots, is when the ſeed is formed and the ſtalk going to fall, for then the new bulb, of which ſalep is made, is arrived at its full ſize. The new roots being ſeparated from the ſtalk, are to be waſhed in water, and the outer thin ſkin taken off. They are then to be ſet on a tin-plate in an oven, heated to the degree of a bread oven. In ſix, eight, or ten minutes, they will have acquired a tranſparency like horn, without being diminiſhed in ſize. They are then to be removed into another room to dry and harden, which will be done in a few days; or they may be finiſhed in a very ſlow heat in a few hours. Salep, thus prepared, may be ſold for leſs than a ſhilling a pound, and affords a mild nutriment, which in times of ſcarcity, in caſes of dyſentery and ſtrangury, and on ſhipboard, may be extremely uſeful. The ſalep, hitherto imported from Turkey, may thus be prepared at home. The plants muſt be propagated by the roots, as the ſeeds ſeldom come to perfection.

Phil. Tranſ. vol. v.

1010. Satyrium, or *Lizard-flower*.

15 ſpecies; viz. hircinum, tabulare, triſte, giganteum, aculeatum, viride, nigrum, albidum, epigogium, plantagineum, repens, capenſe, hians, orobanchoides, pedicellatum. Europe, Cape, America.

1001. Ophrys, *Twy* or *Tway-blade*.

28 ſpecies; viz. *nidus avis, *coralorhiza, *ſpiralis, cernua, ovata, *cordata, lilifolia, *loeſelii, paludoſa, monophyllos, alata, myodes, arachnides, *monorchis, alpina, camtſchatea, *anthropophera, crucigera, volucris, bracteata, atrata, catholica, circumflexa, caffra, bivalvata, alaris, patens, nervoſa. Alps, N. America, Cape.

1012. Serapias, or *Helleborine*.

11 ſpecies; viz. *enſifolia, *grandiflora, *lancifolia, *latifolia, *longifolia, *rubra, lingua, cordigera, capenſis, erecta, falcata. S. Europe, Cape, W. Indies.

1013. Limodorum, or *Baſe Hellebore*.

Three ſpecies; viz. tuberoſum, altum, ſtriatum.

1014. Arethusa.

Seven ſpecies; viz. bulboſa, ophioglooſſoides, divaricata, capenſis, villoſa, ciliaris, biplumata. Cape, N. America.

1423. Disa.

Four ſpecies; viz. grandiflora, racemoſa, longicornu, maculata. C. of G. Hope.

1016. Epidendrum, or *Vanelloe*.

32 ſpecies; viz. vanilla, flos æris, tenuifolium, ſpa-

tulatum, ſurvum, coccineum, ſecundum, lineare, punctatum, caudatum, ovatum, ciliare, nocturnum, cucullatum, teres, nodoſum, carinatum, aloifolium, guttatum, juncifolium, ſcriptum, retuſum, amabile, cochleatum, tuberoſum, puſillum, enſifolium, moniliforme, ophiogloſſoides, ruſcifolium, graminifolium, capenſe. E. and W. Indies, China, Japan.

1015. CYPRIPEDIUM, or *Lady's Slipper*.
Three ſpecies; viz. * calceolus, bulboſum, japonicum. Europe, Aſia, Japan, America.

1424. FORSTERA.
One ſpecies; viz. ſedifolia. New Zealand.

1272. GUNNERA.
One ſpecies; viz. perpenſa. Cape, Straits of Magellan.

ORDER II. TRIANDRIA.

1017. SISYRINCHIUM, or *Bermudiana*.
Two ſpecies; viz. bermudiana, palmifolium. Bermudas, W. Indies.

1018. FERRARIA.
Two ſpecies; viz. undulata, pavonia. Cape, Mexico.

1326. SALACIA.
One ſpecies; viz. chinenſis. China.

1273. STILAGO.
One ſpecies; viz. bunius.

ORDER III. TETRANDRIA.

1019. NEPENTHES.
One ſpecies; viz. diſtillatoria. Ceylon.

ORDER IV. PENTANDRIA.

1020. AYENIA.
Three ſpecies; viz. puſilla, tomentoſa, magna. Jamaica, Cumana, Peru.

1327. GLUTA.
One ſpecies; viz. benghas. Java.

1021. PASSIFLORA.
28 ſpecies; viz. ferratifolia, pallida, cuprea, tilæfolia, maliformis, quadrangularis, laurifolia, multiflora, adulterina, perfoliata, rubra, normalis, murucuja, veſpertilio, capſularis, rotundifolia, punctata, lutea, minima, ſuberoſa, holoſericea, hirſuta, fœtida, incarnata, mixta, cœrulia, ſerrata, pedata. W. Indies, S. America.

ORDER V. HEXANDRIA.

1022. ARISTOLOCHIA, or *Birthwort*.
22 ſpecies; viz. * clematitis, bilobata, trilobata, pentandra, peltata, maxima, bilabiata, erecta, arboreſcens, caudata, odoratiſſima, auguicida, maurorum, indica, bætica, ſempervirens, ſerpentaria, piſtolochia, rotunda, longa, hirſuta, clematitis. S. Europe, America.

1023. PISTIA, or *Water Houſe-leek*.
One ſpecies; viz. ſtratiotes. Aſia, Africa, South America.

ORDER VI. OCTANDRIA.

1425. SCOPOLIA.
One ſpecies; viz. compoſita. South ſea iſles.

ORDER VII. DECANDRIA.

1024. KLEINHOVIA.
One ſpecies; viz. hoſpita. E. Indies.

1025. HELICTERES, or *Screw-tree*.
Six ſpecies; viz. barvenſis, iſora, anguſtifolia, pentandra, carthaginenſis, apetala. Malabar, China, Jam.

ORDER VIII. DODECANDRIA.

1232. CYTINUS.
One ſpecies; viz. hypociſtis. Spain, Italy.

ORDER IX. POLYANDRIA.

1027. XYLOPIA, or *Bitter-wood*.
Two ſpecies; viz. muricata, glabra. America.

1026. GREWIA.
Six ſpecies; viz. occidentalis, orientalis, aſiatica, malococca, ſalviſolia, microcos. Aſia, Cape, America, South ſeas.

1228. AMBROSINIA.
One ſpecies; viz. baſſii. Palermo, Turkey.

1028. ARUM, or *Wake-robin, Dragon*.
25 ſpecies; viz. * maculatum, dracunculus, dracontium, pentaphyllum, triphyllum, ternatum, colocaſia, eſculentum, macrorhizon, peregrinum, divaricatum, trilobatum, ſagittæfolium, virginicum, proboſcideum, ariſarum, pictum, ovatum, tenuifolium, cannæfolium, muſcivorum, arboreſcens, hederaceum, lingulatum, auritum. S. Europe, E. Indies, America.

* A. leaves halberd-ſhaped, very entire; ſpikeſtalk club-ſhaped.—This root grows wild under hedges, and by the ſides of banks in moſt parts of England. It ſends forth in March three or four triangular leaves, which are followed by a naked ſtalk, bearing a purpliſh piſtil, encloſed in a long ſheath: this is ſucceeded in July by a bunch of reddiſh berries. In ſome plants the leaves are ſpotted with black, in others with white ſpots, and in others not ſpotted at all: the black ſpotted ſort is ſuppoſed to be the moſt efficacious in medicine. All the parts of the *arum maculatum*, particularly the root, have an extremely pungent acrimonious taſte; if the root be but ſlightly chewed, it continues to burn the tongue for ſome hours, occaſioning at the ſame time a conſiderable thirſt: theſe ſymptoms are alleviated by butter milk and oily liquors. Dried and kept ſome time, it loſes much of its acrimony, and becomes at length an almoſt inſipid farinaceous ſubſtance. The root is a powerful ſtimulant and attenuant. It is reckoned a medicine of great efficacy in ſome cachectic and chlorotic caſes, in weakneſs of the ſtomach occaſioned by a load of phlegm. Great benefit is ſaid to *maculatum*

have

have been obtained from it in deeply ſeated rheumatic pains. In theſe caſes, it may be given from 10 grains to a ſcruple of the freſh root, twice or thrice a day, made into a bolus or emulſion, with unctuous or mucilaginous ſubſtances, which cover its pungency, and prevent its making any painful impreſſion on the tongue. Neither wine nor ſpirits extract its virtues. The root, dried and powdered, is uſed by the French to waſh the ſkin, and is ſold at a high price under the name of *cypreſs powder*. It is undoubtedly a good and an innocent coſmetic. Starch may be made from the roots.

1029. DRACONTIUM, or *Dragons*.

Five ſpecies; viz. polyphyllum, ſpinoſum, fœtidum, camſchatcenſe, pertuſum. Ceylon, W. Indies, America.

1030. CALLA, or *Ethiopian Arum*.

Two ſpecies; viz. æthiopica, paluſtris. Europe, Cape.

1031. POTHOS, or *Scunk Weed*.

Seven ſpecies; viz. ſcandens, acaulis, lanceolata, crenata, cordata, pinnata, palmata. India, America.

1032. ZOSTERA, or *Graſs Wrack*.

Two ſpecies; viz. * marina, * oceanica.

* Z. *marina*, ſeed-veſſels ſitting, ſtems much branched; leaves floating, long, graſs-like, blunt from leaf-ſcales.—It is thrown on the ſea ſhore by the tide in great plenty, and mounds or walls are built with it to reſiſt the encroachment of the ſea. Expoſure to the weather bleaches it white. Buildings are thatched with the green leaves, and it will endure upwards of a century. It is uſed by the inhabitants of Gothland in Sweden, as a manure, and alſo for ſtuffing beds, in preference to hay, as being ſofter. Horſes and ſwine eat it. Cows are not fond of it.

In the claſs Gynandria are

32 Genera, including 270 Species, of which 28 are found in Britain.

CLASSIS XXI.

MONŒCIA (L).

ORDO I. MONANDRIA.

* 1203. CHARA. (1) Cal. nulla. Cor. nulla. (2) Cal. 4-phyllus. Cor. 0. Stigma 3-fidum. Sem. 1.

* 1034. ZANNICHELLIA. (1) Cal. 0. Cor. 0. (2) Cal. 1-phyll. Cor. 0. Piſt. 4. Sem. 4.

1035. CERATOCARPUS. (1) Cal. 2-partitus. Cor. 0. (2) Cal. 2-phyllus. Cor. 0. Styl. 2. Sem. 1. inferum.

1426. ARTOCARPUS. (1) Cal. bivalvis. Cor. 0. (2) Cal. 0. Cor. 0. Styl. 1. Drupa multilocularis.

NIPA. (1) Spatha. Cor. 6-petala. (2) Spatha. Cor. 0. Drupæ angulatæ.

1036. ELATERIUM. (1) Cal. 0. Cor. hypocrateriform. (2) Cal. 0. Cor. hypocrateriform. Capſ. infera, pulpoſa, 1-locularis, polyſperma.

1033. CYNOMORIUM. (1) Cal. amenti. Cor. 0. (2) Cal. amenti. Cor. 0. Styl. 1. Sem. 1, ſubrotundum.

1427. PHYLLACHNE. (1) Cal. 3-phyllus ſuperus. Cor. infundibuliformis. (2) Cal. 3-phyllus, ſuperus. Cor. infundibuliformis. Styl. 1. Stigma tetragonum. Capſ. infera, polyſperma.

1428. CASUARINA. (1) Cal. amenti. Cor. ſquamulæ bipartitæ. (2) Cal. amenti. Cor. 0. Styl. bifidus. Strobilus.

CLASS XXI.

MONŒCIA.

ORDER I. MONANDRIA.

* C. (1) No cal. No cor. (2) Cal. 4-leaved. No cor. Stigm. 3 cleft. Seed 1.

* Z. (1) No cal. No cor. (2) Cal. 1-leaved. No cor. Piſt. 4. Seeds 4.

C. (1) Cal. 2-parted. No cor. (2) Cal. 2-leaved. No cor. Styl. 2. Seed 1, inferior.

A. (1) Cal. 2-valved. No cor. (2) No cal. No cor. Styl. 1. Drupe many-celled.

N. (1) Sheath. Cor. 6-petaled. (2) Sheath. No cor. Angular drupes.

E. (1) No cal. Cor. ſalver-ſhaped. (2) No cal. Cor. ſalverſhaped. Capſ. inferior, pulpy, 1-celled, many-ſeeded.

C. (1) Cal. catkin. No cor. (2) Cal. catkin. No cor. Styl. 1. Seed 1, roundiſh.

P. (1) Cal. 3-leaved, ſuperior. Cor. funnel-ſhaped. (2) Cal. 3-leaved, ſuperior. Cor. funnel-ſhaped. Styl. 1. Stigm. 4-gon. Capſ. inferior, many-ſeeded.

C. (1) Cal. catkin. Cor. ſcales 2-parted. (2) Cal. catkin. No cor. Styl. 2-cleft. A cone.

1429.

(L) In this claſs the ſtamens and piſtils are found in different flowers on the ſame plant. The flowers that have ſtamens, but want piſtils, are, according to the principles of Linnæus's ſexual ſyſtem, which we have adopted, called *male flowers*; whereas the flowers that have piſtils, but want ſtamens, are ſtyled *female flowers*. In the following account of the genera the definition of the male flowers is marked (1), and that of the female flowers (2).

1429. Ægoprigon. (1) Cal. 3-fidus. Cor. o. (2) Flores ſolitarii. Cal. ut in mare. Cor. o. Styli tres. Bacca 3-cocca.

A. (1) Cal. 3-cleft. No cor. (2) Flowers ſolitary. Cal. as in the male. No cor. Styl. 3. Berry 3-celled.

Ordo II. DIANDRIA.

Order II. DIANDRIA.

1037, Auguria. (1) Cal. 5-fidus. Cor. 5-petala. (2) Cal. 5-fidus. Cor. 5-petala. Pomum biloculare, polyſpermum.

A. (1). Cal. 5-cleft. Cor. 5-petaled. (2) Cal. 5-cleft. Cor. 5-petaled. Apple 2-celled, many-ſeeded.

* 1038. Lemna. (1) Cal. 1-phyllus. Cor. o. (2) Cal. 1-phyllus. Cor. o. Styl. 1. Capſ. 1-locularis.

* L. (1) Cal. 1-leaved. No cor. (2) Cal. 1-leaved. No cor. Style 1. Capſ. 1-celled.

Gunnera.

Ordo III. TRIANDRIA.

Order III. TRIANDRIA.

1042. Zea. (1) Glum. 2-flora, 2-valvis. (2) Glum. 1-flora, 2-valvis. Styl. 1. Sem. 1, nudum, ſubrotundum.

Z. (1) Glume or huſk 2-flowered, 2-valved. (2) Huſk 1-flowered, 2-valved. Styl. 1. Seed 1, naked, roundiſh.

1044. Tripsacum. (1) Glum. 4-flora, 2-valvis. (2) Glum. 2 ſ. 4-part. 2-valvis. Styl. 2. Sem. 1. Gluma finu perforata.

I. (1) Huſk 4-flowered, 2-valved. (2) Huſk 2 or 4-parted, 2-valved. Styl. 2. Seed 1. Huſk perforated.

1043. Coix. (1) Glum. 2-flora, 2-valvis. (2) Glum. 2-biflora, 2-valvis. Styl. 2-fid. Sem. 1, tectum nuce.

C. (1) Glume 2-flowered, 2-valved. (2) Glumes 2-flowered, 2-valved. Styl. 2-cleft. Seed 1, covered with a nut.

1045. Olyra. (1) Glum. 1-flora, 2-valvis. (2) Gl. 1-flora, 2-valvis. Styl. 2-fid. Sem. 1, nudum.

O. (2) Glumes 1-flowered, 2-valved. (2) Glumes 1-flowered, 2-valved. Styl. 2-cleft. Seed 1, naked.

* 1046. Carex. (1) Ament. 1-florum. Cor. nulla. (2) Ament. 1-florum. Cor. 1. Styl. 1. Sem. 1, tunicatum.

* C. (1) Catkin 1-flowered. No cor. (2) Catkin 1-flowered. Cor. 1. Styl. 1. Seed 1, coated.

* 1041. Sparganium. (1) Cal. 3-phyllus. Cor. o. (2) Cal. 3-phyllus. Cor. o. Stigm. 2. Sem. 1-ſperma.

* S. (1) Cal. 3-leaved. No cor. (2) Cal. 3-leaved. No cor. Stigm. 2. Seed 1.

* 1040. Typha. (1) Cal. 3-phyllus. Cor. nulla. (2) Cal. capillaris. Cor. o. Styl. 1. Sem. 1, pappigerum.

* T. (1) Cal. 3-leaved. No cor. (2) Cal. hair-like. No cor. Seed 1, downy.

1047. Axyris. (1) Cal. 3-partitus. Cor. o. (2) Cal. 2-phyllus. Cor. o. Styl. 2. Sem. 1, ſubrotundum.

A. (1) Cal. 3-parted. No cor. (2) Cal. 2-leaved. No cor. Styl. 2. Seed 1, roundiſh.

1050. Phyllanthus. (1). Cal. 6-partitus. Cor. o. (2) Cal. 6-partitus. Cor. o. Styl. 3, Capſ. 3-cocca.

P. (1) Cal. 6-parted. No cor. (2) Cal. 6-parted. No cor. Styl. 3. Capſ. 3-celled.

1048. Tragia, (1) Cal. 3-partitus. Cor. o. (2) Cal. 5-partitus. Cor. o. Styl. 3-fid. Capſ. 3-cocca.

T. (1) Cal. 3-parted. No cor. (2) Cal. 5-parted. No cor. Styl. 3-cleft. Capſ. 3-celled.

1049. Hernandia. (1) Cal. 3-partitus. Cor. 3-petala. (2) Cal. truncatus, Cor. 6-petala. Drupa excavata.

H. (1) Cal. 3-parted. Cor. 3-petaled. (2) Cal. lopped. Cor. 6-petaled. Drupe hollow.

1039. Omphalea. (1) Cal. 4-phyllus. Cor. o. Anth. immerſæ receptaculo. (2) Cal. 4-partitus. Cor. o. Stigm. 3-fid. Capſ. 3-locul. 1-ſperma.

O. (1) Cal. 4-leaved. No cor. Anth. ſunk in the receptacle. (2) Cal. 4-parted. No cor. Stigm. 3-cleft. Capſ. 3-celled, 1-ſeeded.

Elate. Amaranthi varii.

Ordo IV. TETRANDRIA.

Order IV. TETRANDRIA.

* 1054. Urtica. (1) Cal. 4-phyllus. Cor. o. Nect. cyathiforme. (2) Cal. 2-valvis. Cor. o. Stigm. villoſ. Sem. 1, ovatum.

* U. (1) Cal. 4-leaved. No cor. Nect. glaſs-ſhaped. (2) Cal. 2-valved. No cor. Stigm. woolly. One oval ſeed.

* 1053. Buxus. (1) Cal. 3-phyllus. Cor. 2-petala. (2) Cal. 4-phyllus. Cor. 3-pet. Stigm. 3. Capſ. 3-locularis.

* B. (1) Cal. 3-leaved. Cor. 2-petaled. (2) Cal. 4-leaved. Cor. 3-pet. Stigm. 3. Capſ. 3-celled.

* 1052. Betula. (1) Ament. 5-florum. Cor. 4-partita. (2) Ament. 2-florum. Cor. 0. Styl. 2. Sem. 1, ovatum.

1051. Centella. (1) Involucr. 4-phyllum, multiflorum. Petal. 4. (2) Involucr. 2-phyllum. Styl. 2. Pericarp. inferum, 2-loculare.

1274. Serpicula. (1) Cal. 4-dentatus. Cor. 4-petala. (2) Cal. 4 phyllus. Cor. . Nux toruloſa.

Aucuba. (1) Cal. 4-dentatus. Cor. 4-petala. (2) Nect. 0. Nux 1-locularis.

* 1328. Littorella. (1) Cal. 4-phyllus. Cor. 4-fida. Stam. longiſſima. (2) Cal. 0. Cor. 4-fida. Stylus longiſſimus. Sem. nux.

1275. Cicca. (1) Cal. 4-phyllus. Cor. nulla. (2) Cal. 4-phyllus. Cor. 0. Styl. 4-fid. Capſ. 4-cocca.

Plantago uniflora.

Ordo V. PENTANDRIA.

1277. Nephelium. (1) Cal. 5-dentatus. Cor. 0. Anth. bifidæ. (2) Cal. 4-dentatus. Cor. 0. Styli. 2, inter germina.

* 1056. Xanthium. (1) Cal. comm. polyph. Cor. 5-fida. Filam. connexa. (2) Cal. 0. Cor. 0. Styl. 2. Drupa 2 locularis.

1057. Ambrosia. (1) Cal. comm. 1-phyll. Cor. 5-fida. (2) Cal. 1-flor. 2-phyll. Cor. 0. Styl. 1. Nux, 5-dentata.

1058. Parthenium. (1) Cal. comm. 5-phyll. Cor. diſci ſuper. (2) Cal. idem mari. Cor. radii ligulat. Styl. 1. Sem. 1.

1326. Clibadium. (1) Cal. comm. imbricatus. Cor. diſci 5-fidæ. (2) Cal. idem mari. Cor. radii 5-fidæ. Drupæ umbilicatæ.

1059. Iva. (1) Cal. comm. 5-phyll. Cor. diſci ſuper. (2) Cal. idem mari. Cor. radii 0. Styl. 2. Sem. 1.

* 1060. Amaranthus. (1) Cal. propr. 5-phyll. Cor. 0. Stam. 3 ſ. 5. (2) Cal. propr. 5-phyll. Cor. 0. Styl. 3. Capſ. circumſciſſa.

1276. Leea. (1) Cal. 5-fidus. Cor. 5-fida. (2) Cal. 5-fidus. Cor. 5-fida. Styl. 1. Peric. 6-loculare. Sem. ſolitaria.

Dioſma.

Ordo VI. HEXANDRIA.

1062. Zizania. (1) Cal. glum. 0. Cor. gl. 2-valvis. (2) Cal. glum. 0. Cor. gl. 2-valvis. Styl. 2. Sem. 1. Corolla circumſciſſa.

1063. Pharus. (1) Cal. glum. 1-flora. Cor. gl. 2-valvis. (2) Cal. glum. 1-flora. Cor. gl. 2-valvis. Styl. 1. Sem. 1.

Rumex ſpinoms.

Ordo VII. HEPTANDRIA.

1064. Guettarda. (1) Cal. cylindric. Cor. 7-fida. (2) Cal. cylindric. Cor. 7-fida. Styl. 1. Drupa ſicca.

* B. (1) Catkin 5-flowered. Cor. 4-parted. (2) Catkin 2-flowered. No cor. Styl. 2. Seed 1, oval.

C. (1) Involucrum 4-leaved, many-flowered. Pet. 4. (2) Involucr. 2-leaved. Styl. 2. Pericarp. inferior, 2-celled.

S. (1) Cal. 4-toothed. Cor. 4-petaled. Cal. 4-leaved. Cor. . Nut ſwelling out.

A. (1) Cal. 4-toothed. Cor. 4-petaled. (2) No nect. Nut 1-celled.

* L. (1) Cal. 4-leaved. Cor. 4-cleft. Stam. very long. (2) No cal. Cor. 4-cleft. Styl. long. Seed a nut.

C. (1) Cal. 4-leaved. No cor. (2) Cal. 4-leaved. No cor. Styl. 4-cleft. Capſ. 4-celled.

Order V. PENTANDRIA.

N. (1) Cal. 5-toothed. No Cor. Anth. 2-cleft. (2) Cal. 4-toothed. No cor. Styl. 2, betwixt the germs.

* X. (1) Cal. common, many-leaved. Cor. 5-cleft. Filam. connected. (2) No cal. No cor. Styl. 2. Drupe 2-celled.

A. (1) Cal. common, 1-leaved. Cor. 5-cleft. (2) Cal. 1-flowered, 2-leaved. No cor. Styl. 1. Nut 5-toothed.

P. (1) Cal. common, 5-leaved. Cor. of the diſc ſuperior. (2) Cal. as in the male. Cor. of the ray ſtrap-ſhaped. Styl. 1. Seed 1.

C. (1) Cal. common, tiled. Cor. of the diſc 5-cleft. (2) Cal. as in the male. Cor. of the ray 5-cleft. Drupes dimpled.

I. (1) Cal. common, 5-leaved. Cor. of the diſc ſuperior. (2) Cal. as in the male. No cor. of the ray. Styl. 2. Seed 1.

* A. (1) Cal. proper 5-leaved. No cor. Stamens 3 or 5. (2) Proper cal. 5-leaved. No cor. 3 ſtyles, Capſ. cut round.

L. (1) Cal. 5-cleft. Cor. 5-cleft. (2) Cal. 5-cleft. Cor. 5-cleft. Styl. 1. Peric. 6-celled. Seeds ſolitary.

Order VI. HEXANDRIA.

Z. (1) Cal. huſk none. Cor. a 2-valved huſk. (2) Cal. huſk none. Cor. a 2-valved huſk. Styles 2. Seed 1. Cor. cut round.

P. (1) Cal. a huſk 1-flowered. Cor. a huſk 2-valved. (2) Cal. a 1-flowered huſk. Cor. a 2-valved huſk. Style 1. Seed 1.

Order VII. HEPTANDRIA.

* G. (1) Cal. cylindrical. Cor. 7-cleft. (2) Cal. cylindrical. Cor. 7-cleft. 1. Style. Drupe dry.

Ordo VIII. POLYANDRIA.

1156. Begonia. (1) Cal. o. Cor. 4-petala. (2) Cal. o. Cor. 4-petala. Styl. 3, bifidi. Capſ. infera, 3-locularis, polyſperma.

* 1067. Sagittaria. (1) Cal. 3-phyllus. Cor. 3-petala. Stam. 24 circiter. (2) Cal. 3-phyll. Cor. 3 pet. Piſt. 100. Sem. numeroſa.

* 1066. Myriophyllum. (1) Cal. 4-phyllus. Cor. o. Stam. 8. (2) Cal. 4 phyllus. Cor. o. Piſt. 4. Sem. 4.

* 1065. Ceratophyllum. (1) Cal. ſub 7-partitus. Cor. o. Stam. 18 circiter. (2) Cal. ſub 7-partitus. Cor. o. Piſt. 1. Sem. 1.

1068. Theligonum. (1) Cal. 2-fidus. Cor. o. Stam. 12 circiter. (2) Cal. 2-fidus. Cor. o. Piſt. 1. Sem. 1, corticatum.

* 1069. Poterium. (1) Cal. 4-phyllus. Cor. 4-partita. Stam. 32 circiter. (2) Cal. 4-phyllus. Cor. 4-pet. Piſt. 2. Sem. 2. obducta.

* 1072. Fagus. (1) Cal. 5-fidus. Cor. o. Stam. 12 circiter. (2) Col. 4-fidus. Cor. o. Styl. 3. Capſ. 2-iperma.

* 1070. Quercus. (1) Cal. 5-fidus. Cor. o. Stam. 10 circiter. (2) Cal. integer. Cor. o. Styl. 5. Nux coriacea.

1071. Juglans. (1) Ament. imbricat. Cor. 6-partita. Stam. 18 circiter. (2) Cal. 4-fidus. Cor. 4 pet. Styl. 2. Drupa coriacea.

* 1074. Corylus. (1) Ament. imbricat. Cor. o. Stam. 8. (2) Cal. 2-phyllus. Cor. o. Styl. 2. Nux nuda.

* 1073. Carpinus. (1) Ament. imbricat. Cor. o. Stam. 10. (2) Cal. 6-fidus. Cor. o. Piſt. 2. Nux nuda.

1075. Platanus. (1) Ament. globoſ. Cor. obſoleta. Anther. circumnatæ. (2) Ament. globoſ. Cor. 5-pet. Styl. 1. Sem. 1, pappoſum.

1076. Liquidambar. (1) Cal. 4-phyllus. Cor. o. Stam. plurima. (2) Cal. 4-phyllus. Cor. o. Styl. 2. Capſ. polyſperma.

Areca, Caryota.

Ordo IX. MONADELPHIA.

1087. Hura. (1) Cal. 2-phyllus. Cor. o. Anther. 20, ſeſſiles. (2) Cal. cylindricus. Cor. o. Piſt. 1. Capſ. 10-cocca.

* 1077. Pinus. (1) Cal. 4-phyllus. Cor. o. Stam. plurima. (2) Ament. ſtrobilac. Cor. o. Piſt. 2. Nuces 2, alatæ.

1070. Cupressus. (1) Amentum. Cor. o. Anther. 4, ſeſſiles. (2) Ament. ſtrobilac. Cor. o. Stigm. 2. Nux angulata.

1078. Thuja. (1) Amentum. Cor. o. Anther. 4. (2) Amentum ſtrobilac. Cor. o. Piſt. 2. Nux cincta ala.

1082. Acalypha. (1) Cal. 4 phyllus. Cor. o. Stam. 12 circiter. (2) Cal. 3-phyllus. Cor. o. Styl. 3. Capſ. 3-cocca.

1081. Dalechampia. (1) Cal. 6-phyllus. Cor. o. Nectar. lamellatum. Stam. multa. (2) Cal. 10-phyllus. Cor. o. Stylus 1. Capſ. 3-cocca.

Order VIII. POLYANDRIA.

B. (1) No cal. Cor. 4-petaled. (2) No cal. 4-petaled. Styles 3, 2-cleft. Capſ. inferior, 3-celled, many-ſeeded.

* S. (1) Cal. 3-leaved. Cor. 3-petaled. Stam. about 24. (2) Cal. 3-leaved. Cor. 3-pet. Piſt. 100. Seeds numerous.

* M. (1) Cal. 4-leaved. No cor. Stamens 8. (2) Cal. 4-leaved. No cor. Piſt. 4. Seeds 4.

* C. (1) Cal. nearly 7-parted. No cor. Stamens about 18. (2) Cal. nearly 7-parted. No cor. Piſt. 1. Seed 1.

T. (1) Cal. 2-cleft. No cor. Stam. about 12. (2) Cal. 2-left. No cor. Piſt. 1. Seed 1, barklike.

* P. (1) Cal. 4 leaved. Cor. 4-parted. Stam. about 32. (2) Cal. 4-leaved. Cor. 4 pet. Piſt. 2. Seeds 2, covered.

* F. (1) Cal. 5-cleft. No cor. Stam. about 12. (2) Cal. 4-cleft. No cor. Styles 3. Capſ. 2-ſeeded.

* Q. (1) Cal. 5-cleft. No cor. Stam. about 10. (2) Cal. entire. No cor. Styles 5. Nut leatherlike.

I. (1) Catkin tiled. Cor. 6-cleft. Stam. about 18. (2) Cal. 4-cleft. Cor. 4-pet. Styles 2. Drupe leatherlike.

* C. (1) Catkin tiled. No cor. Stam. 8. (2) Cal. 2-leaved. No cor. Styl. 2. Nut naked.

* C. (1) Catkin tiled. No cor. Stam. 10. (2) Cal. 6-cleft. No cor. Piſt 2. Nut naked.

P. (1) Catkin globular. Cor. obſcure. Anth. riſing around. (1) Catkin globular. Cor. 5-petaled. Styl. 1. Seed 1, downy.

L. (1) Cal. 4-leaved. No cor. Many ſtamens. (2) Cal. 4-leaved. No cor. Styl. 2. Capſ. many-ſeeded.

Order IX. MONADELPHIA.

H. (1) Cal. 2-leaved. No cor. Anth. 20, ſitting. (2) Cal. cylindrical. No cor. Pet. 1. Capſ. 10-celled.

* P. (1) Cal. 4-leaved. No cor. Stamens many. (2) Catkin conical. No cor. Piſt. 2. Nuts 2, winged.

C. (1) Catkin. No cor. Anth. 4, ſitting. (2) Catkin conical. No cor. Stigm. 2. Nut angular.

T. (1) Catkin. No cor. Anth. 4. (2) Catkin conical. No cor. Piſt. 2. Nut girt with a wing.

A. (1) Cal. 4-leaved. No cor. Stam. about 12. (2) Cal. 3-leaved. No cor. Styl. 3. Capſ. 3-celled.

D. (1) Cal. 6-leaved. No cor. Nectar. gilled. Stam. many. (2) Cal. 10-leaved. No cor. Style 1. Capſ. 3-celled.

1080. PLUKENETIA. (1) Cal. 0. Cor. 4-petala. Stam. 8. (2) Cal. 0. Cor. 4-pet. Styl. 1. Capſ. 4-cocca.

279. CUPANIA. (1) Cal. 3-phyllus. Cor. 5-petala. Stam. 5. (2) Cal. 3-phyllus. Cor. 3-petala. Styl. 3-fidus. Capſ. ſeminibus 6 arillatis.

1083. CROTON. (1) Cal. 5-phyllus. Cor. 5-petala. Stam. 15. (2) Cal. 5-phyllus. Cor. 0. Styl. 3. Capſ. 3-cocca.

1085. RICINUS. (1) Cal. 5-partitus. Cor. 0. Stam. multa. (2) Cal. 3-partitus. Cor. 0. Styl. 3. Capſ. 3 cocca.

1084. JATROPHA. (1) Cal. 0. Cor. 5-fida. Stam. 10. (2) Cal. 0. Cor. 5 pet. Styl. 3. Capſ. 3-cocca.

1086. STERCULIA. (1) Cal. 5-partitus. Cor. 0. Stam. 15 circiter. (2) Cal. 5-partitus. Cor. 0. Piſt. 1. Capſ. 5.

1088. HIPPOMANE. (1) Cal. 2-fidus. Cor. 0. Antheræ bifidæ. (2) Cal. 3-fidus. Cor. 0. Stigm. 3-plex. Drupa 1-ſperma, aut capſ. 3-cocca.

1279. STILLINGIA. (1) Cal. multiflorus. Cor. 1-petala. Stam. 2. (2) Cal. uniflorus. Cor. ſtylus 3-fidus. Germen 3-coccum, inter calycem et corollam.

1278. GNETUM. (1) Amentum ex calyculis peltatis. Cor. 0. Anther. 2. (2) Amenti ejuſdem. Stylus 3-fidus. Drupa 1-ſperma.

ORDO X. SYNGENESIA.

1089. TRICHOSANTHES. (1) Cal. 5-dentatus. Cor. 5-fida, ciliata. Filam. 3. (2) Cal. 5-dentatus. Cor. 5 fid. Styl. 3-fid. Pom. oblongum.

1090. MOMORDICA. (1) Cal. 5-fidus. Cor. 5-fida. Filam. 3. (2) Cal. 5-fidus. Cor. 5-fid. Styl. 3-f. Pom. elaſticum.

1092. CUCUMIS. (1) Cal. 5-dentatus. Cor. 5-fida. Filam. 3. (2) Cal. 5-dentatus. Cor. 5-fid. Styl. 3-fid. Pomum. Sem. argutis.

1091. CUCURBITA. (1) Cal. 5-dentatus. Cor. 5-fida. Filam. 3. (2) Cal. 5 dentatus. Cor. 5-fid. Styl. 3-f. Pomum, ſem. marginatis.

1094. SICYOS. (1) Cal. 5-dentatus. Cor. 5-fida. Filam. 3. (2) Cal. 5-dentatus. Cor. 5-fid. Styl. 3-f. Drupa monoſperma.

* 1093. BRYONIA. (1) Cal. 5-dentatus. Cor. 5-partita. Filam. 3. (2) Cal. 5-dentatus. Cor. 5-part. Styl. 3-f. Bacca.

ORDO XI. GYNANDRIA.

1095. ANDRACHNE. (1) Cal. 5-phyllus. Cor. 5-petala. Stam. 5. (2) Cal. 5-phyllus. Cor. 0. Styl. 3. Capſ. 3-locul. 2-ſperma.

1330. AGYNEIA. (1) Cal. 6-phyllus. Cor. 0. Anth. 3. (2). Cal. 6-phyllus. Cor. 0. Germen perforatum. Stylus ſtigmaque nulla.

P. (1) No cal. Cor. 4-petaled. Stam. 8. (2) No cal. Cor. 4-petaled. 1 Style. Capſ. 4-celled.

C. (1) Cal. 3-leaved. Cor. 5-petaled. Stam. 5. (2) Cal. 3-leaved. Cor. 3-petaled. Styl. 3-cleft. Capſ. with 6 coated ſeeds.

C. (1) Cal. 5-leaved. Cor. 5-petaled. Stam. 15. (2) Cal. 5-leaved. No cor. Styl. 3. Capſ. 3-celled.

R. (1) Cal. 5-parted. No cor. Stam. many. (2) Cal. 3-parted. No cor. Styl. 3. Capſ. 3-celled.

J. (1) Cal. 0. Cor. 5 cleft. Stamens 10. (2) Cal. 0. Cor. 5-pet. Styl. 3. Capſ. 3-celled.

S. (1) Cal. 5-parted. No cor. Stam. about 15. (2) Cal. 5-parted. No cor. Piſt. 1. Capſ. 5.

H. (1) Cal. 2-cleft. No cor. Anthers 2-cleft. (2) Cal. 3-cleft. No cor. Stigm. 3-fold. Drupe 1-ſeeded, or a capſ. 3-celled.

S. (1) Cal. many-flowered. Cor. 1-petaled. Stam. 2. (2) Cal. 1-flowered. Cor. a 3-cleft ſtyle. Germ. 3-celled, betwixt the calyx and corolla.

G. (1) Catkin of target-ſhaped calycles. No cor. Anth. 2. (2) Catkin of the ſame. Style 3-cleft. Drupe 1-ſeeded.

ORDER X. SYNGENESIA.

T. (1) Cal. 5-toothed. Cor. 5-cleft, fringed. Filam. 3. (2) Cal. 5-toothed. Cor. 5-cleft. Style 3-cleft. Oblong apple.

M. (1) Cal. 5-cleft. Cor. 5-cleft. Filam. 3. (2) Cal. 5-cleft. Cor. 5-cleft. Style 3-cleft. Elaſtic apple.

C. (1) Cal. 5-toothed. Cor. 5-cleft. Filam. 5. (2) Cal. 5-toothed. Cor. 5-cleft. Style 3-cleft. Apple, with ſharp ſeeds.

C. (1) Cal. 5-toothed. Cor. 5-cleft. Filam. 3. (2) Cal. 5-toothed. Cor. 5-cleft. Style 3-cleft. Apple with bordered ſeeds.

S. (1) Cal. 5-toothed. Cor. 5-cleft. Filam. 3. (2) Cal. 5-toothed. Cor. 5-cleft. Style 3-cleft. Drupe, 1-ſeeded.

* B. (1) Cal. 5-toothed. Cor. 5 parted. Filam. 3. (2) Cal. 5-toothed. Cor. 5-parted. Style 3-cleft. Berry.

ORDER XI. GYNANDRIA.

A. (1) Cal. 5-leaved. Cor. 5-petaled. Stam. 5. (2) Cal. 5-leaved. No cor. Styl. 3. Capſ. 3-celled, 2-ſeeded

A. (1) Cal. 6-leaved. No cor. Anth. 3. (2) Cal. 6-leaved. No cor. Germ. perforated. No ſtyle nor ſtigma.

Order I. MONANDRIA.

1034. Zannichellia, or *Three-headed Pond-weed.* One ſpecies; viz. paluſtris.

1035. Ceratocarpus. One ſpecies; viz. arenarius. Tartary.

1426. Artocarpus, or *Bread-fruit.* Two ſpecies; viz. inciſa, integrifolia. It has a cylindric amentum or catkin, which thickens gradually, and is covered with flowers; the male and female in a different amentum. In the *male*, the calyx is two-valved, and the corolla is wanting. In the *female*, there is no calyx nor corolla; the ſtylus is one, and the drupa is many-celled.

Though this tree had been mentioned by many voyagers, particularly by Dampier, by Rumphius, and by Lord Anſon, yet very little notice ſeems to have been taken of it till the return of Captain Wallis from the South ſeas, and ſince that time by others who have touched at Otaheite and ſome countries in the Eaſt Indies. Captain Dampier relates, that in Guam, one of the Ladrone iſlands, "there is a certain fruit called the *bread-fruit*, growing on a tree as big as our large apple-trees, with dark leaves. The fruit is round, and grows on the boughs like apples, of the bigneſs of a good penny-loaf; when ripe, it turns yellow, ſoft, and ſweet; but the natives take it green, and bake it in an oven till the rind is black; this they ſcrape off, and eat the inſide, which is ſoft and white, like the inſide of new-baked bread, having neither ſeed nor ſtone; but if it is kept above 24 hours it is harſh. As this fruit is in ſeaſon eight months in the year, the natives feed upon no other ſort of bread during that time. They told us that all the Ladrone iſlands had plenty of it. I never heard of it in any other place."

Rumphius, after deſcribing the tree, obſerves, that "the fruit is ſhaped like a heart, and increaſes to the ſize of a child's head. Its ſurface or rind is thick, green, and covered everywhere with warts of a quadragonal or hexagonal figure, like cut diamonds, but without points. The more flat and ſmooth theſe warts are, the fewer ſeeds are contained in the fruit, and the greater is the quantity of pith, and that of a more glutinous nature. The internal part of the rind, or peel, conſiſts of a fleſhy ſubſtance, full of twiſted fibres, which have the appearance of fine wool; theſe adhere to, and in ſome meaſure form it. The fleſhy part of this fruit becomes ſofter towards the middle, where there is a ſmall cavity formed without any nuts or ſeeds, except in one ſpecies, which has but a ſmall number, and this ſort is not good, unleſs it is baked or prepared ſome other way: but if the outward rind be taken off, and the fibrous fleſh dried and afterwards boiled with meat as we do cabbage, it has then the taſte of artichoke bottoms. The inhabitants of Amboyna dreſs it in the liquor of cocoa-nuts; but they prefer it roaſted on coals till the outward part or peel is burnt. They afterwards cut it into pieces, and eat it with the milk of the cocoa-nut. Some people make fritters of it, or fry it in oil; and others, as the Sumatrans, dry the internal ſoft part, and keep it to uſe inſtead of bread with other food. It affords a great deal of nouriſhment, and is very ſatisfying, therefore proper for hard-working people: and being of a gentle aſtringent quality, is good for perſons of a laxative habit of body.

It is more nouriſhing boiled in our manner with fat meat than roaſted on coals. The milky juice which diſtils from the trunk, boiled with the cocoa-nut oil, makes a very ſtrong bird lime. This tree is to be found on the eaſtern parts of Sumatra, and in the Malay language is called *foccus* and *foccum capas*. It grows likewiſe about the town of Bantam in Java, and in Ballega and Madura, and is known there by the name of *foccum*."

In Anſon's voyage we are informed, "that the rima, or bread-fruit tree, is common in all the Ladrone iſlands and ſome of the Philippines. It is ſomewhat larger than our apple tree, and bears a broad dark-coloured leaf with five indentures on each ſide. The fruit hangs on the boughs like apples; and is of the ſize of a penny loaf, with a thick tough rind, which when full ripe turns yellow. The natives gather it before it is quite ripe, and bake it till the cruſt is pretty black; then they raſp it, and there remains a pretty loaf, with a tender yellow cruſt, and the crumb of it is ſoft and ſweet as a new baked roll: it is without any ſeeds or ſtones. This fruit the inhabitants enjoy for about ſeven months; during which they never eat any other kind of bread: but they are obliged to bake it every day; for when it grows a little ſtale, it becomes harſh and huſky, ſomewhat like the potato bread made in the weſt of England. There is, however, a remedy for this; which is cutting the loaf into ſlices when it is new, and drying it in the ſun, by which it is changed into the pleaſanteſt ruſk that can be eaten."

Captain Cook, in his voyage, obſerves, that this fruit not only ſerves as a ſubſtitute for bread among the inhabitants of Otaheite and the neighbouring iſlands, but alſo, variouſly dreſſed, compoſes the principal part of their food. It grows on a tree that is about the ſize of a middling oak; its leaves are frequently a foot and a half long, of an oblong ſhape, deeply ſinuated like thoſe of the fig tree, which they reſemble in colour and conſiſtence, and in the exuding of a milky juice upon being broken. The fruit is about the ſize and ſhape of a new-born child's head; and the ſurface is reticulated, not much unlike a truffle; it is covered with a thin ſkin, and has a core about as big as the handle of a ſmall knife. The eatable part lies between the ſkin and the core; it is as white as ſnow, and ſomewhat of the conſiſtence of new bread; it muſt be roaſted before it is eaten, being firſt divided into three or four parts; its taſte is inſipid, with a ſlight ſweetneſs ſomewhat reſembling that of the crumb of wheaten bread mixed with a Jeruſalem artichoke. This fruit is alſo cooked in a kind of oven, which renders it ſoft, and ſomething like a boiled potato; not quite ſo farinaceous as a good one, but more ſo than thoſe of the middling ſort. Of the bread-fruit they alſo make three diſhes, by putting either water or the milk of the cocoa nut to it, then beating it to a paſte with a ſtone peſtle, and afterwards mixing it with ripe plantains, bananas, or the ſour paſte which they call *mahie*.

The mahie, which is likewiſe made to ſerve as a ſuccedaneum for ripe bread-fruit before the ſeaſon comes on, is thus made: The fruit of the bread tree is gathered

thered juſt before it is perfectly ripe; and being laid in heaps, is cloſely covered with leaves: in this ſtate it undergoes a fermentation, and becomes diſagreeably ſweet; the core is then taken out entire, which is done by gently pulling out the ſtalk, and the reſt of the fruit is thrown into a hole which is dug for that purpoſe generally in the houſes, and neatly lined in the bottom and ſides with graſs: the whole is then covered with leaves and heavy ſtones laid upon them; in this ſtate it undergoes a ſecond fermentation, and becomes ſour, after which it will ſuffer no change for many months. It is taken out of the hole as it is wanted for uſe; and being made into balls, it is wrapped up in leaves and baked: after it is dreſſed, it will keep five or ſix weeks. It is eaten both cold and hot; and the natives ſeldom make a meal without it, though to Europeans the taſte is as diſagreeable as that of a pickled olive generally is the firſt time it is eaten. The fruit itſelf is in ſeaſon eight months in the year, and the mahie ſupplies the inhabitants during the other four.

To procure this principal article of their food (the bread-fruit), coſts theſe happy people no trouble or labour except climbing up a tree: the tree which produces it does not indeed grow ſpontaneouſly; but if a man plants ten of them in his life time, which he may do in about an hour, he will as completely fulfil his duty to his own and future generations, as the native of our leſs temperate climate can do by ploughing in the cold of winter, and reaping in the ſummer's heat, as often as theſe ſeaſons return; even if, after he has procured bread for his preſent houſehold, he ſhould convert a ſurplus into money, and lay it up for his children.

We have ſaid that there are two ſpecies of artocarpus, viz. the inciſa, with gaſhed leaves; and the integrifolia, with entire leaves. There is alſo ſaid to be another diſtinction, into that which bears fruit with ſtones or ſeeds, and that in which the fruit has none. The parts of fructification of that tree which bears the fruit without ſtones are defective. The amentum, or catkin, which contains the male parts, never expands. The ſtyli, or female part of the fruit, are likewiſe deficient. From which it follows, that there can be no ſtones or ſeeds, and therefore that this tree can be propagated only by ſuckers or layers; although it is abundantly evident, that it muſt originally have proceeded from the ſeed-bearing bread-fruit tree. Inſtances of this kind we ſometimes find in European fruits; ſuch as the barberry, and the Corinthian grape from Zant, commonly called currants, which can therefore be increaſed only by layers and cuttings. Dr Solander was aſſured by the oldeſt inhabitants of Otaheite and the adjoining iſlands, that they well remembered there was formerly plenty of the ſeed-bearing bread-fruit; but they had been neglected upon account of the preference given to the bread-fruit without ſeeds, which they propagate by ſuckers.

The Britiſh government ſent Lieutenant Bligh in the Bounty in 1787 to Otaheite to procure and tranſport to our Weſt India colonies this valuable plant. The project was at that time unſucceſsful, in conſequence of a mutiny of the ſhip's crew, who ſeized the veſſel, and carried her back to Otaheite. The object, however, was accompliſhed at a future period, and the bread-fruit is now reared in Jamaica and the other Weſt India iſlands. Plants of this genus have alſo been brought to his majeſty's gardens at Kew. The taſte of the fruit is ſaid to be a ſort of medium between the taſte of common wheaten bread, and the taſte of a boiled potato. Thoſe who prefer potatoes to ordinary bread alſo prefer the bread-fruit to it.

1033. CYNOMORIUM.
One ſpecies; viz. coccineum. Jamaica.

NIPA.
One ſpecies; viz. fruticans. Africa.

1203. CHARA.
Four ſpecies; viz. * flexilis, * hiſpida, * tomentoſa, * vulgaris.

1036. ELATERIUM, or *Spring-gourd.*
Two ſpecies; viz. carthaginenſe, trifoliatum. Carthagena.

1427. PHYLLACHNE.
One ſpecies; viz. uliginoſa. Ferra del Fuego.

1428. CASUARINA.
Two ſpecies; viz. equiſetifolia, nodiflora. E. Indies, N. S. Wales.

1429. ÆGOPRICON.
One ſpecies; viz. betulinum. Surinam, Cayenne.

ORDER II. DIANDRIA.

1037. ANGURIA.
Three ſpecies; viz. trilobata, pedata, trifoliata. America.

1038. LEMNA, or *Duck-meat.*
Five ſpecies; viz. * gibba, * minor, * polyrhiza, * triſulca, arhiza. Europe.

ORDER III. TRIANDRIA.

1040. TYPHA, *Cat's-tail, Reed-mace.*
Two ſpecies; viz. * anguſtifolia, * latifolia.

1041. SPARGANIUM, or *Burr-reed.*
Four ſpecies; viz. * erectum, * natans, * ramoſum, * ſimplex.

1042. ZEA, or *Indian* or *Turkey Wheat.*
One ſpecies; viz. mays. America.

1044. TRIPSACUM.
Two ſpecies; viz. dactyloides, hermaphroditum. Virginia, Canada, Jamaica.

1043. COIX, or *Job's tears.*
One ſpecies; viz. lacryma. E. Indies.

1045. OLYRA.
One ſpecies; viz. latifolia. W. Indies.

1046. CAREX, or *Sedge, Cyperus-graſs.*
67 ſpecies; viz. * acuta, * ampullacea, * arenaria, * atrata, * axillaris, * cæſpitoſa, * capillaris, * clandeſtina, * curta, * depauperata, * digitata, * dioica, * diſtans, * diviſa, * divulſa, * extenſa, * filiformis, * flava, * hirta, * incurva, * intermedia, * limoſa, * muricata, * ovalis, * palleſcens, * palludoſa, * panicea, * paniculata, * pauciflora, * pendula, * piluli-

fera, * præcox, * pſeudocyperus, * pulicaris, * recurva, * remota, * rigida, * riparia, * ſtellulata, * ſtricta, * trigoſa, * ſylvatica, * teretiuſcula, * veſicaria, * vulpina, capitata, ſquarroſa, uncinata, baldenſis, uliginoſa, leporina, brizoides, loliacea, elongata, caneſcens, indica, brunnea, pœdata, montana, tomentoſa, globularis, ſaxatilis, triſtachya, folliculata, japonica, pumila, lithoſperma. Eur. Aſia, Afr. America.

1047. AXYRIS.

Four ſpecies; viz. ceratoides, amaranthoides, hybrida, proſtrata. Siberia, Tartary.

1039. OMPHALEA.

Two ſpecies; viz. diandra, triandra. Jamaica.

1048. TRAGIA.

Six ſpecies; viz. volubilis, involucrata, mercurialis, urens, chamælia, cannabina. India, Virginia, Carolina.

1049. HERNANDIA, or *Jack-in-a-Box*.

Two ſpecies; viz. ſonora, ovigera. W. Indies, S. America.

1050. PHYLLANTHUS, or *Sea-ſide Laurel*.

Seven ſpecies; viz. grandifolia, niruri, urinaria, bacciformis, racemoſa, emblica, maderaſpatenſis. Arabia, E. and W. Indies, Carolina.

ORDER IV. TETRANDRIA.

1274. SERPICULATA.

Two ſpecies; viz. * verticillata, repens. India.

AUCUBA.

One ſpecies; viz. japonica. Japan.

1328. LITTORELLA.

One ſpecies; viz. * lacuſtris.

1275. CICCA.

One ſpecies; viz. diſticha. India.

1052. BETULA, or *Birch-tree*.

Eight ſpecies; viz. * alba, * alnus, * nana, dalecarlica, nigra, lenta, pumila, incana. Europe, N. America.

1053. BUXUS, or *Box-tree*.

One ſpecies; viz. ſempervirens.—The wood is very hard and ſmooth, and not apt to warp, and therefore well adapted for the uſe of the turner. Combs, mathematical inſtruments, knife handles, and button moulds, are made of it. An empyreumatic oil, diſtilled from the ſhavings, is often uſed as a topical application for the piles, and ſeldom fails to procure eaſe. It will frequently relieve the toothach, and has been given internally in epilepſies. The leaves, powdered, deſtroy worms. In the ſouth of Europe it is cultivated in gardens and kept in flower-pots, with as much attention as we beſtow upon myrtle.

1054. URTICA, or *Nettle*.

28 ſpecies; viz. * dioica, * pilulifer, * urens, balearica, dodartii, pumila, grandifolia, cannabina, alienata, cylindrica, parietaria, ciliaris, ſpicata, macrophylla, rhombea, æſtuans, capitata, divaricata, canadenſis, interrupta, nivea, baccifera, arborea, capenſis, fruteſcens, ſtimulans, japonica, villoſa. Europe, N. America, E. and W. Indies.

dioica. * U. leaves oppoſite, heart-ſhaped; bunches in pairs.—This ſpecies is the common nettle. Its ſtings are very curious microſcopic objects: They conſiſt of an exceedingly fine-pointed tapering hollow ſubſtance, with a perforation at the point, and a bag at the baſe; or they are ſharp tubes ſeated upon a bag. When the ſharp point of the tube, that is to ſay the ſting, is preſſed upon, it readily punctures the ſkin, and the ſame preſſure forces up an acrimonious fluid from the bag, which is ſquirted into the wound, and produces an effect which moſt perſons have experienced. The plant was formerly uſed as an aſtringent, but is now diſregarded. A ſtalk of it, when the leaves are in their prime, put into milk, coagulates it, and may ſerve to prepare it for being made into cheeſe. A leaf, put upon the tongue, and then preſſed againſt the roof of the mouth, is pretty efficacious in ſtopping a bleeding at the noſe. Paralytic limbs have been recovered by ſtinging them with nettles. The young ſhoots are gathered early in the ſpring to boil in broth or gruel. Cows eat the leaves when they are a little withered. The leaves are cut to pieces to mix with the food of young turkeys and other poultry. Cows, horſes, ſheep, goats, and ſwine, refuſe them. Aſſes are fond of it, and cows eat it in hay. The ſtalks may be dreſſed like flax or hemp for making cloth or paper. In Kamtſchatka they make uſe of no other material in the manufacture of cordage or ſailcloth, and linen, and conſider theſe fabrics, when produced from nettles, as ſuperior in every reſpect to thoſe made from hemp and flax. As the nettle ſeems of all plants the moſt congenial to our ſoil and climate, growing in all ſituations both fertile and barren, in ſpite of every attempt to extirpate it; and as there exiſts no doubt, that as a material of manufacture, it is not inferior to either flax or hemp, it is a ſingular circumſtance that it has never come into general uſe. This, perhaps, is chiefly to be accounted for from the difficulty of collecting its ſeeds and handling it; difficulties however, which a little attention and induſtry would probably ſoon enable us to overcome.

1055. MORUS, or *Mulberry-tree*.

Seven ſpecies; viz. alba, nigra, papyrifera, rubra, indica, tatarica, tinctoria. Italy, China, Japan, America.—The mulberry is chiefly remarkable on account of the value of its leaves, as the food of that valuable inſect the ſilk-worm. The *M. alba* or white mulberry, with leaves obliquely heart-ſhaped and level, grows in Britain in the open air, as far northward as the frith of Froth, and ſilk-worms may be fed with it. The fruit of the black mulberry has the common qualities of other ſweet fruits, abating heat, quenching thirſt, and promoting the groſſer ſecretions; a ſyrup, made from the juice, is kept by the apothecaries. The bark of the roots has been in conſiderable eſteem as a cure for worms: its taſte its bitter and ſomewhat aſtringent.

ORDER V. PENTANDRIA.

1277. NEPHELIUM.

One ſpecies; viz. lappaceum. India.

1056. XANTHIUM, or *Leſſer Burdock*.

Five ſpecies; viz. * ſtrumarium, orientale, echinatum, ſpinoſum, fruticoſum. S. Europe, Ceylon, China, Peru.

ſtruma-rium. * X. ſtem thornleſs, leaves heart-ſhaped, three-fibred. —The leaves are bitter and aſtringent. A decoction of the whole plant affords a ſhowy yellow colour; but it is better if only the flowers are uſed. Horſes and goats eat it. Cows, ſheep, and ſwine, refuſe it.

1057. AMBROSIA.

Four ſpecies; viz. trifida, elatior, artemiſiifolia, maritima.

1058. PARTHENIUM, or *Baſe Feverfew.*

Two ſpecies; viz. hyſtęrophorus, integrifolium. Virginia, Jamaica.

1059. IVA, or *Falſe Jeſuits-Bark tree.*

Two ſpecies; viz. annua, fruteſcens. Virginia, Carolina, Jamaica.

1329. CLIBADIUM.

One ſpecies; viz. ſurinamenſe. Surinam.

1060. AMARANTHUS, or *Flower-gentle.*

24 ſpecies; viz. albus, græcizans, melancholicus, tricolor, polygamus, gangeticus, mangoſtanus, triſtis, lividus, oleraceus, blitum, viridis, deflexus, polygonoides, ſcandens, hybridus, paniculatus, ſanguineus, retroflexus, flavus, hypochondriacus, cruentus, caudatus, ſpinoſus. Europe, E. and W. Indies, America.

1276. LEEA.

Two ſpecies; viz. æquata, criſpa. Jamaica.

ORDER VI. HEXANDRIA.

1062. ZIZANIA, or *Water-oats, Tare-graſs.*

Three ſpecies; viz. aquatica, paluſtris, terreſtris. Malabar, N. America, Jamaica.

1063. PHARUS.

One ſpecies; viz. latifolius. Jamaica, S Amer.

ORDER VII. HEPTANDRIA.

1064. GUETTARDA.

One ſpecies; viz. ſpecioſa. Java, W. Indies.

ORDER VIII. POLYANDRIA.

1065. CERATOPHYLLUM, or *Hornwort.*

Two ſpecies; viz. * demerſum, * ſubmerſum.

1066. MYRIOPHYLLUM, or *Water Milfoil.*

Two ſpecies; viz. * ſpicatum, * verticillatum.

1066. SAGITTARIA, or *Arrowhead.*

Five ſpecies; viz. * ſagittifolia, obtuſifolia, lancifolia, acutifolia, trifolia. Europe, Aſia, America.

ſagittifolia * S. leaves arrow-ſhaped, acute.—It grows in ditches and on the banks of ſlow running rivers. There is always a bulb at the lower part of the root, growing in the ſolid earth beneath the mud. This bulb conſtitutes a conſiderable part of the food of the Chineſe, and upon that account they cultivate it. Horſes, goats, and ſwine, eat it. Cows are not fond of it.

1156. BEGONIA.

Three ſpecies; viz. ferruginea, capenſis, urtica. Cape, E. and W. Indies.

1098. THELIGONUM, or *Dogs-cabbage.*

One ſpecies; viz. cynocrambe. S. of Europe.

1069. POTERIUM, or *Garden Burnet.*

Three ſpecies; viz. * ſanguiſorba, hybridum, ſpinoſum.

ſanguiſorba. * P. without thorns; ſtems ſomewhat angular.—The leaves and ſeeds of this plant are mildly aſtringent, and have been uſed in dyſenteries and hæmorrhagies. The ſeeds, when bruiſed, ſmell like cucumbers. There are large tracts of the fineſt parts of what are called the *South Downs* in England, upon which this plant forms half the indigenous paſturage. It ſeems to grow naturally (without being ſown) only on chalky ſoils; but it will flouriſh, when ſown, on any ſoil; on ſand, clay, peat, &c. It is chiefly valuable for ſheep paſtures that are to be kept fully ſtocked. It forms a fine herbage when cloſe bitten; but when ſuffered to run to a height it is rather coarſe.

1070. QUERCUS, or *Oak-tree.*

20 ſpecies; viz. * phellos, molucca, glabra, acuta, glauca, cuſpidata, ſerrata, ilex, ſuber, coccifera, prinus, dentata, nigra, rubra, alba, eſculus, * robur, egillops, ceiris, * femina.

robur. * Q. leaves on leaf-ſtalk, oblong, broadeſt towards the end, indentations rather acute, angles blunt; fruit nearly ſitting.

femina. * Q. leaves oblong, on ſhort leaf-ſtalks, blunt, wing-cleft, with indentations; fruit moſtly ſolitary, on long fruitſtalks. *Withering*, vol. iii. p. 387. The oak is a native of the temperate climates. It loves hilly better than boggy ground, and thrives beſt, while young, in large plantations. Its roots deſcend deep into the earth, and therefore will not bear to be tranſplanted. Much lopping deſtroys it. Graſs will hardly grow beneath it. The wood is hard, tough, tolerably flexible, not eaſily ſplintering; and therefore is preferred before all other timber for building ſhips of war. It is well adapted to almoſt every purpoſe of the carpenter; but an attempt to enumerate the uſes of this well-known wood, would be equally ſuperfluous and difficult. Oak ſaw-duſt is the principal indigenous vegetable uſed in dyeing fuſtian. All the varieties of drabs and different ſhades of brown are made with oak ſaw-duſt, differently managed and compounded. The balls or oak apples are likewiſe uſed in dyeing, as a ſubſtitute for galls. The black, got from them by the addition of copperas, is more beautiful than that from galls, but not ſo durable. The bark is univerſally uſed to tan leather; and it is ſaid that the ſaw-duſt has been uſed for the ſame purpoſe with equal ſucceſs. The bark is uſed to make writing ink. Its aſtringent properties might be rendered uſeful in medicine. An infuſion of it with a ſmall quantity of copperas, is uſed by the common people to dye woollen of a purpliſh blue: the colour, though not very bright, is durable. The balls or galls upon the leaves, are occaſioned by a ſmall inſect with four wings, called *cynips querci folii*, which depoſits an egg in the ſubſtance of the leaf by making a ſmall perforation on the under ſurface. The ball preſently begins to grow, and the egg in the centre of it changes to a worm; this worm again changes to a nymph, and the nymph to the flying inſect, with four wings. Horſes, cows, ſheep, and goats, eat the leaves. Swine and deer fatten on the acorns. The oak grows in a good ſoil ſometimes to a moſt immenſe ſize. At Little Shelſley in Worceſterſhire,

ſhire, an oak meaſured cloſe to the ground nearly 48 feet, and about two yards from the ground 22 feet four inches. Lightfoot mentions one growing near Ludlow in Shropſhire in 1764, the trunk of which meaſured 68 feet in girth, and 23 in length; ſo that allowing 90 ſquare feet for the larger branches, it contained 1455 feet of timber. An oak near Welbeck meaſured in girth, at 11 feet from the ground, 38 feet; and one growing at Cowthorpe near Wetherby, Yorkſhire, meaſured 48 feet in circumference at three feet from the ground, and 78 feet cloſe to the ground.

1071. JUGLANS, or *Walnut-tree.*

Five ſpecies; viz. regia, alba, nigra, cinerea, baccata. Perſia, N. America.—This tree, when planted in Scotland, ſeldom ripens its fruit.

1072. FAGUS, or *Beech, Sweet Cheſnut.*

Three ſpecies; viz. * caſtanea, pumila, * ſylvatica. Europe, N. America.

caſtanea. * F. leaves ſpear-ſhaped, with tapering ſerratures, naked underneath.—In the ſhade of this ſpecies, called the *cheſnut*, nothing will thrive. The wood is applicable to the ſame uſes that oak is. Pipes made of it to convey water under ground, are ſaid to laſt longer than thoſe made of oak. Poles for eſpaliers, &c. made of it without removing the bark, alſo laſt very long. Some of the oldeſt buildings in London are ſaid to be conſtructed of the wood of the cheſnut tree. At Tortworth in Gloucesterſhire, is ſaid to be a tree 52 feet round, which is proved to have ſtood ſince the year 1150, and was then very old. It is ſuppoſed to be 1100 years old. In 1759, its girth, at ſix feet from the ground, was 46 feet ſix inches. The nuts are uſed to whiten linen cloth, and to make ſtarch. They conſtitute a great proportion of the food of the common people in the ſouth of Europe; and hogs, feeding on them as they run wild in the foreſts, are reckoned particularly excellent.

ſylvatica. * F. leaves egg-ſhaped; indiſtinctly ſerrated. *Common beech.*—This tree is large and beautiful, but no verdure is found under its ſhade. It retains its old leaves during the winter, and may be trained to form very lofty hedges. The wood is brittle, ſoon decays in the air, but endures under water. It is formed into tool handles, planes, mallets, chairs, and bedſteads. Split into thin layers, it is uſed to make ſcabbards for ſwords. It is excellent fuel, and its aſhes afford much potaſh. The leaves, gathered in autumn before they are much injured by froſt, make much better mattreſſes than ſtraw or chaff, and laſt ſeven or eight years. The nuts or maſt, when eaten, occaſion giddineſs and headach; but when well dried and powdered, make wholeſome bread. They are ſometimes roaſted and ſubſtituted for coffee. They fatten ſwine, and are devoured greedily by mice, ſquirrels, and birds. The poor people in Sileſia uſe the expreſſed oil inſtead of butter. Sheep and goats eat the leaves.

1073. CARPINUS, *Hornbeam-tree.*

Two ſpecies; viz. * betulus, oſtrya. Europe, N. America.

betulus. C. ſcales of the cones flat.—This, which is the common hornbeam, loves a poor ſtiff ſoil on the ſides of hills, is eaſily tranſplanted, and bears lopping. Cattle eat the leaves, but no paſture grows under its ſhade. The wood burns like a candle: it is very white, very tough, harder than hawthorn, and capable of ſupporting a great weight. It is uſeful in turning, and for many implements of huſbandry. Coggs for millwheels made of it are ſuperior to thoſe of yew. The inner bark is uſed in Scandinavia to dye yellow.

1074. CORYLUS, *Hazel* or *Nut-tree.*

Two ſpecies; viz. * avellana, columa. Europe, N. America.

* C.—This wood is profitably planted in many places *avellana.* in hedges and coppices, for the purpoſe of cutting down portions in rotation, to be converted into charcoal for forges. The wood is uſed for fiſhing-rods, walking-ſticks, hoops, &c. The roots are preferred where beautiful wood is wanted for inlaying or ſtaining. It is a practice in Italy, to put chips of hazel into turbid wine to clear it, which it does in 24 hours. In countries where yeaſt is ſcarce, they twiſt together hazel twigs, ſo as to leave a multitude of chinks: theſe they ſteep in their ale while it is fermenting; then hang them up to dry, and when they brew again they put them into the wort inſtead of yeaſt. Charcoal of hazel, when uſed in drawing, leaves ſtains which are eaſily rubbed out. The nuts, which are agreeable to moſt people, afford, by preſſure, an oil for the uſe of painters.

1075. PLATANUS, or *Plane-tree.*

Two ſpecies; viz. orientalis, occidentalis. Levant, N. America.

1076. LIQUIDAMBAR, or *Sweet Gum.*

Two ſpecies; viz. ſtyraciflua, peregrina. Levant, N. America.—The reſinous juice of the former of theſe ſpecies, brought from America, was once uſed as a perfume, but is now neglected.

ORDER IX. MONADELPHIA.

1077. PINUS, or *Pine-tree.*

12 ſpecies; viz. * ſylveſtris, pinea, tæda, cembra, ſtrobus, cedrus, larix, picea, balſamea, canadenſis, abies, orientalis. Europe, north of Aſia, America.

* P. leaves in long pairs, rigid; cones egg-conical, *ſylveſtris.* moſtly in pairs, as long as the leaves; ſcales oblong, blunt. *Scotch fir.*—This ſpecies, which is a native of our iſland, flouriſhes beſt on a poor ſandy ſoil. In a grove the trunk is tall and naked; in open places branched. It does not bear the leaſt clipping, as the terminating buds ſend forth the branches. The roots ſpread near the ſurface of the earth, except the central root, which puſhes perpendicularly downwards. If it is either broken off or interrupted in its paſſage, the ſtem ceaſes to ſhoot upwards, and the tree remains a dwarf. Hence it is apt to ſuffer by tranſplanting. The bark will tan leather. In the north of Europe bread is thus made from it by the inhabitants: They chooſe a ſtraight tree, as theſe have leaſt reſin, and ſtrip off the bark in the ſpring, when it ſeparates moſt readily. This they firſt dry gently in the ſhade; then in a greater heat, and reduce it to powder. With this powder they mix a ſmall quantity of corn meal, and with water they knead it into bread. This they eat, not only in times of ſcarcity, but at other times, from an apprehenſion, that long diſuſe might render it diſagreeable

greeable to them. Their children are very fond of the freſh bark in the ſpring time, either ſhaved with a knife or grated with a raſp. The young ſhoots, diſtilled, afford a fragrant eſſential oil. Sheep and goats are not fond of it. Horſes refuſe it. Burnt with a cloſe ſmothering fire, the wood of this ſpecies yields tar. The ſpecies called *larix* has riſen into conſiderable reputation in this country, on account of its beauty, rapid growth, and the value of the timber. It is extremely hardy, growing in Siberia almoſt to the coaſts of the Icy ſea; but this very hardineſs, or capacity of vegetating with a very ſmall degree of heat, renders it in this country delicate when young. The firſt warmth of the ſpring is ſufficient to bring forth its buds, which are thus, by the unſteadineſs of our climate, expoſed to frequent pernicious froſts. In this way nurſerymen often ſuffer great loſſes by the larix, in conſequence of an early ſpring and a premature vegetation, which is afterwards nipt by froſty weather. From the trees of the genus *pinus* the different turpentines are extracted by bleeding the trees, by wounds in the bark or branches.

1079. CUPRESSUS, or *Cypreſs-tree.*
Six ſpecies; viz. ſempervirens, diſticha, thyoides, juniperoides, pendula, japonica. Crete, Cape, Japan, N. America.

1080. PLUKENETIA.
One ſpecies; viz. volubilis. E. and W. Indies.

1081. DALECHAMPIA.
Two ſpecies; viz. colorata, ſcandens. W. Indies, New Granada.

1082. ACALYPHA.
Five ſpecies; viz. virginica, virgata, indica, villoſa, auſtralis. N. America, E. and W. Indies.

1083. CROTON, or *Baſe Ricinus, Tallow-tree.*
23 ſpecies; viz. variegatum, caſcarilla, caſtaneifolium, paluſtre, glabellum, tinctorium, glanduloſum, argenteum, ſebiferum, japonicum, acutum, tiglium, lucidum, lacciferum, balſamiferum, aromaticum, humile, ricinocarpus, moluccanum, flavens, capenſe, lotum, ſpinoſum. China, Japan, W. Indies, N. America.

279. CUPANIA.
One ſpecies; viz. americana. W. Indies, Coromandel.

1084. JATROPHA, or *Caſſada, Manihot.*
Nine ſpecies; viz. goſſypifolia, moluccana, curcas, multifida, manihot, janipha, urens, herbacea, elaſtica. Africa, S. America.

1085. RICINUS.
Four ſpecies; viz. inermis, communis, tanaricus, mappa. Vera Cruz.—The ſpecies called *R. communis* produces nuts about the ſize of ſmall beans, which like bitter almonds are deleterious. An oil is obtained from them by expreſſion, called *caſtor oil*, which is uſed as a ſafe and mild laxative; half an ounce or an ounce for an adult, and a dram for an infant.

1086. STERCULIA.
Three ſpecies; viz. balanghas, fœtida, platanifolium. Arabia, E. and W. Indies, China.

1088. HIPPOMANE.
Three ſpecies; viz. mancinella, biglanduloſa, ſpinoſa.

1279. STILLINGIA.
One ſpecies; viz. ſylvatica. Carolina.

1278. GNETUM.
One ſpecies; viz. gnemon. India.

1087. HURA, or *Sandbox-tree.*
One ſpecies; viz. crepitans. Mexico, W. Indies.

ORDER X. SYNGENESIA.

1089. TRICHOSANTHES, or *Serpent-cucumber.*
Four ſpecies; viz. anguina, nervifolia, cucumerina, amara. E. Indies, China.

109. MOMORDICA, or *Male Balſam-apple.*
Eight ſpecies; viz. balſamina, charantia, operculata, luffa, cylindrica, trifolia, pedata, elaterium. S. Europe, India, America.

1091. CUCURBITA, or *Gourd.*
Seven ſpecies; viz. lagenaria, hiſpida, ovifera, pepo, verrucoſa, melopepo, citrullus. E. and W. Indies, America.

1092. CUCUMIS, or *Cucumber.*
13 ſpecies; viz. colocynthis, prophetarum, anguria, africanus, acutangulus, melo, dudaim, chate, ſativus, anguinus, flexuoſus, conomon, maderaſpatanus. Levant, India, Africa, Jamaica.—The ſpecies called *ſativus*, is the ordinary garden cucumber. It is leſs apt to grow rancid by keeping than others of the claſs. The *C. colocynthis*, called *coloquintida* or bitter apple, is a native of Turkey. The fruit is about the ſize of an orange. Its medullary part, freed from the rind and ſeeds, is light, white, and ſpongy, compoſed of membranous leaves, of an extremely bitter, nauſeous, acrimonious taſte. Colocynth is one of the moſt powerful and violent cathartics; but is accounted dangerous by the beſt phyſicians. The beſt mode of abating its virulence, conſiſts of triturating it with gummy farinaceous ſubſtances, or oily ſeeds. Without this precaution, a few grains of it will often diſorder the body, and even occaſion a diſcharge of blood. The *C. melo* is uſed in hot countries as a cooling and agreeable food.

1098. BRYONIA, or *Bryony.*
11 ſpecies; viz. alba, *dioica, palmata, grandis, cordifolia, laciniоſa, africana, cretica, ſcabra, ſcabrella, japonica. Crete, Africa, E. Indies.

* B. leaves hand-ſhaped, rough on both ſides, with callous points; male and female flowers on different plants.—The root is purgative and acrid. A dram of *dioica.* it in ſubſtance, or half an ounce of it infuſed in wine, is a full doſe. A cold infuſion of the root in water is uſed externally in ſciatic pains. A cataplaſm of it is a moſt powerful diſcutient. A decoction, made with one pound of the freſh root, is the beſt purge for horned cattle. The plant is rough, growing on dry banks under hedges, and climbing upon the buſhes. The roots are large, ſometimes as thick as a man's thigh. Their juice, when freſh, ſoon excoriates the ſkin, but in drying they loſe much of their acrimony.

1094.

1094. Sicyos, or *Single-ſeeded Cucumber.*
Three ſpecies; viz. angulata, laciniata, garcini. America.

Order XI. GYNANDRIA.

1095. Andrachne, or *Baſe Orpine.*
Two ſpecies; viz. telephioides, fruticoſa. Italy, Levant, Egypt.

1320. Agyneia.
Two ſpecies; viz. impubes, pubera. China.

In the claſs Monœcia are

78 Genera, including 392 Species, of which 83 are found in Britain.

CLASSIS XXII.

DIŒCIA. (M)

Ordo I. MONANDRIA.

1430. Pandanus. (1) Cal. o. Cor. o. Anthera ſeſſilis, ramificationibus thyrſi inſerta. (2) Cal. o. Cor. o. Stigmata 2. Fruct. compoſitus.

1096. Najas. (1) Cal. 2-fidus. Cor. 4-fida. Filam. nullum. (2) Cal. nullus. Cor. o. Piſt. 3. Capſ. 1-locularis.

Ordo II. DIANDRIA.

1097. Vallisneria. (1) Spath. multiflora, 2-part. Cor. 3-partita. (2) Spath. 1-flora. Cal. 3-part. Cor. 3-pet. Piſt. 1. Capſ. 1-locularis.

1099. Cecropia. (1) Spath. recept. comm. Cor. nulla. (2) Spath. recept. comm. Cor. o. Piſt. 1. Bacca 1-ſperma.

* 1098. Salix. (1) Ament. ſquama. Cor. nulla. Stam. 2, raro 5. (2) Ament. ſquama. Cor. o. Stigm. 2. Capſ. 2-valvis. Sem. pappoſa.

Ordo III. TRIANDRIA.

* 1100. Empetrum. (1) Cal. 3-partitus. Cor. 3-petala. (2) Cal. 3-partitus. Cor. 3-pet. Styl. 9. Bacca 9-ſperma.

1101. Osyris. (1) Cal. 3-fidus. Cor. nulla. (2) Cal. 3-fidus. Cor. o. Styl. o. Drupa 1-locularis.

1280. Caturus. (1) Cal. o. Cor. 3-fida. (2) Cal. 3-partitus. Cor. o. Styl. 3. Capſ. 3-cocca.

102. Excoecaria. (1) Ament. ſquama. Cor. nulla. (2) Ament. ſquama. Cor. o. Styl. 3. Capſ. 3-cocca.

1331. Restis. (1) Ament. ſquama. Cor. 6-petala. (2) Ament. ſquama. Cor. 6-petala. Styl. 3. Capſ. 3 locularis, plicata, polyſperma.

1431. Maba. (1) Cal. 3-fidus. Cor. 3-fida. (2) Cal. ut in mare. Drupa ſupera, 2-locularis.

CLASS XXII.

DIŒCIA.

Order I. MONANDRIA.

P. (1) No cal. No cor. Anthers ſitting, inſerted in the ramifications of a cluſter. (2) No cal. No cor. Stigmas 2. Fruit compound.

N. (1) Cal. 2-cleft. Cor. 4-cleft. No filam. (2) No cal. No cor. Piſt. 3. Capſ. 1-celled.

Order II. DIANDRIA.

V. (1) Sheath many-flowered, 2-parted. Cor. 3-parted. (2) Sheath 1-flowered. Cal. 3-parted. Cor. 3-pet. Piſt. 1. Capſ. 1-celled.

C. (1) Sheath common receptacle. No cor. (2) Sheath common receptacle. No cor. Piſt. 1. Berry 1-ſeeded.

* S. (1) Catkin a ſcale. No cor. Stam. 2, rarely 5. (2) Catkin a ſcale. No cor. Stigm. 2. Capſ. 2-celled. Seed downy.

Order III. TRIANDRIA.

* E. (1) Cal. 3-parted. Cor. 3-petaled. (2) Cal. 3-parted. Cor. 3-pet. Styl. 9. Berry 9-ſeeded.

O. (1) Cal. 3-cleft. No cor. (2) Cal. 3-cleft. No cor. No ſtyl. Drupe 1-celled.

C. (1) No cal. Cor. 3-cleft. (2) Cal. 3-parted. No cor. Styl. 3. Capſ. 3-celled.

E. (1) Catkin a ſcale. No cor. (2) Catkin a ſcale. No cor. Styl. 3. Capſ. 3-celled.

R. (1) Catkin a ſcale. Cor. 6-petaled. (2) Catkin a ſcale. Cor. 6-petaled. Styles 3. Capſ. 3-celled, plaited, many-ſeeded.

M. (1) Cal. 3-cleft. Cor. 3-cleft. (2) Cal. as in the male. Drupe ſuperior, 2-celled.

Ordo

(M) In this claſs the male and female flowers are found on different plants; and every plant belonging to this claſs is either male or female. None are hermaphrodite; *i. e.* no one plant bears flowers containing ſtamens, and alſo flowers containing piſtils.

Ordo IV. TETRANDRIA.

* 1106. Hippophae. (1) Cal. 2-partitus. Cor. nulla. (2) Cal. 2-fidus. Cor. 0. Piſt. 1. Bacca 1-ſperma, arillo truncato.

1103. Trophis. (1) Cal. nullus. Cor. 4-petala. (2) Cal. nullus. Cor. 0. Styl. bifid. Bacca 1-ſperma.

* 1105. Viscum. (1) Cal. 4-partitus. Cor. nulla. (2) Cal. 4-phyllus. Cor. 0. Stigm. obtuſ. Bacca 1-ſperma, infera.

1432. Moninia. (1) Cal. 4-dentatus, ſuperus. Petala 4. (2) Cal. et cor. ut in mare. Filamenta ſterilia. Styl. 2-fidus. Capſ. oblonga, 2-locularis.

1104. Batis. (1) Amentum. Cor. nulla. (2) Invol. 2-phyllum. Cor. 0. Stigm. 2-fid. Bacca 2-ſperma.

* 1107. Myrica. (1) Ament. ſquama. Cor. nulla. (2) Ament. ſquama. Cor. 0 Styl. 2. Bacca 1-ſperma.

Urticæ variæ. Morus nigra. Rhamnus.

Ordo V. PENTANDRIA.

1113. Iresine. (1) Cal. 2-phyllus. Cor. 5-petala. Nectar. 5-phyllum. (2) Cal. 2-phyllus. Cor. 5-pet. Styl. 2. Capſ. polyſperma.

1115. Cannabis. (1) Cal. 5-partitus. Cor. nulla. (2) Cal. 1-phyllus. Cor. 0. Styl. 2. Nux.

* 1116. Humulus. (1) Cal. 5-phyllus. Cor. nulla. (2) Cal. 1-phyllus. Cor. 0. Styl. 2. Sem. calyce alatum.

1108. Pistacia. (1) Cal. 5-fidus. Cor. nulla. (2) Cal. 3-fidus. Cor. 0. Styl. 3. Drupa ſicca.

1117. Zanonia. (1) Cal. 3-phyllus. Cor. 5-partita. (2) Cal. 3-phyllus. Cor. 5-part. Styl. 3. Bacca infera, 3-locularis.

1112. Spinacia. (1) Cal. 5-partitus. Cor. nulla. (2) Cal. 4-fidus. Cor. 0. Styl. 4. Sem. 1 calycinum.

1114. Acnida. (1) Cal. 5-phyllus. Cor. nulla. (2) Cal. 2-phyllus. Cor. 0. Styl. 5. Sem. 1, calyce veſicario.

1110. Antidesma. (1) Cal. 5-phyllus. Cor. nulla. (2) Cal. 5-phyllus. Cor. 0. Stigm. 5. Bacca 1-ſperma.

1111. Astronium. (1) Cal. 5-phyllus. Cor. 5-petala. Nectar. glandulis 5. (2) Cal. 5-phyllus. Cor. 5-petala. Styl. 5. Sem. 1.

1281. Canarium. (1) Cal. 2-phyllus. Cor. 3-petala. (2) Cal. 2-phyllus. Cor. 3-petala. Stigma ſeſſile. Drupa.

1109. Zanthoxylon. (1) Cal. 5-partitus. Cor. nulla. (2) Cal. 5-partitus. Cor. 0. Piſt. 5. Capſ. 1-ſperma.

1118. Fewillea. (1) Cal. 5-partitus. Cor. 5-fida. Nectarium filamentis 5. (2) Cal. 5-fidus. Cor. 5-fid. Styl. 5. Bacca infera.

Phylica dioica. Rhamnus alaternus. Salix pentandra.

Ordo VI. HEXANDRIA.

1120. Smilax. (1) Cal. 6-phyllus. Cor. nulla. (2) Cal. 6-phyllus. Cor. 0. Styl. 3. Bacca ſupera, 3-locularis.

Order IV. TETRANDRIA.

* H. (1) Cal. 2-parted. No cor. (2) Cal. 2-cleft. No cor. Piſt. 1. Berry 1-ſeeded, with a lopped ſeed-coat.

T. (1) No cal. Cor. 4-petaled. (2) No cal. No cor. Styl. 2-cleft. Berry 1-ſeeded.

* V. (1) Cal. 4-parted. Cor. none. (2) Cal. 4-leaved. No cor. Stigm. obtuſe. Berry 1-ſeeded, inferior.

M. (1) Cal. 4-toothed, ſuperior. Petals 4. (2) Cal. and cor. as in the male. Filam. barren. Styl. 2-cleft. Capſ. oblong, 2-celled.

B. (1) Catkin. No cor. (2) Invol. 2-leaved. No cor. Styl. 2-cleft. Berry 2-ſeeded.

* M. (1) Catkin a ſcale. No cor. (2) Catkin a ſcale. No cor. Styl. 2. Berry 1-ſeeded.

Order V. PENTANDRIA.

I. (1) Cal. 2-leaved. Cor. 5-petaled. Nectary 5-leaved. (2) Cal. 2-leaved. Cor. 5-pet. Styl. 2. Capſ. many-ſeeded.

C. (1) Cal. 5 parted. No cor. (2) Cal. 1-leaved. No cor. Styles 2. Nut.

* H. (1) Cal. 5-leaved. No cor. (2) Cal. 1-leaved. No cor. Styles 2. Seed winged in a calyx.

P. (1) Cal. 5-cleft. No cor. (2) Cal. 3-cleft. No cor. Styl. 3. Drupe dry.

Z. (1) Cal. 3-leaved. Cor. 5-parted. (2) Cal. 3-leaved. Cor. 5-parted. Styl. 3. Berry inferior, 3-celled.

S. (1) Cal. 5-parted. Cor. none. (2) Cal. 4-cleft. No cor. Styl. 4. One ſeed, cup-like.

A. (1) Cal. 5-leaved. No cor. (2) Cal. 2-leafed. No cor. Styl. 5. Seed 1, with a bladder-like cup.

A. (1) Cal. 5-leaved. No cor. (2) Cal. 5-leaved. No cor. Stigm. 5. Berry 1-ſeeded.

A. Cal. 5-leaved. Cor. 5-petaled. Nectary with 5-glands. (2) Cal. 5-leaved. Cor. 5-petaled. Styl. 5. Seed 1.

C. (1) Cal. 2-leaved. Cor. 3-petaled. (2) Cal. 2-leaved. Cor. 3-petaled. Stigma ſitting. Drupe.

Z. (1) Cal. 5-parted. No cor. (2) Cal. 5-parted. No cor. Piſt. 5. Capſ. 1-ſeeded.

F. (1) Cal. 5-parted. Cor. 5-cleft. Nectary with 5 filaments. (2) Cal. 5-cleft. Cor. 5-cleft. Styles 5. Berry inferior.

Order VI HEXANDRIA.

S. (1) Cal. 6-leaved. No cor. (2) Cal. 6-leaved. No cor. Styles 3. Berry ſuperior, 3-celled.

* 1119. Tamus. (1) Cal. 6-phyllus. Cor. nulla. (2) Cal. 6-phyllus. Cor. o. Styl. 3-fid. Bacca infera, 3-locularis.

1122. Dioscorea. (1) Cal. 6-phyllus. Cor. nulla. (2) Cal. 6-phyllus. Cor. o. Styl. 3. Capſ. ſupera, 3-locularis.

1121. Rajania. (1) Cal. 6-phyllus. Cor. nulla. (2) Cal. 6-phyllus. Cor. o. Styl. 3. Sem. inferum, ala aurita.

Rumex acetoſa. Acetoſella aculeatus.

Ordo VII. OCTANDRIA.

* 1123. Populus. (1) Ament. lacerum. Cor. o. Nect. ovat. Stam. 8-16. (2) Ament. lacerum. Cor. o. Stigm. 4-fid. Capſ. 2-valvis. Sem. pappoſa.

* 1124. Rhodiola. (1) Cal. 4-partitus. Cor. 4-petala. (2) Cal. 4-partitus. Cor. o. Piſt. 4. Capſ. 4, polyſpermæ.

1133. Margaritaria. (1) Cal. 4-dentatus. Cor. 4-petala. (2) Cal. et cor. ut in mare. Styl. 4 ſ. 5. Bacca cartilaginea 4-5-cocca.

Laurus nobilis. Acer rubrum. Loranthus Europæus.

Ordo VIII. ENNEANDRIA.

* 1125. Mercurialis. (1) Cal. 3-phyllus. Cor. nulla. Stam. 9-12. (2) Cal. 3-phyllus. Cor. o. Styl. 2. Capſ. 2-cocca.

* 1126. Hydrocharis. (1) Cal. 3-phyllus. Cor. 3-petala. (2) Cal. 3-phyllus. Cor. 3-pet. Styl. 6. Capſ. infera, 6-locul.

Laurus, an omnis?

Ordo IX. DECANDRIA.

1127. Carica. (1) Cal. ſub-nullus. Cor. 5-fida. (2) Cal. 5-dentatus. Cor. 5-pet. Stigm. 8. Bacca polyſperma.

1128. Kiggelaria. (1) Cal. 5-partitus. Cor. 5-petala. Nectar. glandulæ 5. (2) Cal. 5-partitus. Cor. 5-pet. Styl. 5. Capſ. 5-valvis.

1129. Coriaria. (1) Cal. 5-phyllus. Cor. 5-petala. (2) Cal. 5-phyllus. Cor. 5-pet. Styl. 5. Bacca 5-ſperma, petalina.

1130. Schinus. (1) Cal. 4-fidus. Cor. 5-petala. (2) Cal. 5-fidus. Cor. 5-petala. Bacca 3-cocca.

Lychnis dioica. Cucubalus otites. Guilandina dioica. Phytolacca dioica.

Ordo X. DODECANDRIA.

. Euclea. (1) Cal. 5-dentatus. Cor. 5-petala. Stam. 15. (2) Cal. 5-dentatus. Cor. 5-petala. Styl. 2.

1131. Menispermum. (1) Cal. 2-phyllus. Cor. 12-petala. (2) Cal. 6-phyllus. Cor. 6-petala. Bacca 3-cocca.

1132. Datisca. (1) Cal. 5-phyllus. Cor. nulla. Antheræ ſeſſiles 15. (2) Cal. 2-dentatus, ſuperus. Cor. o. Capſ. 1-locularis, polyſperma.

Ordo XI. POLYANDRIA.

1133. Cliffortia. (1) Cal. 3-phyllus. Cor. nulla. (2) Cal. 3-phyllus. Cor. o. Styl. 2. Capſ. 2-cocc. infera.

* T. (1) Cal. 6-leaved. No cor. (2) Cal. 6-leaved. Cor. o. Styl. 3-cleft. Berry inferior, 3-celled.

D. (1) Cal. 6-leaved. Cor. o. (2) Cal. 6-leaved. Cor. o. 3-Styles. Capſ. ſuperior, 3-celled.

R. (1) Cal. 6 leaved. Cor. o. (2) Cal. 6-leaved. Cor. o. Styles 3. Seed inferior.

Order VII. OCTANDRIA.

* P. (1) Catkin ragged. Cor. o. Nect. oval. Stam. 8-16. (2) Catkin ragged. Cor. o. Stigm. 4-cleft. Capſ. 2-valved. Seeds downy.

* R. (1) Cal. 4-parted. Cor. 4-petaled. (2) Cal. 4-parted. Cor. o. Piſt. 4. Capſ. 4, many-ſeeded.

M. (1) Cal. 4-toothed. Cor. 4-petaled. (2) Cal. and cor. as in the male. Styles 4 or 5. Cartilaginous berry, 4 or 5-celled.

Order VIII. ENNEANDRIA.

* M. (1) Cal. 3-leaved. Cor. o. Stam. 9 to 12. (2) Cal. 3-leaved. Cor. o. Styles 2. Capſ. 2-celled.

* H. (1) Cal. 3-leaved. Cor. 3-petaled. (2) Cal. 3-leaved. Cor. 3-petaled. Styles 6. Capſ. inferior, 6-celled.

Order IX. DECANDRIA.

C. (1) Cal. nearly none. Cor. 5-cleft. (2) Cal. 5-toothed. Cor. 5-petaled. Stigm. 8. Berry many-ſeeded.

K. (1) Cal. 5-parted. Cor. 5-petaled. Nectar. glands 5. (2) Cal. 5-parted. Cor. 5-pet. Styles 5. Capſ. 5-valved.

C. (1) Cal. 5-leaved. Cor. 5-petaled. (2) Cal. 5-leaved. Cor. 5-pet. Styles 5. Berry 5-ſeeded, petal-like.

S. (1) Cal. 4-cleft. Cor. 5-petaled. (2) Cal. 5-cleft. Cor. 5-petaled. Berry 3-celled.

Order X. DODECANDRIA.

E. (1) Cal. 5-toothed. Cor. 5-petaled. Stam. 15. (2) Cal. 5-toothed. Cor. 5-petaled. Styles 2.

M. (1) Cal. 2-leaved. Cor. 12-petaled. (2) Cal. 6-leaved. Cor. 6-petaled. Berry 3-celled.

D. (1) Cal. 5-leaved. Cor. o. Anthers ſitting 15. (2) Cal. 2-toothed, ſuperior. Cor. o. Capſ. 1-celled, many-ſeeded.

Order XI. POLYANDRIA.

C. (1) Cal. 3-leaved. No cor. (2) Cal. 3-leaved. No cor. Styles 2. Capſ. 2-celled, inferior.

1434. Hedycaria. (1) Cal. 8 f. 10-fidus. Cor. 0. Filamenta 0. Antheræ in fundo calycis, 4-fulcæ, apice barbatæ. (2) Cal. et cor. maris. Germina pedicellata. Nuces pedicellatæ, monoſpermæ.

Clematis dioica. Thalictrum dioicum. Stratiotes aloides.

H. (1) Cal. 8 or 10-cleft. Cor. 0. Filam. 0. Anth. in the bottom of the calyx, 4-furrowed, barbed at the point. (2) Cal. and cor. like the male. Germens pedicled. Nuts pedicled, 1-ſeeded.

Ordo XII. MONADELPHIA.

* 1134. Juniperus. (1) Ament. Cor. nulla. Stam. 3. (2) Cal. 3-partitus. Cor. 3-pet. Styl. 3. Bacca infera, 3-ſperma, calycina.

* 1135. Taxus. (1) Cal. 4-phyllus. Cor. nulla. Antheræ 8-fidæ. (2) Cal. 4-phyllus. Cor. 0. Stigm. 1. Bacc. 1-ſperma, recutita.

1136. Ephedra. (1) Ament. 2-fidum. Cor. nulla. Stam. 7. (2) Cal. imbricatus. Cor. 0. Piſt. 2. Bacca 2-ſperma, calycina.

1138. Cissampelos. (1) Cal. nullus. Cor. 4-petala. Stam. 4. (2) Cal. nullus. Cor. 0. Stam. 3. Bacca 1-ſperma.

838. Napæa. (1) Cal. 5-fidus. Cor. 5-petala. Stam. plurima. Styl. plures. (2) Cal. 5-fidus. Cor. 5-petala. Stam. plur. effœta. Styli plures. Arilli 10 in orbem.

1137. Adelia. (1) Cal. 3-partitus. Cor. nulla. Stam. 20. (2) Cal. 5-partitus. Cor. 0. Styl. 3. Capſ. 3-cocca.

Napæa dioica.

Order XII. MONADELPHIA.

* J. (1) Catkin. No cor. Stam. 3. (2) Cal. 3-parted. Cor. 3-petaled. Styles 3. Berry inferior, 3-ſeeded, cup-like.

* T. (1) Cal. 4-leaved. Cor. 0. Anthers 8-cleft. (2) Cal. 4-leaved. Cor. 0. Stigm. 1. Berry 1-ſeeded, bent back.

E. (1) Catkin 2-cleft. Cor. 0. Stam. 7. (2) Cal. tiled. Cor. 0. Piſt. 2. Berry 2-ſeeded, cup-like.

C. (1) Cal. 0. Cor. 4-petaled. Stam. 4. (2) Cal. 0. Cor. 0. Stigm. 3. Berry 1-ſeeded.

N. (1) Cal. 5-cleft. Cor. 5-petaled. Stam. many. Styles many. (2) Cal. 5-cleft. Cor. 5-petaled. Stam. many, feeble. Styles many. Seed-coats 10 in a circle.

A. (1) Cal. 3-parted. Cor. 0. Stamens 20. (2) Cal. 5-parted. Cor. 0. Styles 3. Capſ. 3-celled.

Ordo XIII. SYNGENESIA.

1139. Ruscus. (1) Cal. 6-phyllus. Cor. nulla. Stam. 5. (2) Cal. 6-phyllus. Cor. 0. Piſt. 1. Bacca 3-locularis, 2-ſperma.

Gnaphalium dioicum. Bryonia dioica.

Order XIII. SYNGENESIA.

R. (1) Cal. 6-leaved. Cor. 0. Stamens 5. (2) Cal. 6-leaved. Cor. 0. Piſt. 1. Berry 3-celled, 2-ſeeded.

Ordo XIV. GYNANDRIA.

1140. Clutia. (1) Cal. 5-phyllus. Cor. 5-petala. Stam. 5. (2) Cal. 5-phyllus. Cor. 5-pet. Styl. 3. Capſ. 3-cocca.

Order XIV. GYNANDRIA.

C. (1) Cal. 5-leaved. Cor. 5-petaled. Stamens 5. (2) Cal. 5-leaved. Cor. 5-petaled. Styles 3. Capſ. 3-celled.

Order I. MONANDRIA.

1430. Pandanus, or *Screw-pine.*

One ſpecies; viz. odoratiſſima. Eaſt Indies, South Sea Iſles.

1096. Najas.

One ſpecies; viz. marina. Europe.

Order II. DIANDRIA.

1097. Vallisneria.

One ſpecies; viz. ſpiralis. Italy.

1099. Cecropia, or *Trumpet-tree.*

One ſpecies; viz. peltata. Jamaica.

1098. Salix, or *Willow.*

34 ſpecies; viz. * acuminata, * alba, * amygdalina, * aurita, * caprea, * cinerea, * fragilis, * fuſca, * herbacea, * lanata, * lapponum, * monandra, * myrſinites, * pentandra, * repens, * reticulata, * retuſa, * roſmarinifolia, * rubra, * triandra, * viminalis, *vitellina, phylicifolia, japonica, haſtata, ægyptiaca, babylonica, helix, arbuſcula, myrtilloides, integra, glauca, arenaria, incubacea. Europe, America.

* S. leaves ſtrap-ſhaped, upper leaves oblique; catkins downy; one ſtamen.—*Roſe willow*, or *purple willow.* Withering. Called by Linnæus, *S. purpurea.* Baſkets, cradles, and all ſorts of twig work are made of its long ſlender and flexible ſhoots. *monandra.*

* S. leaves oblong, ſpear-ſhaped; flowers with three ſtamens, ſometimes two. *Smooth willow.*—The bark, in doſes of one or two drams, cures agues. *triandra.*

* S. leaves egg-ſhaped, acute; flowers with five ſtamens. *Sweet willow*, or *bay-leaved willow.* Called by Linnæus *S. hermaphroditica.* The wood crackles greatly in the fire. The dried leaves afford a yellow dye. Uſed in Yorkſhire to make the large ſort of baſkets. *pentandra.*

* S. leaves egg-ſpear-ſhaped, acute, ſmooth above, ſerrature *vitellina.*

rature like griſtle. *Yellow willow.*—The wood is white and very tough. The ſhoots are uſed by baſket-makers.

fragilis. * S. leaves egg-ſpear-ſhaped; leaf-ſtalks toothed with glands. *Crack willow.*—A quick grower, and bears cropping. Thrives in any ſoil if moiſt. The bark in doſes of one or two drams cures agues.

rubra. * S. leaves ſtrap-ſpear-ſhaped, acute. *Red willow.*—The twigs much ſought after by baſket-makers.

viminalis. * S. leaves ſpear-ſtrap-ſhaped, very long, acute, ſilky underneath; branches rod-like. *Ozier.*—Much uſed for making hoops, and the larger baſkets. Is planted to prevent the banks of rivers from being waſhed away by torrents.

alba. * S. leaves ſpear-ſhaped, tapering to a point, ſerrated, downy on both ſides; the lowermoſt ſerratures glandular. *White willow.*—Grows quick, and bears lopping. The bark collected in ſummer when full of ſap, and dried by a gentle heat, is extremely valuable, as a ſubſtitute for Peruvian bark, in the cure of intermittent fevers. It will tan leather. Horſes, cows, ſheep, and goats, eat the leaves and young ſhoots. If a ſhady walk with willows is wanted, male ſets only ought to be planted, otherwiſe they will ſpeedily multiply ſo as to form a thicket inſtead of a grove.

Order III. TRIANDRIA.

1101. Empetrum, or *Berry-bearing Heath.*

Two ſpecies; viz. * nigrum, album.

nigrum. * E. with ſtems trailing.—The berries boiled with alum afford a dark purple dye. Eaten in quantities they occaſion headach.

1101. Osyris, or *Poets-caſſia.*

Two ſpecies; viz. alba, japonica. South Europe, Japan.

1431. Maba.

One ſpecies; viz. elliptica. Tongataboo, Namoka.

1331. Restis.

Nine ſpecies; viz. paniculatus, verticillaris, dichotomus, vimineus, triflorus, ſimplex, elegia, cernuus, tectorum. C. of G. Hope.

1102. Excoecaria, or *Aloes Wood.*

One ſpecies; viz. agallocha. Amboyna, Mallacca, China.

1280. Caturus.

Two ſpecies; viz. ſpiciflorus, ramiflorus. Eaſt and Weſt Indies.

Order IV. TETRANDRIA.

1103. Trophis.

One ſpecies; viz. americana. Jamaica.

1104. Batis.

One ſpecies; viz. maritima. Jamaica.

1105. Viscum, or *Miſletoe.*

Nine ſpecies; viz. * album, rubrum, purpureum, opuntioides, capenſe, verticillatum, pauciflorum, terreſtre, rotundifolium. Europe, Cape, Weſt Indies, North America.

album. * V. leaves ſpear-ſhaped, blunt; ſtem forked; ſpikes axillary. *White miſletoe.*—A ſingular paraſitical evergreen plant. The barren plant oppoſite to the fertile one. The root inſinuates itſelf into the ſubſtance of the tree on which it grows. Bloſſom greeniſh white. Berries whitiſh. Birdlime may be made from the berries or the bark. Birds having ſwallowed the berries, void them unchanged upon trees, where they take root. No art has hitherto been able to make them take root in the earth. Sheep eat it greedily; and in the ſouthern Engliſh counties, where chiefly it grows, it is often torn from the trees to feed them. It is ſaid to preſerve them from the rot. If the berries, when fully ripe, be rubbed on the ſmooth bark of almoſt any tree, they will adhere cloſely, and produce plants the following winter.

1432. Montinia.

One ſpecies; viz. acris. C. of G. Hope.

1106. Hippophae, or *Sea-buckthorn.*

Two ſpecies; viz. * rhamnoides, canadenſis.

rhamnoides. * H. leaves ſpear-ſhaped.—Cows refuſe it. Horſes, goats, and ſheep eat it. The berries are very acid, with an auſtere vinous flavour. The fiſhermen of the gulf of Bothnia prepare a rob from them, which imparts a grateful flavour to freſh fiſh. In ſunny and ſandy ſituations it is planted for hedges.

1107. Myrica, or *Candle-berry Myrtle, Gale.*

Seven ſpecies; viz. * gale, cerifera, æthiopica, quercifolia, cordifolia, trifoliata. Europe, Madeira, Cape, North America.

gale. * M. leaves ſpear-ſhaped, ſomewhat ſerrated; ſtem ſhrub-like. *Sweet willow, Dutch myrtle, gale, goule.*—Dyed in autumn, it dyes wool yellow. It is uſed to tan calf-ſkins. The Welſh lay bunches of it under their beds to keep off fleas and moths, and give it as a vermifuge in powder and infuſion, applying it alſo externally to the abdomen. Its eſſential oil riſes in diſtillation. The catkins boiled in water throw up a waxy ſcum fit to make candles. From the *M. cerifera* the myrtle candles are prepared.

Order V. PENTANDRIA.

1108. Piſtacia, or *Piſtacia-nut.*

Five ſpecies; viz. trifolia, narbonenſis, vera, terebinthus, lentiſcus. South Europe, Barbary, Perſia, India.

The *P. vera*, with leaves unequal winged, leaflets nearly egg-ſhaped, bent back, produces a moderately large nut, containing a pale greeniſh kernel, with a reddiſh ſkin. The tree grows ſpontaneouſly in Perſia, Arabia, and the Archipelago; and has been found able to produce fruit in England. Piſtachio nuts have a pleaſant, ſweet, unctuous taſte, reſembling almonds, and are eſteemed by ſome in certain weakneſſes, and in emaciated habits.

The *P. lentiſcus* with leaves abruptly winged, and ſpear-ſhaped leaflets, in like manner bears our winters. The wood is brought to us in thick knotty pieces, with an aſh-coloured bark and white within, of a rough ſomewhat pungent taſte, and a grateful but faint ſmell. A decoction of it, under the pompous appellation of *aurum potabile*, potable gold, is recommended by the Germans in catarrhs, naufea, and weakneſs of ſtomach. In the iſland of Chio, this tree affords maſtich, which is a reſinous ſubſtance brought from thence in ſmall yellowiſh tranſparent grains or tears of a pleaſant ſmell, eſpecially when heated. It is recommended in old coughs, dyſenteries and all caſes of laxity.

1109.

1109. Zanthoxylum.
Two ſpecies; viz. clava herculis, trifoliatum.

1111. Astronium.
One ſpecies; viz. graveolens. South America.

1281. Canarium.
One ſpecies; viz. commune. India.

1110. Antidesma, or *Chineſe Laurel.*
One ſpecies; viz. alexiteria. E. Indies, China, Japan.

1113. Iresine.
One ſpecies; viz. celoſia. Virginia, Jamaica.

1112. Spinacia, or *Spinage.*
Two ſpecies; viz. oleracea, fera. Siberia.

1114. Acnida, or *Virginian Hemp.*
One ſpecies; viz. cannabina, Virginia.

1115. Cannabis, or *Hemp.*
One ſpecies; viz. ſativa. India. See Agriculture *Index.*

1116. Humulus, or *Hops.*
One ſpecies; viz. * lupulus. Europe.—Cultivated in England to preſerve malt liquors. The young ſhoots are eaten in the ſpring inſtead of aſparagus. Strong cloth is in Sweden made from the ſtalks, which are ſoaked in water all winter, and in the ſpring dreſſed like flax. A decoction of the roots, or from 20 to 30 grains of the extract, is ſaid to be ſudorific.

1117. Zanonia.
One ſpecies; viz. indica. Coaſt of Malabar.

1118. Fevillea.
Two ſpecies; viz. trilobata, cordifolia. W. Indies.

Order VI. HEXANDRIA.

1119. Tamus, or *Black Bryony.*
Two ſpecies; viz. * communis, cretica. South Europe, Cape.

1120. Smilax, or *Rough Bindweed.*
14 ſpecies; viz. aſpera, excelſa, zeilanica, ſarſaparilla, china, rotundifolia, laurifolia, tamnoides, caduca, bona nox, herbacea, tetragona, lanceolata, pſeudochina. South Europe, Eaſt Indies, North America.

1121. Rajania.
Five ſpecies; viz. haſtata, cordata, quinquefolia, quinata, hexaphylla. Japan, North America, Weſt Indies.

1122. Dioscorea, or *Indian Yam.*
12 ſpecies; viz. pentaphylla, triphylla, trifida, aculeata, alata, bulbifera, ſativa, villoſa, oppoſitifolia, ſeptemloba, quinquelobata, japonica. Eaſt and Weſt Indies, North America.

Order VII. OCTANDRIA.

1123. Populus, or *Poplar tree.*
Five ſpecies; viz. * alba, * nigra, * tremula, balſamifera, heterophylla. S. Aſia, Italy, Archipelago, N. America.

alba. * P. leaves nearly triangular, toothed, and angular; cottony underneath. *White poplar* —It loves low ſituations, and flouriſhes beſt in clay. It grows quick and bears cropping, but is unfavourable to paſturage. The wood is ſoft, white, and ſtringy, and makes good wainſcoting, being little ſubject to ſwell or ſhrink. Floors, laths, packing boxes, and turners ware, are made of it. Horſes, ſheep, and goats eat it. Cows are not fond of it.

tremula. * P. leaves circular, toothed, and angular; ſmooth on both ſides. *Aſp, aſpen tree, trembling poplar.*—This tree grows in all ſoils, but worſt in clay. It impoveriſhes the land, deſtroys the graſs; and the numerous ſhoots of the roots ſpread ſo near the ſurface of the earth, that they permit nothing elſe to grow; but riſe in all quarters, whether they are wanted or not. It is eaſily tranſplanted. The wood is extremely light, white, ſmooth, woolly, ſoft, durable in the air. The bark is the principal food of beavers. The bark of the young trees is made into torches.

nigra. * P. leaves trowel-ſhaped, tapering to a point, ſerrated, ſmooth on both ſides. *Black poplar.*—It loves a moiſt black ſoil, grows rapidly, and bears cropping. The bark being light like cork, ſupports the nets of fiſhermen. Cattle eat it.

1124. Rhodiola, or *Roſe-root.*
One ſpecies; viz. * roſea.—The root, particularly when dried, has the fragrance of a roſe; but cultivated in a garden it loſes moſt of its ſweetneſs.

1433. Margaritaria.
One ſpecies; viz. nobilis. Surinam.

Order VIII. ENNEANDRIA.

1125. Mercurialis, or *Mercury.*
Three ſpecies; viz. * annua, * perennis, tomentoſa. Europe.

perennis. * M. ſtem undivided, leaves rough. *Dogs mercury.*—It is noxious to ſheep, and deleterious to man. In drying, it turns blue. Steeped in water it affords a fine deep blue colour; which, however, is deſtructible both by alkalies and acids.

1126. Hydrocharis, or *Frogs-bit.*
One ſpecies; viz. * morſus ranæ.

Order IX. DECANDRIA.

1127. Carica, or *Papaw tree.*
Two ſpecies; viz. papaya, poſopoſa. E. and W. Indies.

1128. Kiggelaria.
One ſpecies; viz. africana. C. of G. Hope.

1130. Schinus, or *Indian Maſtich tree.*
Two ſpecies; viz. molla, areira. Peru, Brazil, Chili.

1129. Coriaria, or *Myrtle-leaved Sumach.*
Two ſpecies; viz. myrtifolia, ruſcifolia. Spain, S. France, Peru.

Order X. DODECANDRIA.

Euclea.
One ſpecies; viz. racemoſa. C. of G. Hope.

1132. Datisca, or *Baſe Hemp.*
Two ſpecies; viz. cannabina, hirta. Crete, N. America.

1131. Menispermum, or *Moon-ſeed.*
11 ſpecies; viz. canadenſe, virginicum, japonicum, carolinum,

carolinum, cocalus, criſpum, acutum, orbiculatum, hirſutum, myoſtoides, trilobum. N. America, Japan.

Order XI. POLYANDRIA.

1133. Cliffortia.

18 ſpecies; viz. odorata, ilicifolia, ruſcifolia, ferruginea, graminea, polygonifolia, filifolia, crenata, pulchella, trifoliata, ſarmentoſa, ſtrobilifera, obcordata, ternata, juniperina, falcata, teretifolia, ericæfolia. C. of G. Hope.

1432. Hedycaria.

One ſpecies; viz. dentata. N. Zealand.

Order XII. MONADELPHIA.

1134. Juniperus, or *Juniper tree.*

10 ſpecies; viz. * communis, thurifera, barbadenſis, bermudiana, chinenſis, ſabina, virginiana, oxycedrus, phœnicea, lycina. Europe, Bermudas, America.

communis. * J. leaves three together, expanding, ſharp pointed, longer than the berry.—It grows in all ſoils and ſituations, and to a correſponding variety of ſizes. It is eaſily tranſplanted, and bears cropping. Graſs will not grow beneath it, but the *avena pratenſis* deſtroys it. The wood is hard and durable. The bark may be made into ropes. The berries are two years in ripening.—When bruiſed they afford a pleaſant diuretic liquor, but it is not eaſy to prevent its growing ſour. It is eſteemed a good antiſcorbutic. Ardent ſpirits, impregnated with the eſſential oil of thoſe berries, is termed gin, though it is ſaid that ſome diſtillers know how to produce the ſame effect, by means of the ſpirit of turpentine. Gum ſandarach, more commonly called pounce, is the product of this tree. Horſes, ſheep, and goats, eat it. From the *J. lycina*, a gum reſin called *olibanum* is produced. From the *J. ſabina*, is extracted an eſſential oil, which is accounted a moſt powerful emmenagogue. It is a warm, irritating, aperient medicine.

1135. Taxus, or *Yew tree.*

Four ſpecies; viz. * baccata, nucifera, macrophylla, verticillata. Eur. Cape, Jap, N. America.

* T. leaves ſolitary ſtrap-ſhaped, prickle-pointed, near together; receptacle of the male flowers ſomewhat globular.—It grows beſt on a moiſt loamy ſoil, and languiſhes in bogs and dry mountains. It bears tranſplanting, even when old; and, as an evergreen hedge, is a valuable ſcreen to delicate plants. The wood is hard, ſmooth, and beautifully veined with red. It is uſed for bows, axletrees, ſpoons, cups, cogs for mill-wheels, and floodgates for fiſh ponds, which hardly ever decay. The berries are ſweet, viſcid, and harmleſs. The freſh leaves are fatal to the human ſpecies. *baccata.*

1136. Ephedra, *Shrubby Horſe-tail.*

Two ſpecies; viz. diſtachya, monoſtachya. Siberia, France, Spain.

1138. Cissampelos.

Five ſpecies; viz. pareira, caapeba, ſmilacina, fruticoſa, capenſis. Cape, America.

836. Napæa.

Two ſpecies; viz. lævis, ſcabra. Virginia.

1137. Adelia.

Three ſpecies; viz. bernardia, ricinella, acidoton. Jamaica.

Order XIII. SYNGENESIA.

1139. Ruscus, or *Knee-holly*, or *Butchers-broom.*

Five ſpecies; viz. * aculeatus, hypophyllum, hypogloſſum, androgynus, racemoſus. Hungary, Fr. Italy, Canaries.

Order XIV. GYNANDRIA.

1140. Clutia.

Nine ſpecies; viz. alaternoides, polygonoides, pulchella, hirta, tomentoſa, retuſa, eluteria, ſtipularis, acuminata.

In the claſs Dœcia are

55 Genera, including 219 Species, of which 38 are found in Britain.

CLASSIS XXIII.

POLYGAMIA (o).

Ordo I. MONŒCIA.

1141. Musa. (3) Cal. nullus. Cor. 2-petala. Stam. 6, 1 fertil. Piſt. 1. Bacca infera. (3) Cal. nullus. Cor. 2-petala. Stam. 6, 5 perfect. Piſt. 1. Bacca nulla.

CLASS XXIII.

POLYGAMIA.

Order I. MONŒCIA.

M. (3) No cal. Cor. 2-petaled. Stam. 6, 1 fertile. Piſt. 1. Berry inferior. (3) No cal. Cor. 2-petaled. Stam. 6, 5 perfect. Piſt. 1. No berry.

1146.

(o) The character of this claſs conſiſts of the following circumſtances: that every plant belonging to it produces, 1ſt, Hermaphrodite flowers, that is, flowers having both ſtamens and piſtils in the ſame flower; and, 2dly, In addition to the hermaphrodite flowers, the ſame plant produces alſo other flowers, not hermaphrodite, but either male or female, that is, which have ſtamens, one or more, without piſtils, or the reverſe. The hermaphrodite

* 1146. Holcus. (3) Glum. 1-flora, 2-valv. Stam. 3. Styl. 2. Sem. 1. (1) Glum. 1-flor. 2-valv. Stam. 3.

1149. Cenchrus. (3) Glum. 2-flor. 2-valv. Stam. 3. Styl. 2-fid. Sem. 1. (1) Involucr. idem. Glum. 2-valv. Stam. 3.

1148. Ischæmum. (3) Glum. 2-flor. 2-valv. Stam. 3. Styl. 2. Sem. 1. (1) Glum. eadem, 2-valv. Stam. 3.

1334. Manisuris. (3) Glum. 1-flora. Cor. 2-valvis. Stam. 3. Stylus bifidus. (1) Glum. 1-flora. Cor. 2-valvis. Stam. 3. Valvulæ calycis omnes emarginatæ apice lateribuſque.

1150. Ægilops. (3) Glum. 3-flor. 3-ariſt. Stam. 3. Styl. 2. Sem. 1. (1) Glum. 3-flor. 3-ariſt. Stam. 3.

1333. Spinifex. (3) Glum. 2-flor. 2-valvis. Stam. 3. Styl. 2. (1) Gluma communis, 2-valvis. Stam. 3. Valvulæ omnes calyci parallelæ.

1145. Andropogon. (3) Glum. 1-flor. baſi ariſt. Stam. 3. Styl. 2. Sem. 1. (1) Glum. 1-flor. baſi ariſt. Stam. 3.

1147. Apluda. (3) Cal. gluma communis floſculo fœmineo ſeſſili, maſculis pedunculatis. (2) Cal. 0. Gluma 2-valv. Styl. 1. Sem. 1. (1) Cal. 0. Glum. 2-valv. Stam. 3.

1151. Valantia. (3) Cal. nullus. Cor. 4-partita. Stam. 4. Styl. 2-fid. Sem. 1. (1) Cal. null. Cor. 3 ſ. 4-part. Stam. 3 ſ. 4.

1142. Ophioxylon. (3) Cal. 5-fidus. Cor. 5-fida. Stam. 3. Piſt. 1. (2) Cal. 2-fidus. Cor. 5-fida. Stam. 2.

1143. Celtis. (3) Cal. 5-partitus. Cor. nulla. Stam. 5. Styl. 2. Drupa. (2) Cal. 6-partitus. Cor. nulla. Stam. 6.

1144. Veratrum. (3) Cal. nullus. Cor. 6-petala. Stam. 6. Piſt. 3. Capſ. 3. (1) Cal. nullus. Cor. 6-petala. Stam. 6.

* 1155. Acer. (3) Cal. 5-fidus. Cor. 5-petala. Stam. 8. Styli 2. Capſ. 2-cocca, alata. (1) Cal. 5-fidus. Cor. 5-petala. Stam. 8.

1157. Gouania. (3) Cal. 5-fidus, ſuperus. Cor. 0. Stam. 5. Styl. 3-fidus. Fructus 3-queter, 3-partibilis. (1) Cal. 5-fidus. Cor. 0. Stam. 5.

1158. Mimosa. (3) Cal. 5-dent. Cor. 5-fid. Stam. 4-100. Piſt. 1. Legum. (1) Cal. 5-dent. Cor. 5-fida. Stamina 4-100.

160. Bradeium. (3) Amenti. Cor. 4-partita. Stam. 4. Stylus 2-fidus. Drupa nucleo carnoſo globoſo. (3) Amenti. Cor. 4-partita. Stam. 4. Stylus 2-fidus, abortiens.

1283. Terminalia. (3) Cal. 5-partitus. Cor. 0. Stam. 10. Drupa infera. (1) Cal. 5-partitus. Cor. 0. Stam. 10.

1154. Clusia. (3) Cal. 8-phyllus. Cor. 4 ſ. 6-petala. Antheræ aggreg. Stigm. 4-6. Capſ. 6 loc. polyſperma. (1) Cal. 4 ſ. 6-phyllus. Cor. 6-petala. Stam. pl.

* H. (3) Huſk 1-flowered, 2-valved. Stam. 3. Styles 2. Seed 1. (1) Huſk 1-flowered, 2-valved. Stam. 3.

C. (3) Huſk 2-flowered, 2-valved. Stam. 3. Styl. 2-cleft. Seed 1. (1) Involucr. the ſame. Huſk 2-valved. Stam. 3.

I. (3) Huſk 2-flowered, 2-valved. Stam. 3. Styles 2. Seed 1. (1) Huſk the ſame, 2-valved. Stam. 3.

M. (3) Huſk 1-flowered. Cor. 2-valved. Stam. 3. Style 2-cleft. (1) Huſk 1-flowered. Cor. 2-valved. Stam. 3. All the valves of the calyx notched at the point and the ſides.

A. (3) Huſk 3-flowered, 3-awned. Stam. 3. Styl. 2. Seed 1. (1) Huſk 3-flowered, 3-awned. Stam. 3.

S. (3) Huſk 2-flowered, 2-valved. Stam. 3. Styles 2. (1) Huſk common, 2-valved. Stam. 3. All the valves of the cal. parallel.

A. (3) Huſk 1-flowered, awned at the baſe. Stam. 2. Styles 2. Seed 1. (1) Huſk 1-flowered, awned at the baſe. Stamens 3.

A. (3) Cal. a common huſk, with the female floret ſitting, the male on fruitſtalks. (2) No cal. Huſk 2-valved. Style 1. Seed 1. (1) No cal. Huſk 2-valved. Stamens 3.

V. (3) Cal. none. Cor. 4-parted. Stamens 4. Styl. 2-cleft. Seed 1. (1) No cal. Cor. 3 or 4-parted. Stamens 3 or 4.

O. (3) Cal. 5-cleft. Cor. 5-cleft. Stam. 3. Piſt. 1. (2) Cal. 2-cleft. Cor. 5-cleſt. Stam. 2.

C. (3) Cal. 5-parted. No cor. Stamens 5. Styles 2. Drupe. (2) Cal. 6-parted. No cor. Stam. 6.

V. (3) No cal. Cor. 6-petaled. Stam. 6. Piſt. 3. Capſ. 3. (1) No cal. Cor. 6-petaled. Stamens 6.

* A. (3) Cal. 5-cleft. Cor. 5-petaled. Stamens 8. Styles 2. Capſ. 2-celled, winged. (1) Cal. 5-cleft. Cor. 5-petaled. Stamens 8.

G. (3) Cal. 5-cleft, ſuperior. Cor. 0. Stam. 5. Style 3-cleft. Fruit 3-angular, 3-parted. (1) Cal. 5-cleſt. Cor. 0. Stamens 5.

M. (3) Cal. 5-toothed. Cor. 5-cleft. Stamens 4 to 100. Piſt. 1. Legume. (1) Cal. 5-toothed. Cor. 5-cleft. Stamens 4 to 100.

B. (3) Catkin. Cor. 4-parted. Stamens 4. Style 2-cleft. Drupe, with a fleſhy globular kernel. (3) Catkin. Cor. 4-parted. Stam. 4. Style 2-cleft, barren.

T. (3) Cal. 5-parted. No cor. Stam. 10. Drupe inferior. (1) Cal. 5-parted. No cor. Stamens 10.

C. (3) Cal. 8-leaved. Cor. 4 or 6-petaled. Anthers incorporated. Stigm. 4 to 6. Capſ. 6-celled, many-ſeeded. (1) Cal. 4 or 6-leaved. Cor. 6-petaled. Stamens many.

1332.

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maphrodite flowers of this claſs are uſually imperfect in one of their parts (either ſtamens or piſtils), which renders an additional male or female flower neceſſary. Sometimes there are two hermaphrodite flowers on the ſame plant of different powers; and this circumſtance conſtitutes the polygamy, or is underſtood to bring the plant under the preſent claſs. As in the two former claſſes, the male and female flowers are here diſtinguiſhed by prefixing to them the figures (1) and (2). The hermaphrodite flowers are here marked (3).

1332. Hermas. (3) Umbella. Floris cor. 5-petala. Stam. 5, ſterilia. (1) Umbella. Florum cor. 5-petala. Stam. 5, fertilia. Styli 2. Sem. 2, infera, ſuborbiculata.

* 1152. Parietaria. (3) Cal. 4-fidus. Cor. nulla. Stam. 4. Styl. 1. Sem. 1. (2) Cal. 4-fidus. Cor. nulla. Styl. 1. Sem. 1.

* 1153. Atriplex. (3) Cal. 5-phyll. Cor. nulla. Stam. 5. Styl. 2-fid. Sem. 1. (2) Cal. 2-phyllus. Cor. nulla. Styl. 1-fid. Sem. 1.

Æſculus. Mammea. Jacq. Euphorbia. Melothria. Ilex.

Ordo II. DIŒCIA.

1266. Panax. (3) Umbel. Cal. 5-dent. Cor. 5-petala. Stam. 5. Styl. 2. Bacc. 2-ſperm. (1) Umbel. Cal. integ. Cor. 5-petala. Stam. 5.

1161. Diospyros. (3) Cal. 4-fidus. Cor. 4-fida. Stam. 8. Styl. 4-fid. Bacca 8-ſperma. (1) Cal. 4-fidus. Cor. 4-fida. Stam. 8.

1335. Chrysitrix. (3) Gluma 2-valvis. Cor. paleæ numeroſæ. Stam. multa mixta paleis. Piſt. 1. (1) Glum. 2-valvis. Cor. paleæ numeroſæ. Stam. multa mixta paleis.

1336. Stilbe. (3) Cal. exter. 3-phyllus, inter. 5-dentatus, cartilagineus. Cor. 5-fida. Stam. 4. Styl. 1. Sem. 1. (1) Cal. exter. 3-phyllus, inter. nullus. Cor. 5-fida. Stam. 4.

1163. Nyssa. (3) Cal. 5-partitus. Cor. nulla. Stam. 5. Piſt. 1. Drupa infera. (1) Cal. 5-partitus. Cor. nulla. Stam. 10.

* 1160. Fraxinus. (3) Cal. o. f. 4-part. Cor. o. f. 4-pet. Stam. 2. Piſt. 1. Sem. 1. (3) Cal. o. f. 4-pet. Cor. o. f. 4-pet. Stam. 2. Piſt. 1. Sem. 1.

1164. Anthospermum. (1) Cal. 4-fidus. Cor. nulla. Stam. 4. (2) Cal. 4-fid. Cor. nulla. Styl. 2. Peric. inferum.

1165. Arctopus. (1) Umbella. Cor. 5-petala. Stam. 5. (3) Invol. maxim. Cor. 5-petala. Stam. 5. (1) Umb. Cor. 5-petala. Styl. 2. Sem. 1, biloculare.

1159. Gledistia. (3) Cal. 4-fidus. Cor. 4-petala. Stam. 6. Piſt. 1. Legum. (1) Cal. 3 phyll. Cor. 3-petala. Stam. 6. (2) Cal. 5-phyll. Cor. 5-petala. Piſt. 1. Legumen.

1163. Pisonia. (3) Cal. nullus. Cor. 5-fida. Stam. 6. Piſt. 1. Capſ. 5-valvis. (1) Cal. nullus. Cor. 5-fida. Stam. 6. (2) Cal. nullus. Cor. 5-fida. Piſt. 1. Capſ. 5-valvis.

Ilex aquifolium. Rhamnus alaternus. Guilandina.

Ordo III. TRIŒCIA.

1167. Ceratonia. (3) Cal. 5-partitus. Cor. o. Stam. 5. Styl. 1. Legum. coriaceum, polyſperm. (1) Cal. 5-partitus. Cor. o. Stam. 5. (2) Cal. ſub-5-dent. Cor. o. Stylus 1. Legum. coriaceum, polyſperm.

1168. Ficus. Recept. commune turbinatum, conniventi clauſum, carnoſum. (3) Cal. 5-partitus. Cor. o. Piſt. 1. Sem. 1. (1) Cal. 3-partitus. Cor. o. Stam. 3. (1) & (2) intra idem receptaculum commune diſtinctis fructificationibus partialibus.

H. (3) Umbel. Cor. in the flowers 5-petaled. Stamens 5, barren. (1) Umbel. Cor. of flowers 5-petaled. Stamens 5, fertile. Styles 2. Seeds 2, inferior, nearly orbicular.

* P. (3) Cal. 4-cleft. No cor. Stam. 4. Style 1. Seed 1. (2) Cal. 4-cleft. No cor. Style 1. Seed 1.

* A. (3) Cal. 5-leaved. No cor. Style 1. Seed 1. (3) Cal. 2-leaved. No cor. Style 1-cleft. Seed 1.

Order II. DIŒCIA.

P. (3) Umbel. Cal. 5-toothed. Cor. 5-petaled. Styles 2. Berry 2-ſeeded. (1) Umbel. Cal. entire. Cor. 5-petaled. Stam. 5.

D. (3) Cal. 4-cleft. Cor. 4-cleft. Stam. 8. Styl. 4-cleft. Berry 8-ſeeded. (1) Cal. 4-cleft. Cor. 4-cleft. Stamens 8.

C. (3) Huſk 2-valved. Cor. ſtraws, numerous. Stamens many, mixed with ſtraws. Piſt. 1. (1) Huſk 2-valved. Cor. ſtraws, numerous. Stamens many, mixed with ſtraws.

S. (3) Cal. outer 3-leafed; inner 5-toothed, cartilaginous. Cor. 5-cleft. Stam. 4. Style 1. Seed 1. (1) Outer cal. 3-leaved, inner none. Cor. 5-cleft. Stamens 4.

N. (3) Cal. 5-parted. No cor. Stam. 5. Piſt. 1. Drupe inferior. (1) Cal. 5-parted. No cor. Stamens 10.

* F. (3) Cal. none, or 4-parted. Cor. none, or 4-petaled. Stam. 2. Piſt. 1. Seed 1. (3) Cal. none, or 4-parted. Cor. none, or 4-petaled. Stamens 2. Piſt. 1. Seed 1.

A. (1) Cal. 4-cleft. No cor. Stam. 4. (2) Cal. 4-cleft. No cor. Styl. 2. Seed-veſſel inferior.

A. (1) Umbel. Cor. 5-petaled. Stam. 5. (3) Involucrum very large. Cor. 5-petaled. Stamens 5. (1) Umbel. Cor. 5-petaled. Styles 2. Seed 1, 2-celled.

G. (3) Cal. 4-cleft. Cor. 4-petaled. Stamens 6. Piſt. 1. Legume. (1) Cal. 3-leaved. Cor. 3-petaled. Stam. 6. (2) Cal. 5-leaved. Cor. 5-petaled. Piſt. 1. Leguminous.

P. (3) No cal. Cor. 5-cleft. Stam. 6. Piſt. 1. Capſ. 5-valved. (1) No cal. Cor. 5-cleft. Stam. 6. (2) No cal. Cor. 5-cleft. Piſt. 1. Capſ. 5-valved.

Order III. TRIŒCIA.

C. (3) Cal. 5-parted. No cor. Stam. 5. Styl. 1. Legume leather-like, many-ſeeded. (1) Cal. 5-parted. No cor. Stamens 5. (2) Cal. nearly 5-toothed. No cor. Style 1. Legume leather-like, many-ſeeded.

F. Common receptacle turban-ſhaped, converging, cloſed, fleſhy. (3) Cal. 5-parted. No cor. Piſt. 1. Seed 1. (1) Cal. 3-parted. No cor. Stamens 3. (1) and (2) both within the ſame common receptacle, with diſtinct partial fructifications.

Order

Order I. MONŒCIA.

1141. Musa, or *Plantain-tree.*
Three ſpecies; viz. paradiſaica, ſapientum, troglodytarum. E. and W. Indies.

1144. Veratrum, or *White Hellebore.*
Three ſpecies; viz. album, nigrum, luteum. Ruſſia, Auſtria, Italy, N. America.—The *V. album* grows ſpontaneouſly on the mountains of Switzerland and Germany. The root is nauſeous and acrid. If wounded, when freſh, it emits an acrid juice, which is ſaid to prove dangerous when mixed with the blood by an wound. The powder of the dry root applied to an iſſue, occaſions violent purging. Snuffed up the noſe, it is a ſtrong, but not always a ſafe ſternutatory. It is alſo a violent emetic. The ancients uſed it in deſperate caſes, but modern practice rejects it, though it is ſaid to have been given with ſucceſs to the amount of a ſcruple in caſes of mania.

1333. Spinifex.
One ſpecies; viz. ſquarroſus. E. Indies.

1145. Andropogon, or *Beard-graſs.*
25 ſpecies; viz. caricoſum, contortum, crinitum, divaricatum, gryllus, nutans, ciliatum, ſerratum, cotuliferum, cymbarium, ſquarroſum, proſtratum, alopecuroides, diſtachyum, ſchœnanthus, virginicum, bicorne, hirtum, inſulare, barbatum, nardus, muticum, iſchæmum, faſciculatum, polydactylon. S. Europe, E. and W. Indies, America.

The *A. nardus*, Indian nard or ſpikenard, as it comes from the Eaſt Indies, is a matted congeries of fibres iſſuing from one head, and probably forming the root of the plant. Spikenard has a warm, pungent, bitteriſh taſte, and a ſtrong not very agreeable ſmell. It is ſtomachic and carminative; and ſaid to be alexipharmac, diuretic, and emmenagogue; but is at preſent little employed.

1146. Holcus, or *Indian Millet.*
14 ſpecies; viz. * avenaceus, * lanatus, * mollis, ſpicatus, bicolor, ſorghum, halepenſis, ſaccharatus, laxus, ſtriatus, ſerratus, odoratus, latifolius, pertuſus. N. Europe, India, N. America.

lanatus. * H. huſks two-flowered, woolly; hermaphrodite floret awnleſs; male floret with a bent awn, incloſed in the calyx.—This graſs flouriſhes well on any moiſt ſoil, and grows very generally, except on the moſt dry and barren ones. It ſhould be ſown chiefly with a view to paſturage by ſheep. It makes a ſoft ſpongy hay unfit for horſes.

1147. Apluda.
Four ſpecies; viz. mutica, ariſtata, zeugites, digitata. E. and W. Indies, N. America.

1148. Iſchæmum.
Two ſpecies; viz. muticum, ariſtatum. India, China, Carolina.

1149. Cenchrus, or *Hedgehog-graſs.*
Nine ſpecies; viz. racemoſus, lappaceus, muricatus, capitatus, echinatus, tribuloides, ciliaris, granularis, fruteſcens. S. Europe, Virginia, W. Indies.

1150. Ægilops, or *Hard-graſs.*
Four ſpecies; viz. ovata, caudata, triuncialis, ſquarroſa. S. Europe, Carolina.

1334. Maniswris.
One ſpecies; viz. myurus. E. and W. Indies, N. America.

1151. Valantia, or *Croſs-wort.*
Eight ſpecies; viz. * aparine, * cruciata, muralis, hiſpida, cucullaria, articulata, glabra, hypocarpa. Auſtria, S. Europe, Canaries, Jamaica.

1152. Parietaria, or *Pellitory.*
Eight ſpecies; viz. * officinalis, indica, judaica, luſitanica, urticæfolia, cretica, zeylanica, microphylla. S. Europe, Canaries, Iſle of Bourbon.

1153. Atriplex, or *Orache, Sea Purſlane-tree.*
12 ſpecies; viz. * haſtata, * laciniata, * littoralis, * patula, * pedunculata, * portulacoides, halymus, glauca, roſea, ſibirica, tatarica, hortenſis. Europe, Tartary, America.

1283. Terminalia, or *Benzoin.*
Two ſpecies; viz. catappa, benzoin. E. Indies.—From the laſt of theſe ſpecies a reſin of the ſame name is ſuppoſed to be extracted, though others repreſent it as the product of another plant called *ſtyrax benzoe.* Benzoin is uſed in perfumes, and as a coſmetic.

160. Brabeium, or *African Almond.*
One ſpecies; viz. ſtellulifolium.

1154. Clusia, or *Balſam-tree.*
Four ſpecies; viz. roſea, alba, flava, venoſa. America, Jamaica.

1142. Ophioxylum.
One ſpecies; viz. ſerpentinum. E. Indies.

1155. Acer, *Maple-tree.*
17 ſpecies; viz. * campeſtre, * pſeudoplatanus, ſempervirens, tataricum, rubrum, ſaccharinum, diſſectum, japonicum, palmatum, ſeptemlobum, pictum, platanoides, penſylvanicum, monſpeſſulanum, creticum, trifidum, negundo. Europe, N. America, Japan.

* A. leaves 5-lobed, blunt, unequally ſerrated; flow- *pſeudo-*
ers in compound pendent bunches. *Sycamore-tree, ſy-* *platanus.*
camore maple.—It flouriſhes beſt in open places and ſandy ground, but will thrive in a richer ſoil. It grows quick, is eaſily tranſplanted, bears cropping, and the graſs flouriſhes under its ſhade. It is ſaid to grow well near the ſea, and that a plantation of theſe trees, at 50 feet aſunder, with three ſea-fallow thorns between every two of them, will make a fence ſufficient to defend the herbage of the country againſt the ſea ſpray. *Gent. Mag.* 1757, p. 252. The wood is ſoft and very white, and is uſed by the turners. By boring a hole into the body of the tree, when the ſap riſes in ſpring, a ſweetiſh watery liquor is obtained, which is uſed in making wine, and, if inſpiſſated, affords a fine ſugar. From the *A. ſaccharinum* large quantities of ſugar are annually thus made in North America. See United States, and Sugar.

1143. Celtis, or *Lote, Nettle-tree.*
Three ſpecies; viz. auſtralis, occidentalis, orientalis. S. Europe, Virginia, W. Indies.

1157. Gowania, or *Chaw-ſtick.*
One ſpecies; viz. domingenſis. W. Indies.

1332. Hermas.
Five ſpecies; viz. depauperata, gigantea, capitata, quinque-dentata, ciliata. C. of G. Hope.

1158. Mimosa, or *Senſitive Plant.*
53 ſpecies; viz. ſimplicifolia, inga, fagifolia, nodoſa, natans, bigemina, unguis-cati, tergemina, latifolia, purpurea, reticulata, viva, circinalis, cinerea, caſta, ſenſitiva, pudica, entada, ſcandens, plena, virgata, punctata, pernambucana, arborea, lebbeck, odoratiſſima, ſpecioſa, vaga, latiſiliqua, polyſtachya, muricata, peregrina, glauca, cinerea, cornigera, catechu, horrida, eburnea, latronum, tortuoſa, farneſiana, nilotica, pigra, aſperata, ſenegal, cæſia, pinnata, intſia, ſemiſpinoſa, quadrivalvis, tenuifolia, ceratonia, tamarindifolia. Egypt, E. and W. Indies, New Holland. —The plants of this genus poſſeſs the ſingular property of ſhrinking or drawing in their leaves, when touched, which has obtained for them the Engliſh appellation of *ſenſitive plants*. From the ſpecies *M. catechu* a vegetable extract is obtained, which has long improperly received the appellation of *terra japonica* or Japan earth. This extract is outwardly of a reddiſh colour, internally of a dark brown, with a ſlight caſt of red. It is capable of being reduced to the ſtate of a powder; and is a mild, but powerful aſtringent. It is particularly uſeful in alvine fluxes; and where theſe require aſtringents, no one is ſo beneficial. It is likewiſe employed in uterine profluvia, and in laxity and debility of the viſcera in general. It is often ſuffered to diſſolve leiſurely in the mouth, as a topical aſtringent, for laxities and exulcerations of the gums, for apthous ulcers in the mouth, and ſimilar affections: and it is in ſome other caſes applied externally under the form of ſolution, and as an ointment. Catechu diſſolves in water, with the exception of its impurities, which amount to an eighth part of the maſs. Rectified ſpirit diſſolves ſeven-eighths of the pure matter into a red liquor, leaving, undiſſolved, an inſipid mucilaginous ſubſtance. The beſt form of adminiſtering it is that of ſimple infuſion in warm water, with the addition of ſome cinnamon or caſſia. From the *M. nilotica* gum arabic exudes, the uſes of which are well known to be extremely numerous. The inſpiſſated juice of the unripe fruit of this tree is termed *acacia*, and is uſed as a mild aſtringent medicine.

Order II. DIŒCIA.

1159. Gleditsia, or *Three-horned Acacia.*
Two ſpecies; viz. triancanthos, inermis. Java, N. America.

1160. Fraxinus, or *Aſh-tree.*
Three ſpecies; viz. * excelſior, ornus, americana. S. Europe, N. America.
* F. leafets ſerrated; flowers without petals.—It flouriſhes beſt in groves, but grows in a rich ſoil, though in the open field. It bears tranſplanting and lopping. Horſes, cows, ſheep, and goats, eat it; but it is ſaid to ſpoil the milk of cows. It will give a good, though not a beautiful green, to cloths that have been dyed blue. The wood is nearly as good when young as when old. It is hard and tough, and much uſed to make the tools employed in huſbandry. The bark is uſed to tan calf-ſkin. An infuſion of the leaves, from half an ounce to an ounce, is a very good purge; and a decoction of two drams of the bark, or of ſix drams of the leaves, has been uſed to cure agues.

1161. Diospyros, or *Indian Date-plum.*
Five ſpecies; viz. lotus, virginiana, kaki, hirſuta, ebenum. Italy, Barbary, Ceylon, N. America, Japan.

1163. Nyssa, or *Tupelo-tree.*
One ſpecies; viz. aquatica. N. America.

1164. Anthospermum, or *Amber-tree.*
Three ſpecies; viz. æthiopicum, ciliare, herbaceum. C. of G. Hope.

1336. Stilbe.
Three ſpecies; viz. pinaſtra, ericoides, cernua. C. of G. Hope.

1165. Arctopus.
One ſpecies; viz. echinatus. C. of G. Hope.

1162. Pisonia, or *Fingrido.*
Two ſpecies; viz. aculeata, inermis. W. Indies.

1166. Panax, or *Ginſeng.*
Five ſpecies; viz. quinquefolium, trifolium, ſpinoſa, arborea, fruticoſum. China, North America, Weſt Indies.—The root of the *P. quinquefolium* is the ginſeng of the Chineſe, of which they have an extraordinary opinion, regarding it as an univerſal reſtorative in all decays from age, intemperance, or diſeaſe. It is alſo found in North America, and frequently exported from thence to China. It has a very ſweet taſte, accompanied with a ſlight bitterneſs and warmth.

1335. Chrysitrix.
One ſpecies; viz. capenſis. C. of G. Hope.

Order III. TRIŒCIA.

1168. Ceratonia, or *Crab-tree, St John's Bread.*
One ſpecies; viz. filiqua. Spain, Sicily, Levant, Chili.

1168. Ficus, or *Fig-tree.*
15 ſpecies; viz. carica, ſycomorus, religioſa, benjamina, benghalenſis, indica, racemoſa, pertuſa, pumila, toxicaria, maculata, trigona, hiſpida, heterophylla, microcarpa. S. Europe, India, China, America. —The dried fruit of the *F. carica* or ordinary fig-tree, is ſometimes uſed in medicine as a ſoft emollient ſweet ſubſtance. It is much eſteemed by ſome as a ſuppurative; in which caſe it is applied as warm as it can well be endured.

In the claſs Polygamia are

34 Genera, including 222 Species, of which 15 are found in Britain.

CLASSIS

CLASSIS XXIV.
CRYPTOGAMIA (o).

Ordo I. FILICES.

Sect. I. *Fructificationes ſpicatæ.*

* 1169. Equiſetum. Spica ſparſa. Fructif. peltatæ, baſi valvulatæ.

1222. Cycas. (1) Ament. imbricatum. Pollen ſquamam tegens. (2) Spadix enſiformis. Drupa nucleo lignoſo.

1227. Zamia. (1) Strobilus ſquamis ſubtus polline tectis. (2) Strobilus ſquamis in utroque margine. Drupa ſolitaria.

1170. Onoclea. Spica diſticha. Fructif. 5-valves.

* 1171. Ophioglossum. Spica articulata. Fructif. circumſciſſæ.

* 1172. Osmunda. Spica racemoſa. Fructif. 2-valves.

Sect. II. *Fructificationes frondoſæ, in pagina inferiore.*

* 1173. Acroſtichum. Macula diſcum totum occupans.

* 1179. Polypodium. Puncta diſci diſtincta.

CLASS XXIV.
CRYPTOGAMIA.

Order I. FERNS.

Sect. I. *Fructifications ſpiked.*

* E. Spike ſcattered. Fructifications target-ſhaped, valved at the baſe.

C. (1) Catkin tiled. Pollen or duſt covering the ſcale. (2) Sheath ſword-ſhaped. Drupe with a woody kernel.

Z. (1) A cone with ſcales covered beneath with pollen. (2) A cone with ſcales in each border. Drupe ſolitary.

O. A 2-rowed ſpike. Fructifications 5-valved.

* O. A jointed ſpike. Fructifications cut round.

* O. Spike branchy. Fructifications 2-valved.

Sect. II. *Fructifications frondoſe, in the under ſurface.*

* A. A ſpot occupying the whole diſc.

* P. Diſtinct dots on the diſc.

(o) This claſs contains a number of vegetables whoſe ſtamens and piſtils are too minute to admit of that mode of inveſtigation which prevails through the preceding claſſes. The ſtructure too of theſe vegetables differs conſiderably from that of other plants.

The *Filices* or *Ferns* conſtitute the firſt order. Their flowers are generally diſpoſed in ſpots or lines on the under ſurface of the leaves, but ſometimes in ſpikes. In the male flowers the anthers are found ſitting or ſupported on a very ſhort filament, egg-ſhaped or globular, ſcattered on the under ſurface of the leaves. The male flowers unite ſo as to form a ſpike or bunch, or form lines or dots underneath the leaves, either on the ſurface at the edge, or at the point. In ſome caſes they entirely cover the under ſurface. None of the flowers have any corolla, or even a calyx, excepting perhaps a ſcale formed from the leaf, opening, containing globules. The ſeeds are very minute, and globular.

The ſecond order, called *Muſci* or *Moſſes*, have the female parts of fructification incloſed in a veil, which adheres to the top of the ripe capſule, and covers it. Capſule opening tranſverſely. Stems leafy. Leaves membranaceous, reticulated; after being dead, reviving when ſoaked in water. In general the ſtamens and piſtils are on ſeparate flowers on the ſame or diſtinct plants.

The third order, or *Algæ*, includes a diviſion of plants which ſcarcely admit of a diſtinction of root, ſtem, and leaf; much leſs can the parts of their flowers be deſcribed. Their ſubſtance is fleſh-like or leather-like, membranaceous or fibrous, jelly-like or horn-like, or reſembling calcareous earth. The female fructifications are either found in ſaucers or tubercles, as in *lichens;* in hollow bladders, as in *fucus;* or diſperſed through the ſubſtance of the plant, as in *ulva*. The aquatic genera, which grow on the ſea coaſt, are called, in ordinary language, *ſea-weeds*, or *ſea-ware*, and by incineration, produce ſoda or mineral alkali. The lichens are of much importance in the economy of nature. They grow on the bareſt rocks, and their remains form a ſoil on which better vegetables afterwards flouriſh. Some of them afford valuable colours.

The order of *Fungi*, or *Muſhrooms*, conſiſts of plants moſtly of a cork-like texture, and ſhort duration, bearing their ſeeds either in gills or tubes, or attached to fibres or to a ſpongy ſubſtance. As little is known of their fructification, the generic characters are taken from their external form.

1176. Hemionitis. Lineæ diſci decuſſantes.
* 1178. Aſplenium. Lineæ diſci ſubparallelæ, variæ.
* 1175. Blechnum. Lineæ diſci coſtæ utrinque adjacentes.
1177. Lonchitis. Lineæ marginis ad ſinus.
* 1174. Pteris. Lineæ marginis ad peripheriam.
* 1180. Adianthum. Maculæ apicum margine reflexo obtectum.
* 1181. Trichomanes. Fr. ſolitariæ, margini ipſi inſertæ.

H. Lines of the diſc croſs pairs.
* A. Lines of the diſc nearly parallel, various.

* B. Lines of the diſc adjacent to the rib on each ſide.

L. Lines at the inſide of the margin.
* P. Lines at the extremity of the margin.
* A. Spots covered with the reflected margin of the points.
* T. Fructifications ſolitary, placed on the very margin.

Sect. III. *Fructificationes radicales.*

1182. Marsilea. Fruct. 4-capſularis.
* 1183. Pilularea. Fruct. 4-locularis.
* 1184. Isoetes. Fruct. 2-locularis.

Sect. III. *Fructifications at (or very near) the root.*

M. Fructification 4-capſuled.
* P. Fructif. 4-celled.
* I. Fructif. 2-celled.

Ordo II. MUSCI.

Order II. MOSSES.

Sect. I. *Acalyptrati.*

* 1185. Lycopodium. Anthera 2-valvis, ſeſſilis.
1186. Porella. Anthera pertuſa poris.
* 1187. Sphagnum. Anthera ore lævi.

Sect. I. *Not calyptred*, i. e. *not veiled.*

* L. Anther 2-valved, ſitting.
P. Anther pierced with holes.
* S. Anther with a level mouth.

Sect. II. *Calyptrati diclini.*

* 1191. Splachnum. Anth. cum apophyſi maxima.
* 1192. Polytrichum. Anth. cum apophyſi minima, marginata.
* 1193. Mnium. Anth. ſine apophyſi.

Sect. II. *Veiled dioicous.*

* S. Anth. with a very large excreſcence.
* P. Anth. with a very ſmall excreſcence, bordered.

* M. Anth. without an excreſcence.

Sect. III. *Calptrati monoclini.*

* 1189. Phascum. Anth. operculata, ore ciliato.
* 1194. Bryum. Anth. pedunculo terminali è tuberculo.
* 1195. Hypnum. Anth. pedunculo laterali è perichætio.
* 1190. Fontinalis. Anth. ſeſſilis, perichætio imbricato obvoluta.
* 1188. Buxbaumia. Anth. pedunculata, altero latere membranacea.

Sect. III. *Veiled monoicous.*

* P. Anth. lidded, mouth fringed.
* B. Anth. on a terminal fruit-ſtalk ariſing out of a little ſolid pimple.
* H. Anth. on a lateral fruit-ſtalk out of an involucrum or cover.
* F. Anth. ſitting, enveloped in a tiled cover.

* B. Anth. on a fruit-ſtalk, one ſide membranous.

N. B. The term *anthera* in this order ought rather to be tranſlated by the word *capſule*, as there are ſeeds contained in it.

Ordo III. ALGÆ.

Order III. ALGÆ.

Sect. I. *Terreſtres.*

* 1198. Marchantia. Fl. calyci communi peltato, ſubtus florido.
* 1196. Jungermannia. Fl. calyci ſimplici, 4-valvi.
* 1197. Targionia. Fl. calyci 2-valvi.
* 1201. Anthoceros. Fl. calyce tubuloſo. Anther. ſubulata, bivalvis.
* 1199. Blasia. Fr. cylindrica, tubuloſa.
* 1200. Riccia. Fr. granulis frondi innatis.
* 1202. Lichen. Fr. receptaculo lævi nitido.
1208. Byssus. Subſtantia lanuginoſa, vel pulverulenta.

Sect. I. *Terreſtrial.*

* M. Flower with a common calyx, target-ſhaped, flowering underneath.
* J. Flow. calyx ſimple, 4-valved.
* T. Flow. calyx 2-valved.
* A. Flow. calyx tubular. Anther awl-ſhaped, 2-valved.
* B. Fructif. cylindrical, tubular.
* R. Fructif. granules imbedded in the frond.
* L. Fructif. receptacle even, ſhining.
B. Subſtance downy, or powdery.

Sect.

Sect. II. *Aquaticæ.*

* 1204. Tremella. A. gelatinoſa.
* 1206. Ulva. A. membranacea.
* 1205. Fucus. A. coriacea.
* 1207. Conferva. A. capillaris.

Ordo IV. FUNGI.

Sect. I. *Pileati.*

* 1209. Agaricus. Pileus ſubtus lamelloſus.
* 1210. Boletus. Pileus ſubtus poroſus.
* 1211. Hydnum. Pileus ſubtus echinatus.
* 1212. Phallus. Pileus ſubtus lævis.

Sect. II. *Pileo deſtituti.*

* 1213. Clathrus. F. cancellatus.
* 1214. Helvella. F. turbinatus.
* 1215. Peziza. F. campanulatus.
* 1216. Clavaria. F. oblongus.
* 1217. Lycoperdon. F. globoſus.
* 1218. Mucor. F. veſicularis ſtipitatus.

Sect. II. *Aquatic.*

* T. A. gelatinous.
* U. A. membranous.
* F. A. leather-like.
* C. A. capillary.

Order IV. FUNGI.

Sect. I. *With a cap.*

* A. Cap gilled underneath.
* B. Cap porous underneath.
* H. Cap prickly underneath.
* P. Cap leavel beneath.

Sect. II. *Without a cap.*

* C. F. latticed.
* H. F. turban-ſhaped.
* P. F. bell-ſhaped.
* C. F. oblong.
* L. F. globular.
* M. F. little bladders on a pillar.

Without reciting the names of the ſpecies of this claſs, we ſhall ſtate their numbers, and ſuch circumſtances relative to particular kinds of plants belonging to it as ſeem moſt worthy of attention.

Order I. FERNS.

1169. Equiſetum.
Seven ſpecies; of which ſix are Britiſh.

hyemale. * E. ſtem naked, rough, ſomewhat branched at the baſe. *Rough horſetail, ſhave-graſs, pewter-wort, Dutch ruſhes.*—The turners or cabinet-makers uſe it to poliſh their work. It is ſaid to be wholeſome to horſes, but hurtful to cows. Sheep diſlike it.

1222. Cycas, or *Todda Pana.*
Two ſpecies. E. Indies, China, Japan.

1227. Zamia.
Two ſpecies. Cape, E. Florida, W. Indies.

1170. Onoclea, or *Senſible Fern.*
Two ſpecies. N. America.

1171. Ophioglossum, or *Adder's Tongue.*
Nine ſpecies; one Britiſh. Europe, E. and W. Indies, America.

1172. Osmunda, or *Flowering fern.*
21 ſpecies; 4 Britiſh. Europe, America.

1173. Acroſtichum, or *Forked-fern.*
35 ſpecies; 2 Britiſh. Europe, Africa, America.

1179. Polypodium, or *Polypody.*
78 ſpecies; 18 Britiſh. Europe, Madeira, India, America.

filix-mas. * P. leaves almoſt doubly winged; leafets ſtrap-ſpear-ſhaped; ſtem and midribs chaffy. *Male fern, male polypody.*—The Siberians boil it in their ale, and are fond of the flavour it imparts. The powder of the root is a remedy for expelling the tape-worm. A liquid lubricating ſupper is given to the patient; and, if coſtive, a common glyſter. Early next morning two or three drams of the root in powder are mixed with water, and ſwallowed. If thrown up, the doſe muſt be repeated. The patient muſt faſt two hours, and then take a ſtrong purge.

1176. Hemionitis, or *Mules-fern.*
Four ſpecies. Jamaica, S. America.

1178. Aſplenium, or *Spleenwort.*
28 ſpecies; 9 Britiſh. Europe, Java, America.

1175. Blechnum.
Six ſpecies; one Britiſh. America, Cape, E. Ind.

1177. Lonchitis, or *Rough Spleenwort.*
Four ſpecies. Jamaica, S. America.

1174. Pteris, *Brakes* or *Female-fern.*
23 ſpecies; two Britiſh. Europe, E. and W. Indies, N. America, China.

aquilina. * P. leaves more than doubly compound; leafets winged; wings ſpear-ſhaped; the lowermoſt wing-cleft, the upper ones ſmaller.—The common people in many parts of England mix the aſhes with water, and form them into balls; theſe balls are afterwards made hot in the fire, and then uſed to make an alkaline ley for ſcouring linen. It makes very durable thatch, and is excellent litter for horſes and cows. It affords a violent heat, and where coal is ſcarce, is uſed to burn limeſtone and heat ovens.

1180. Adiantum, or *Maiden-hair.*
27 ſpecies; one Britiſh. Europe, Africa, Amer.

1181.

1181. Trichomanes, or *Tunbridge Maiden-hair.*
13 ſpecies; two Britiſh. S. Europe, Cape, China, America.

1182. Marsilea.
Three ſpecies. Siberia, France, Italy, S. Amer.

1183. Pilularia, or *Pepper-graſs.*
One ſpecies; Britiſh.

1184. Isoetes, or *Quillwort.*
Two ſpecies; one Britiſh. Coromandel.

Order II. MUSCI.

1185. Lycopodium, or *Club-moſs.*
29 ſpecies; three Britiſh. E. and W. Indies, Madeira, America.

clavatum. * L. leaves ſcattered, terminating in threads; ſpikes cylindrical, on fruitſtalks, in pairs. *Common club moſs, Wolf's claw.*—In Sweden they form it into mats or baſſes, which lie at their doors to clean ſhoes upon. It reſtores ropy wine in a few days. The ſeeds flaſh when caſt into a flame, and are ſaid to be ſometimes uſed in theatres to imitate lightning. They are with difficulty made wet, and if ſcattered on a baſon of water, the hand may be dipped to the bottom without wetting it.

1186. Porella.
One ſpecies. Pennſylvania.

1287. Sphagnum, or *Bog-moſs.*
Three ſpecies; all found in Britain.

1191. Splachnum, or *Bottle-moſs.*
13 ſpecies; 12 Britiſh. Europe.

1192. Polytrichum, or *Golden Maiden-hair.*
18 ſpecies; 16 Britiſh. Jamaica, Magellan.

1193. Mnium.
20 ſpecies; all Britiſh.

1189. Phascum.
13 ſpecies; 11 Britiſh. Europe, N. America.

1194. Bryum.
93 ſpecies; Britiſh.

1195. Hypnum.
70 ſpecies; all Britiſh. W. Indies, &c.

1190. Fontinalis, or *Water-moſs.*
Six ſpecies; Britiſh.

antipyretica. * F. capſules lateral; leaves acute, keeled, doubled together, diſpoſed in three rows. *Greater water-moſs.*—Contrary to the nature of all other moſſes, this ſpecies is ſcarcely combuſtible. Accordingly, the Scandinavians line the inſide of their chimnies with it to defend them againſt fire.

1188. Buxbaumia.
Two ſpecies; one Britiſh. Europe.

Order III. ALGÆ.

1198. Marchantia, or *Liver-green.*
Seven ſpecies; five Britiſh. N. America, W. Ind.

1196. Jungermannia, or *Star-tip.*
48 ſpecies; Britiſh.

1197. Targionia.
Two ſpecies; Britiſh. S. Europe.

1201. Anthoceros.
Three ſpecies; two Britiſh. N. Amer. Jamaica.

1199. Blasia.
One ſpecies; Britiſh.

1200. Riccia, or *Marſh Liverwort.*
Five ſpecies; Britiſh. Jamaica.

1202. Lichen, or *Liverwort.*
218 ſpecies; all Britiſh. Alſo Cape, India, America.

Lord Dundonald obtained a patent, dated July 31. 1802, for the diſcovery of a ſubſtitute for the foreign gums, to be obtained from the plants of this genus. The ſpecification of his lordſhip's patent is in theſe terms: "My invention conſiſts in procuring a ſubſtitute or ſubſtitutes for gum ſenegal, or other gums, from the claſs of plants called in botany *lichens;* from the plants of hemp and flax, previous to being ſteeped in water, or after being ſteeped; likewiſe from the bark or rind of the willow or lime tree. The proceſs for obtaining the gum may be varied according to circumſtances, and is done by waſhing the materials in water, digeſtion, and boilings, and with or without the aid of fixed or volatile alkaline ſalts or their ſolutions.

"It does not appear, from ſuch trials as I have hitherto made, that there is any very great difference of the produce of gum from the lichen collected from different trees or ſhrubs: all of them anſwer equally well for yielding a gum fit for calico printing. The lichen is moſt abundant on the trees which grow on a poor ſtiff clay ſoil, and particularly if ſituated at ſome conſiderable height above ſea level. It ſhould be pulled in dry weather, otherwiſe it is apt to break in the pulling; beſides, in this caſe, requiring to be dried before it can with ſafety be laid up in the ſtorehouſe, where, if put in dry, it may be kept for years. Should a ſufficient quantity of it not be found in this country, it may be had in almoſt unlimited abundance in Sweden, Norway, and in the northern parts of America, where it grows to the length of from a foot to 18 inches, depreſſing the branches of the tree by its weight. There is, however, every reaſon to believe that a ſufficient quantity is to be had in this country. According to information received from botaniſts, it takes three or four years in coming to maturity or its full ſize; ſo that a crop from the ſame tree may be had every fourth year. The lichen does not conſiſt entirely of a gummy matter; there is the outer ſkin or cuticle, below that a green reſinous matter. The remainder of the plant conſiſts of partly gum, partly ſomewhat analogous to animal ſubſtances, and a ſmall proportion of fibrous matter, which cannot be diſſolved by boiling, or the action of alkaline ſalts.

"The firſt proceſs in preparing gum from the lichen, is to free it of the outer ſkin of the plant and the reſinous matter. This is done by ſcalding the lichen two or three times with boiling water, allowing it to remain ſo long in the water as by abſorbing it to ſwell; in doing this the ſkin cracks, and comes off along with the greateſt part of the reſinous matter; or it may be freed from them by gently boiling the lichen for about 15 or 20 minutes, then waſhing it in cold water,

water, laying it afterwards on a ſtone or brick floor, where it ſhould lie for 10 or 12 hours, perhaps more. The reaſon for this is, that the expoſure for that time to air, greatly facilitates the ſubſequent extraction of the gum.

"The ſcalded lichen is then to be put into a copper boiler, with a due proportion of water, ſay three Scots pints, or two wine gallons, to every pound of lichen, and boiled during 10 or 12 hours, adding about a quarter of an ounce of ſoda or pearl aſhes, for every pound of lichen; or inſtead of theſe ſalts, about two ounces of volatile alkali. The boiling ſhould be continued until the liquor acquires a conſiderable degree of gummy conſiſtence. It is then to be taken out of the boiler, allowed to drain or drip through a wire or haircloth ſearce. The reſiduum to be put into a haircloth bag or bags, and to be ſqueezed in a preſs ſimilar to that which is uſed by the melters or rinders of tallow.

"The firſt boiling does not extract the whole of the gum. The lichen ſhould be boiled a ſecond, or even a third time, repeating the proceſs as above deſcribed, diminiſhing at each proceſs the quantity of water and the quantity of alkali, which a little experience will ſoon point out: when three boilings are employed, the gummy extract of the laſt boiling ſhould be kept for the firſt boiling of a freſh batch of lichen; the extract proceeding from the firſt and ſecond boilings ſhould be mixed together, and evaporated to the conſiſtence neceſſary for block or preſs printing. The evaporating veſſels ſhould be of tin or thin lead, placed over a range of ſtoves, and moderately heated by fire, or the ſteam of water. It has been neglected to ſtate, that before evaporating the gummy extract to the conſiſtence neceſſary, it ſhould be kept 10 or 12 hours, ſo as to allow the ſediment or dregs to ſubſide. The clean liquor may either be drawn off by a ſyphon, or the dregs may be drawn off by a cock at the bottom of the wooden veſſel; the bottom of which ſhould be made ſloping, higher at the back than the fore part, in order that the dregs may run more completely off. The proportion of gummy matter remaining in the dregs may be got off by mixing them with a due proportion of boiling water, allowing the liquor to clear, and proceeding as above directed, employing this weak ſolution for boiling the next batch of lichen. When volatile alkali is uſed, the boiler ſhould be of iron, as volatile alkali acts on copper. Hemp, flax, and the bark of the willow and the lime trees, or ſea weed, are to be heated in a ſimilar manner, to extract the gum or mucilage contained in them. Likewiſe it is intended that this patent ſhall include every tree, plant, or vegetable, of whatever kind, from whence a mucilage or gum is to be obtained by the action of volatile or fixed alkaline ſalts, or their ſolutions, when uſed in the proceſſes of maceration, digeſtion, or boiling, theſe vegetable matters; being a method of obtaining a mucilage or gum never before practiſed and adopted by any other perſon."

The above invention was for ſome time practiſed to a great extent by the calico printers in the weſt of Scotland, where it was found to anſwer for almoſt all colours. We have heard, however, that the uſe of it has been diſcontinued; whether from the price of gum ſenegal, for which it was employed as a ſubſtitute, having fallen, or that it has otherwiſe failed of its effect, we have not been informed.

* L. tubercles black, cruſt clear white.—Grows only on limeſtone rocks. When dried, powdered, and ſteeped in urine, it is uſed to dye ſcarlet by the Welſh and the inhabitants of the Orkneys. The colour is ſaid to be very fine. *calcareus.*

* L. ſaucers white, mealy, with yellowiſh white, thick, blunt borders; cruſt yellow white.—Grows on rocks, walls, trunks of trees, &c. Litmus is prepared from this ſpecies. For this purpoſe it is collected from the rocks in the north of England, and ſent to London in caſks. *parellus.*

* L. ſaucers yellow, with a white border; cruſt whitiſh.—Grows on rocks and ſtones. In Derbyſhire it is gathered for the dyers. It gives a purple colour. *tartareus.*

* L. ſaucers dull purple; leaves hoary, ſmooth, blunt, many-cleft, ſprinkled with riſing dots. *Cork, corker lodes.* or *arcell.*—It dyes wool a reddiſh brown, or a dull but durable crimſon or purple, paler but more laſting than that of orchial. In Ireland it is prepared by ſteeping in ſtale urine, adding a little ſalt to it, and making it up into balls with lime. Wool dyed with it, and then dipped in the blue vat, becomes of a beautiful purple. With rotten oak it makes a dark brown. It has been uſed as a ſtyptic. *omphamphalodes.*

* L. tubercles brown; plant hoary, hollow, much branched; terminating branches turned downwards.—The Laplanders could not exiſt without this plant, which feeds, and even fattens, their rein deer. *rangiferinus.*

* L. plant lemon-coloured, upright, much branched; branches nearly of a length, angular; angles unequal.—In Norway they mix this plant with powdered glaſs, and ſtrew it upon dead carcaſes to poiſon wolves. *vulpinus.*

* L. ſaucers brown, white on the outſide, on pedicles; foliage nearly white, quite white and cottony underneath; pitted rather than upright.—It imbibes and retains odours in a remarkable degree, and is therefore the baſis of many perfumed powders. *prunaſtrafoliacea.*

* L. ſaucers red brown, moſtly on the edges of the foliage; leaves green, jagged, blunt, ſmooth; pitted, downy underneath. *Lungwort, hazel-rag* or *hazel-crottles.*—It is recommended for conſumptive caſes. Woollen cloth, boiled in it, is ſaid to become of a durable orange. In Herefordſhire it is uſed to dye ſtockings of a durable brown. *pulmonarius.*

* L. ſaucers red brown; foliage pale green, wrinkled, waved at the edge, creeping.—In Ireland and the Iſle of Man it is uſed to dye wool of an orange colour. Serge, dyed with it, becomes of a lemon colour; but, if previouſly infuſed and boiled in urine, of a ruſſet brown. *caperatus.*

* L. ſaucers black, flattiſh; foliage gray brown, conſiſting of a ſingle leaf, circular, ſlightly lobed, ſprinkled with a black bran-like powder; pitted underneath.—A beautiful red colour may be prepared from it (Linnæus). It may be converted into an exceedingly black paint. *puſtulatus.*

1208. Byssus.

12 ſpecies; Britiſh.

1204. Tremella, or *Star-jelly.*

19 ſpecies; Britiſh.

1206. Ulva, or *Laver.*

14 ſpecies; Britiſh.

1205. Fucus, or *Wrack, Sea-weed.*
85 ſpecies; Britiſh.

1207. Conferva, or *Crow-ſilke.*
53 ſpecies; Britiſh.

Order IV. FUNGI.

1209. Agaricus, or *Agaric.*
278 ſpecies; Britiſh.

1210. Boletus.
50 ſpecies; Britiſh. China, America.

1211. Hydnum.
11 ſpecies; Britiſh. N. America, W. Indies.

1212. Phallus, or *Stink-horns.*
Four ſpecies; three Britiſh.

1213. Clathrus.
Four ſpecies. S. Europe.

1214. Helvella, or *Turban-top.*
13 ſpecies; Britiſh.

1215. Peziza, or *Cup-muſhroom.*
39 ſpecies; Britiſh.

1216. Clavaria, or *Club-muſhroom.*
24 ſpecies; Britiſh.

1217. Lycoperdon, or *Truffle, Puff-ball.*
25 ſpecies; Britiſh.

1218. Mucor, or *Mould.*
17 ſpecies; Britiſh.

In the claſs Cryptogamia are

51 Genera, including 1467 Species, of which 1210 are found in Britain.

APPENDIX.

PALMÆ, tripetalæ (p).

Sect. I. *Flabellifoliæ.*

1219. Chamærops. Dicœca. Drupæ tres.
1220. Borassus. Dicœca. Drupa 3-ſperma.
1221. Corypha. Dicœca. Drupa 1-ſperma.

Sect. II. *Pennatifoliæ.*

1224. Phoenix. Dicœca. Drupa 1-ſperma.
1284. Elæis. Dicœca. Drupa 1-ſperma, coriacea. Cal. et cor. 6-partita.
1224. Areca. Monœca. Drupa 1-ſperma, calyce imbricata.
1226. Elate. Monœca. Drupa 1-ſperma.
1223. Cocos. Monœca. Drupa 1-ſperma, coriacea.

Sect. III. *Bipennatifoliæ.*

1228. Caryota. Monœca. Drupa 2-ſperma.

1436. Mauritia. Maſc. amentum.

PALMS, 3-petaled.

Sect. I. *Fan-ſhaped leaves.*

C. Dicœcious. Drupes 3.
B. Dicœcious. Drupe 3-ſeeded.
D. Dicœcious. Drupe 1-ſeeded.

Sect. II. *Wing-ſhaped leaves.*

P. Dicœcious. Drupe 1-ſeeded.
E. Dicœcious. Drupe 1-ſeeded, leather-like. Cal. and cor. 6-parted.
A. Monœcious. Drupe 1-ſeeded. Cal. tiled.

E. Monœcious. Drupe 1-ſeeded.
C. Monœcious. Drupe 1-ſeeded, leather-like.

Sect. III. *Double wing-ſhaped leaves.*

C. Monœcious. Drupe 2-ſeeded.

M. Male flower catkin.

1219.

(p) Theſe, though capable of being arranged in the ſeveral claſſes of the ſyſtem, yet, on account of their ſingular ſtructure, have been placed in an appendix, containing ſuch genera as have a ſpadix and ſpatha, i. e. whoſe flowers and fruit are produced on that particular receptacle or ſeat called a *ſpadix*, protruded from a common calyx in form of a ſheath called *ſpatha*. This order conſiſts of trees and ſhrubs only. Theſe have always a ſimple ſtem, not branched, bearing leaves at the top, reſembling thoſe of fern, being a compoſition of a leaf and a branch, called *frondes*; and the corolla hath always three petals, or three deep diviſions. The known genera are 10 in number.

1219. CHAMÆROPS, or *Dwarf Palm, Palmetto.*
Two ſpecies; viz. humilis, excelſa. S. Europe.

1220. BORASSUS, or *Fan Palm.*
One ſpecies; viz. flabelliformis. Malabar.

1221. CORYPHA, or *Mountain Palm.*
Two ſpecies; viz. umbraculifera, minor. E. Indies, Carolina.

1223. COCOS, or *Cocoa-nut Tree.*
Three ſpecies; viz. nucifera, butyracea, guineenſis. Guinea, E. and W. Indies.—This tree is well known on account of the rich milky juice that its nut contains. The ſpecies, ſtyled *butyracea*, yields what is called *palm oil.* This oil, as brought to us from the Weſt Indies and Africa, is about the conſiſtence of an ointment, and of an orange colour. It has a ſtrong, not diſagreeable ſmell, but very little taſte. By long keeping it loſes its high colour, and becomes white, when it ought to be rejected as no longer fit for uſe. The inhabitants of the Guinea coaſt are ſaid to make this oil part of their food, and to employ it for the ſame purpoſes as we do butter. With us it is rarely given inwardly, and uſed only in ſome external applications for pains and weakneſſes of the nerves, cramps, ſprains, and the like. The common people apply it for the cure of chilblains; and when early made uſe of, not without ſucceſs.

1224. PHOENIX, or *Common Palm, Date-tree.*
One ſpecies; viz. dactylifera. Levant, India.—Dates, the fruit of this tree, are imported into Britain in the ſtate of a half-dried fruit, about the ſize of an acorn, but generally larger, conſiſting of a ſweet pulpy part, and a hard ſtone: the beſt are brought from Tunis. They were formerly uſed in pectoral decoctions; and ſuppoſed, beſides their emollient and incraſſating virtue, to have a ſlight aſtringency. They form the principal part of the food of the inhabitants of ſome of the oaſes, or inhabited ſpots, of the great African deſert.

1284. ELÆIS.
One ſpecies; viz. guineenſis. Guinea.

1225. ARECA, or *Cabbage-tree.*
Two ſpecies; viz. catechu, oleracea. E. and W. Ind.

1226. ELATE, or *Wild Malabar Palm.*
One ſpecies; viz. ſylveſtris. E. Indies.

1228. CARYOTA.
One ſpecies; viz. urens. India.

1436. MAURITIA, or *Ginkgo, Maiden-hair-tree.*
One ſpecies; viz. flexuoſa.

In the order of Palmæ are

10 Genera, including 15 ſpecies, all foreign.

The following TABLE contains a ſtatement of the number of Plants which we have mentioned or deſcribed in this Treatiſe.

		Genera.	Spec.	B. Spec.
I.	MONANDRIA contains	30	84	8
II.	DIANDRIA	39	299	29
III.	TRIANDRIA	90	920	147
IV.	TETRANDRIA	117	638	56
V.	PENTANDRIA	325	2537	168
VI.	HEXANDRIA	111	784	63
VII.	HEPTANDRIA	15	31	1
VIII.	OCTANDRIA	70	493	30
IX.	ENNEANDRIA	7	49	1
X.	DECANDRIA	119	987	84
XI.	DODECANDRIA	41	273	18
XII.	ICOSANDRIA	39	346	42
XIII.	POLYANDRIA	85	563	50
XIV.	DIDYNAMIA	123	1006	72
XV.	TETRADYNAMIA	34	436	58
XVI.	MONADELPHIA	60	682	16
XVII.	DIADELPHIA	56	710	59
XVIII.	POLYADELPHIA	12	65	8
XIX.	SYNGENESIA	115	1252	113
XX.	GYNANDRIA	32	270	28
XXI.	MONOECIA	79	392	83
XXII.	DIOECIA	55	219	38
XXIII.	POLYGAMIA	34	223	15
XXIV.	CRYPTOGAMIA	51	1447	1204
Append.	PALMÆ	10	15	00
		1749	14721	2391

HISTORY OF BOTANY.

HAVING thus ſtated the botanical arrangement contrived by Linnæus, which proceeds upon the ſuppoſition of the exiſtence of a ſexual ſyſtem in the vegetable world; we proceed to take notice of ſome other important circumſtances connected with this branch of ſcience, more particularly its hiſtory, and the natural orders, as oppoſed to the above artificial claſſification of plants.

Sect. I. *Ancient Writers upon Botany.*

THE origin of this ſcience, like that of moſt others, cannot be found out from the moſt ancient hiſtories; but it is very probable, that ſome degree of botanical knowledge has exiſted in every age of the world. The firſt botanical writings of which we have any account are thoſe of Solomon, who we are informed by Scripture wrote a treatiſe upon this ſubject; which, however, is abſolutely loſt, not being quoted by any ancient author, nor the leaſt fragment of it remaining. Among the Greeks, Anaxagoras, Pythagoras, and other ancient philoſophers, wrote treatiſes on plants; but their works are alſo loſt; and from the quotations that yet remain in the works of Theophraſtus, Dioſcorides, and Pliny, we learn, that thoſe firſt botanical writings could convey but very little information.

The hiſtorical æra of botany, therefore, commences with Theophraſtus the diſciple of Ariſtotle. He was born at Ereſium, in the iſland of Leſbos; and flouriſhed in the third century before the Chriſtian æra, being about 100 years poſterior to Hippocrates. His work is entitled *The Hiſtory of Plants*, and treats of their

origin, propagation, anatomy, and conſtruction; of vegetable life, and of vegetation. It conſiſted originally of ten books; but of which only nine are now extant. In theſe, vegetables are diſtributed into ſeven claſſes or primary diviſions; which have for their object, the generation of plants; their place of growth; their ſize, as trees and ſhrubs; their uſe, as pot herbs, and eſculent grains; and their lacteſcence, or the liquor, of whatever colour, that flows from plants when cut. In his work, above 500 different plants are deſcribed.

The next botaniſt of any note was Dioſcorides, a Grecian by birth, but under the Roman empire, being near 300 years poſterior to Theophraſtus. He deſcribes about 600 plants; and theſe he has arranged, from their uſes in medicine and domeſtic economy, into four claſſes, which are thus deſigned: aromatics; alimentary vegetables, or ſuch as ſerve for food; medicinal, and vinous plants.

Almoſt cotemporary with Dioſcorides flouriſhed Antonius Muſa, Cato, Varro, Virgil, and Columella; the firſt, author of a treatiſe ſtill extant on the plant *betony;* the four others celebrated for their uſeful tracts on agriculture and rural economy.

Pliny the Elder, in his voluminous work entitled *The Hiſtory of the World*, hath a botanical part which is contained in 15 books. In theſe, beſides the plants of Theophraſtus and Dioſcorides, he has given deſcriptions of ſeveral new ſpecies, extracted probably from works which would otherwiſe have been totally loſt. Pliny uſes ſcarce any mode of arrangement, except the ancient, but very incorrect, diſtinction into trees, ſhrubs, and herbs. His plan, however, extends not only to botanical diſtinctions, but to gardening, agriculture, and whatever is connected either more nearly or remotely with the ſcience of plants. He gives deſcriptions of above 1000 different ſpecies; but from the want of a proper ſyſtematic arrangement, it is often difficult, and perhaps impoſſible, to determine what plants he or other ancient botaniſts do really deſcribe.

This want of preciſion in properly arranging their plants was the reaſon why the botany of the ancients was always very limited, and after the time of Pliny declined ſo rapidly. On the deſtruction of the weſtern empire by the Goths and other barbarous nations, it is not to be thought that botany could ſurvive any more than the other ſciences. It was not till near the cloſe of the eighth century, that the ancient botany began again to appear in Arabia. Serapion, well known in medicine, ſtands firſt in the Arabian catalogue of botaniſts; to him ſucceeded Razis, Avicenna, Averrhoes, Actuarius, &c. An author known by the name of *Plato, Apuleius*, or *Apolienſis*, of whoſe *Herbarium* very old manuſcript copies are preſerved in ſome curious libraries, is ſuppoſed to have lived near this period. The works of moſt of theſe botaniſts, however, were only tranſlations and compilations from the Greek writers: ſo that, for want of a proper ſyſtematic arrangement, the ſcience ſunk a ſecond time into total oblivion. For near 400 years after Abenguefit, an Arabian phyſician who flouriſhed in the end of the 12th century, ſcarce any attempts were made in the botanical way. Some obſcure writers indeed appeared in ſeveral parts of Europe; as Arnoldus de Ville Nova; Platearius; Matthæus Sylvaticus; and Bartholomew Glanvil, commonly called *Bartholomeus Anglus*, a Franciſcan monk, deſcended of the family of the earls of Suffolk, who lived in the reign of King Edward III. and wrote a book of natural hiſtory, entitled *De proprietatibus rerum*, which was tranſlated into Engliſh by John de Treviſa in 1398: but though all theſe wrote of plants, they were ſo totally deſtitute of method, that their works remain one great chaos, from whence it is impoſſible to extract any thing intelligible.

On the revival of letters in the beginning of the 16th century, the botany of the ancients was reſtored a ſecond time. The Greek writings were tranſlated into Latin the common language of Europe. Gaza, a Greek refugee at Rome, made elegant tranſlations of Ariſtotle and Theophraſtus, who afterwards were commented upon by Scaliger and Stapel. Dioſcorides was alſo tranſlated and commented on. His beſt commentators are Hermolaus Barbarus, Fuchſcius, Ruellus Cordus, Geſner, and Matthiolus. The moſt diſtinguiſhed commentators on Pliny are Dalechamp in 1604, Salmaſius in 1689, Harduin and Guilandinus. Meurſius and Urſinus have written commentaries upon Cato; Campegius and Monardes upon Meſue the Arabian, and Lonicer upon Avicenna. This laſt hath been tranſlated by ſeveral writers, particularly Alpagus, Coſtæus, and Plempius into Latin; and by one writer, Amalthæus, into Hebrew.

Hieronymus Bock, or Bouc, a German, generally known by the name of *Tragus*, is the firſt modern who has given a methodical diſtribution of vegetables. In 1532, he publiſhed a Hiſtory of Plants, in which he deſcribes 800 ſpecies; and theſe he divides into three claſſes, founded on the qualities of vegetables, their figure, habit, and ſize. The ſame method of arrangement was followed by Lonicer, Dodonæus, L'Obel, Cluſius, Brunsfelſius, Monardes, Cordus, and ſome other botaniſts of this period. How far ſuch a method was deficient, ſhall be conſidered in the following ſection; however, it was not till 1560 that Conrad Geſner firſt propoſed to the world an arrangement of vegetables from the parts of the flower and fruit. He did not eſtabliſh any plan founded upon this principle; but having ſuggeſted the idea, left the application to be made by others: and in 1582, Dr Andrew Cæſalpinus, phyſician at Piſa, and afterwards profeſſor of botany at Padua, firſt availing himſelf of the ingenuity of his predeceſſor, propoſed a method of arrangement which has the fruit for its baſis; and thus gave origin to ſyſtematic botany, the ſecond grand æra in the hiſtory of that ſcience.

Even this improved method of Cæſalpinus was not without very great inconveniences, which ſhall be taken notice of hereafter. As it was, however, ſo greatly ſuperior to every thing that had happened before, it might have been expected that the learned would have immediately adopted it, and that all the former equivocal and inſufficient characters would have been rejected. But the fact was otherwiſe. Cæſalpinus's method of arrangement died with him; and it was not till near a century after, that Dr Robert Morriſon of Aberdeen, attaching himſelf to the principles of Geſner and Cæſalpinus, re-eſtabliſhed ſcientific arrangement upon a ſolid foundation; ſo that, from being only the reſtorer of ſyſtem, he has been generally celebrated as its founder. In the long interval between Cæſalpinus and

and Morriſon flouriſhed ſome eminent botaniſts. The moſt noted are, Dalechamp, author of A general Hiſtory of Plants; Theodore, ſurnamed *Tabernæmontanus*, and Thalius, two German writers; Porta, an Italian, famous for an arrangement of plants from their relations to the ſtars, to men, and other animals; Proſper Alpinus, author of a Catalogue of the Plants of Egypt; Fabius Columna, inventor of many of the botanical terms now uſed; the two Bauhins; Gerard, and Parkinſon; Zaluzianſki, a Pole, author of an arrangement from the qualities and habits of plants; Margrave and Piſo, celebrated for their natural hiſtory of Brazil; Hernandez, equally celebrated for his hiſtory of Mexico; Paſſæus, or Du Pas, author of an arrangement of plants from the time of flowering, of all characters the moſt uncertain and inſufficient; Johnſton; Bontius, a Dutchman, author of a Natural Hiſtory of the Eaſt Indies; Aldrovandus, the celebrated naturaliſt; and Rheede, governor of Malabar, and author of the well-known *Hortus Malabaricus*.

The method propoſed by Morriſon has the fruit for its baſis, as well as that of Cæſalpinus; to which, however, it is greatly inferior both in the plan and execution. It is indeed of all others the moſt difficult in practice, and was therefore not adopted by any ſucceeding writer, except Bobart, who in 1699 completed Morriſon's Univerſal Hiſtory of Plants, and an anonymous author whoſe work appeared in 1720. Imperfect, however, as his method is, it furniſhed many uſeful hints, which ſucceeding botaniſts have not failed to improve. Ray and Tournefort have owed him much, and are not aſhamed to own the obligation. The ſame has been done even by Linnæus; who hath eſtabliſhed the ſcience of botany on the moſt ſolid foundation, by introducing a method of arrangement, if not abſolutely perfect, at leaſt as nearly approaching to perfection as can be expected; and which therefore hath been deſervedly followed, in preference to every other, by all botaniſts, ſince its firſt publication. But to give a particular account of all the different botanical ſyſtems, with the particular advantages and diſadvantages attending each, ſhall be the buſineſs of the ſubſequent ſections.

Sect. II. *Of the Ancient Method of arranging Vegetables.*

Defects of the arrangement of Dioſcorides.

In giving an account of the works of Theophraſtus and Dioſcorides, we have already taken notice that the former choſe ſeven diſtinguiſhing characters, viz. the generation of plants; their place of growth; their ſize, as trees and ſhrubs; their uſe, as pot herbs and eſculent grains; and their lacteſcence, or liquor that flows from them when cut. Dioſcorides divided them into aromatics, alimentary, medicinal, and vinous plants. The good properties of this method are, that the botaniſt as it were comes to the point at once; and when he knows the plant, knows alſo its virtues and uſes, or at leaſt part of them: but this convenience is greatly overbalanced by innumerable diſadvantages; for the qualities and virtues of plants are neither fixed and invariable, nor are they impreſſed in legible characters on the plants themſelves. The different parts of a plant often poſſeſs different and even oppoſite virtues; ſo that ſuppoſing the virtues to be known, and applied to the purpoſe of vegetable arrangement, the roots muſt frequently fall under one diviſion, the leaves under a ſecond, and the flower and fruit under a third. Beſides, if we reflect that the ſole end of ſuch arrangement is to facilitate the knowledge of plants to others, the inſufficiency and even abſurdity of methods founded upon their virtues will immediately appear. A ſtalk of vervain, for inſtance, is preſented to me, which I am to inveſtigate from a preſuppoſed knowledge of the virtues of plants. Before I can ſettle the claſs to which it belongs, I muſt diſcover whether or not it has the virtues belonging to any of the plants I know; and this diſcovery being the reſult of repeated experiments on various parts of the human body, may require many years for its accompliſhment.

The ſame cauſes which render methods founded on the virtues of plants unfavourable for the purpoſe of inveſtigation, muſt evidently diſqualify all their other variable quantities and accidents from having a place in a genuine ſyſtematic arrangement. The *natale ſolum* of plants, which is one of Theophraſtus's diviſions, affords no better diſtinctive characters than their powers and virtues. Many countries as well as many ſoils produce the ſame individual plants. The ſame ſpecies which crown the mountains, frequently cover the fens; and plants which have long been reckoned the peculiar inhabitants of ſome parts of Aſia and America, are now found to grow naturally in equal perfection in the very different climates of Lapland and Siberia. The ſize of plants, which ſuggeſted the ancient diviſion into trees and ſhrubs, is no leſs an equivocal mark of diſtinction than the circumſtances already mentioned. The vine which modern botaniſts denominate a ſhrub, was ranged by Theophraſtus in his third claſs containing trees. In fact, every thing reſpecting ſize is ſo much affected by differences of ſoil, climate, and culture, that the ſame plant, in different circumſtances, ſhall differ exceedingly in height; and in a method founded upon the ſize, would ſometimes be ranged as a tree, and ſometimes as a ſhrub, or even an under-ſhrub, according as it happens to exceed, equal, or fall ſhort of, a given ſtandard. No leſs inſufficient are characteriſtical marks drawn from the colour, taſte, and ſmell of plants. Of all the attributes of vegetable nature, colour is perhaps the moſt inconſtant. Heat, climate, culture, ſoil, &c. contribute to the production of endleſs diverſities of colour, and render the tranſition from one to another natural and eaſy. Red and blue paſs eaſily into white, white into purple, yellow into white, red into blue, blue into yellow, &c. In the ſame leaf or flower, different colours are frequently obſerved. Variations too in point of colour are frequently obſerved to take place not only in different individuals of the ſame ſpecies, but even in ſimilar parts of the ſame plant. Marvel of Peru and ſweetwilliam produce flowers of different colour upon the ſame ſtalk. Objections equally valid lie againſt characteriſtical marks drawn from the taſte and ſmell. The former varies in different individuals from differences of age, and even in the ſame individual at different times, according to the morbid or ſound ſtate of the organ. The latter is different in different ſubjects, and varies in each; nor are the effluvia ſent forth from the ſame body always of equal intenſity. In plants, taſte is ſubject to continual variations, from differences of climate, ſoil, and culture.

Defects of Theophraſtus's arrangement.

Garlic in ſome climates, particularly in Greece, is ſaid to loſe its rankneſs: apples and pears, that grow naturally in the woods, are intolerably acid; celery and lettuce, which culture renders ſweet and palatable, are in their wild uncultivated ſtate bitter, diſagreeable, and in ſome caſes noxious.

Theſe conſiderations are abundantly ſufficient to ſhow the imperfections of the ancient ſyſtem of botany; and, indeed, conſidering the vague and uncertain marks by which the ancients diſtinguiſhed one plant from another, we may rather wonder how ſuch a ſcience as botany came to have an exiſtence among them, than that they arrived at no greater perfection in it, or ſuffered it ſo ſoon to fall into oblivion.

Sect. III. *Of the different Botanical Syſtems from the time of Geſner to that of Linnæus.*

The inſufficiency of the ancient botanical ſyſtem being ſo fully ſhown in the laſt ſection, we think it needleſs to take much notice of the methods uſed by Tragus and his cotemporaries and followers. The virtues of plants being found an inſufficient characteriſtic, ſucceeding botaniſts had taken in the root, ſtem, and leaves; but theſe being alſo found inſufficient and variable, Geſner turned his eye to the flower and fruit, as being the moſt permanent and unchangeable parts of the plant. In propoſing the parts of fructification, however, as the moſt proper for arranging plants, he communicated no hints reſpecting the choice of ſome of thoſe parts in preference to others. Each particular organ of the flower and fruit furniſhes ſufficient variety to ſerve as the foundation of a method; but all of them are not equally proper for this purpoſe. Cæſalpinus, the firſt follower of Geſner, made a miſtake in his choice, and took his diſtinguiſhing characteriſtics only from the fruit. The parts of the flower, therefore, being employed by the firſt ſyſtematic writers only as ſubaltern directions in finding out orders and genera, it is evident that the plant could not be fully inveſtigated for ſeveral months. Suppoſe a plant ripens its fruit in October, and does not produce flowers till the following May: the claſs, upon inſpection of the fruit in the month of October, is immediately aſcertained; but the plant ſtill remains unknown, and will continue ſo upwards of ſix months after, if the characters of the order and genus have been made to depend on any part of the flower. Methods founded on the fruit have another inconvenience; plants conſtantly ripen their fruit in theſe countries where they grow naturally, but not always in the countries to which they may be accidentally tranſported. So far from this, that many plants that are natives of a warm climate, neither ripen nor form fruit in a cold one. Few of the African, Aſiatic, and Weſt Indian plants produce fruit in Britain. A method, therefore, founded upon the fruit, could only facilitate the knowledge of ſuch plants to be inhabitants of thoſe countries where they grow: to the Engliſh botaniſt they could be of little or no ſervice. The ſame objection cannot reaſonably be urged againſt methods founded on the flower, ſince the influence of climates much colder than that of Britain has not been able to deſtroy the faculty of producing flowers in many, perhaps in moſt, of the plants juſt mentioned.

Geſner's arrangement.

Cæſalpinus.

Cæſalpinus ſets out with an ancient diſtinction of vegetables, from their duration, into trees and herbs. With the former he combines ſhrubs; with the latter, under-ſhrubs; and diſtributes his plants into the 15 following claſſes. 1. Trees with the germ (radicle or principle of life in the ſeed) on the point of the ſeed. 2. Trees with the germ on the baſe of the ſeed. 3. Herbs having one ſeed only. 4. Herbs having two ſeeds. 5. Herbs having four ſeeds. 6. Herbs having many ſeeds. 7. Herbs having one grain or kernel. 8. Herbs having one capſule. 9. Herbs having two capſules. 10. Herbs having fibrous roots. 11. Herbs having bulbous roots. 12. Herbs having ſuccory or endive-like flowers. 13. Herbs having common flowers. 14. Herbs having ſeveral follicles or ſeed-bags. 15. Herbs having neither flower nor ſeed.

The inconveniences of this method have been already pointed out pretty fully, and will evidently appear upon an attempt to refer any common plant to one of the 15 above-mentioned claſſes. His ſections, orders, or ſecondary diviſions, are 47 in number, and depend upon a variety of parts and circumſtances. The principal of theſe are, the diſpoſition, ſituation, and figure of the flowers; the nature of the ſeed-veſſel, or cover of the ſeeds; the ſituation of the radicle in the ſeed; the number of ſeed-lobes, or ſeminal leaves; the diſpoſition of the leaves, and colour of the flowers. The lacteſcence too, or milkineſs, which is obſerved in the compound flowers with flat florets, is made a characteriſtic diſtinction, and diſcriminates the firſt order of the 12th claſs. Thus, in the firſt ſyſtematic arrangements, the characters of the claſſes only were borrowed from the parts of fructification; while thoſe of the ſubaltern diviſions were very numerous, and reſpected every part of the plant; but that ſuch diviſions might be perfect, they ſhould be conſtituted, like the claſſes, from the modifications of a ſingle part of the fructification.

Morriſon's method.

The great object had in view by Morriſon, who comes next in order to Cæſalpinus, was to inveſtigate the order of nature, not to fabricate an eaſy method of arranging plants. Hence his ſyſtem is devoid of uniformity, and clogged with a multiplicity of characters; his claſſes are frequently not ſufficiently diſtinguiſhed from one another, and the key of arrangement ſeems totally loſt. He ſets out with a diviſion of plants, from their conſiſtence, into ligneous or woody, and herbaceous. He founds his ſyſtem on the fruit, the corollæ or bloſſoms, and the habit of the plants. His claſſes are as follow: 1. Trees. 2. Shrubs. 3. Under-ſhrubs. 4. Herbs climbing. 5. Herbs leguminous or papilionaceous. 6. Herbs podded. 7. Herbs tricapſular or with three capſules. 8. Herbs with four or five capſules. 9. Herbs corymbiferous. 10. Herbs having a milky juice, or downy tops. 11. Herbs culmiferous, as graſſes. 12. Herbs umbelliferous. 13. Herbs having three kernels. 14. Herbs having helmet-ſhaped flowers. 15. Herbs having many capſules. 16. Herbs berry-bearing. 17. Herbs called *capillary plants*, as the fern kind. 18. Anomalous or irregular herbs.

Of theſe claſſes, the fourth and eighth poſſeſs no genuine diſtinctive character; nor are the ninth and tenth claſſes ſufficiently diſtinguiſhed; the fifteenth claſs is not ſufficiently diſtinguiſhed from the eighth, nor the 16th from the fourth. His ſections or ſecondary diviſions, which are 108 in number, ariſe from the figure and ſubſtance of the fruit; the number of ſeeds, leaves,

leaves, and petals; the figure of the root; the direction of the ſtem; the colour of the flowers; the place of growth; and, in one claſs, from the medicinal virtues of ſome of the plants that compoſe it.

Ray's method.

In 1682, Ray propoſed his method to the world, two years after the publication of Morriſon's, which ſerved in ſome meaſure as its baſis. It conſiſted originally of the following 25 claſſes: 1. Trees. 2. Shrubs. 3. Herbs imperfect. 4. Herbs having no flowers. 5. Capillary plants. 6. Staminous herbs having only the ſtamina. 7. Thoſe having one naked ſeed. 8. Umbelliferous herbs. 9. Verticillated, annular, or ring-ſhaped ones. 10. Rough-leafed plants. 11. Stellated or ſtar-ſhaped ones. 12. Apple-bearing herbs. 13. Berry-bearing herbs. 14. Herbs having many pods. 15. Monopetalous uniform, or regular herbs. 16. Monopetalous irregular, or having different forms. 17. Tetrapetalous, having large pods. 18. Tetrapetalous, having ſmall pods. 19. Papilionaceous. 20. Pentapetalous herbs. 21. Corns. 22. Graſſes. 23. Graſs-leafed plants. 24. Bulbous-rooted plants. 25. Plants near akin to the bulbous.

This method Ray carefully corrected and amended at different times; ſo that the plan of arrangement which now bears the name of that author, and was firſt publiſhed in 1700, is entirely different from what had appeared in 1682. It now conſiſts of 33 claſſes. Their diſtinguiſhing marks are taken from the port or habit of the plants; their greater or leſs degree of perfection; their place of growth; the number of ſeed-lobes, or ſeminal leaves, petals, capſules, and ſeeds; the ſituation and diſpoſition of the flowers, flower-cup, and leaves; the abſence or preſence of the buds, flower-cup, and petals; the ſubſtance of the leaves and fruit; and the difficulty of claſſing certain plants. They are as follow: 1. Submarine, or ſea plants. 2. Fungi. 3. Moſſes. 4. Capillary plants. 5. Thoſe without petals. 6. *Planipetalæ*, thoſe with compound flowers; ſemifloſculous, or half-florets. 7. Thoſe with compound flowers radiated. 8. Thoſe with compound flowers, floſculous, or with whole florets. 9. Plants with one ſeed. 10. Plants umbellated. 11. Thoſe ſtellated or ſtar-ſhaped. 12. Rough-leafed plants. 13. Plants verticillate or whorled. 14. Thoſe with many ſeeds. 15. Apple-bearing herbs. 16. Berry-bearing herbs. 17. Thoſe with many pods. 18. Monopetalous herbs. 19. Thoſe with two and three petals. 20. Thoſe with great and ſmall, or long and ſhort pods. 21. Leguminous plants. 22. Pentapetalous ones. 23. Bulbs, and bulbous-like plants. 24. Stamineous ones, or thoſe having only the ſtamina. 25. Anomalous plants, or thoſe of an uncertain family. 26. The palms. 27. Trees without petals. 28. Trees with an umbilicated fruit. 29. Trees with fruit not umbilicated. 30. Trees with a dry fruit. 31. Trees with podded fruit. 32. Anomalous or irregular trees.

The diſtinction into herbs and trees with which Ray's method ſets out, acknowledges a different, though not more certain principle than that of Cæſalpinus and Morriſon. The former, in making this diſtinction, had an eye to the duration of the ſtem; the latter, to its conſiſtence. Ray called in the buds as an auxiliary; and denominates trees, "all ſuch plants as bear buds;" herbs, "ſuch as bear none." But againſt this auxiliary there lies an unanſwerable objection; namely, that though all herbaceous plants riſe without buds, all trees are not furniſhed with them: many of the largeſt trees in warm countries, and ſome ſhrubby plants in every country, being totally deſtitute of that ſcaly appearance which conſtitutes the eſſence of a bud. In other reſpects, it is evident that neither Mr Ray's plan nor execution is in any degree calculated to facilitate the knowledge of plants. In fact, it ſeems to have been Ray's great object, no leſs than Morriſon's, to collect as many natural claſſes as poſſible; and theſe being ſeparately inveſtigated, a multiplicity of characters and ſteps was neceſſarily required to connect them: and hence the intricacy complained of in both theſe methods, which muſt always take place where the claſſes give riſe to the connecting characters, not the characters to the claſſes. The characters of the orders, or ſecondary diviſions, in Ray's method, are no leſs multifarious than thoſe of the claſſes. They reſpect the place of growth of plants; their qualities; the figure of the ſtem; the number, ſituation, ſubſtance, and diviſion, of the leaves; the ſituation and diſpoſition of the flowers and calyx; the number and regularity of the petals; with the number and figure of the fruit. In his improved method, Ray has adopted Tournefort's characters of the genera, wherever his plan would permit. His general Hiſtory of Plants contains 18,655 ſpecies, and varieties. The third volume, which was not publiſhed till 1704, and was deſigned as a ſupplement to the two former, contains the plants diſcovered by Tournefort in the Levant, and by Camelli at Luzon one of the Philippine iſlands. Ray's method was followed by Sir Hans Sloane, in his Natural Hiſtory of Jamaica; by Petiver, in his Britiſh Herbal; by Dillenius, in his Synopſis of Britiſh plants; and by Martin, in his Catalogue of plants that grow in the neighbourhood of Cambridge.

Chriſtopher Knaut's arrangement.

To Ray's original method ſucceeded that of Chriſtopher Knaut, a German; which acknowledges the ſame principle, and is manifeſtly founded upon it. In his enumeration of the plants that grow round Hal in Saxony, publiſhed in 1687, he divides vegetables into 17 claſſes, which have for their baſis the ſize and duration of plants, the preſence or abſence of the petals, the diſpoſition of the flowers, the ſubſtance of the fruit, the number of capſules or ſeeds, the number and figure of the petals, and the preſence, abſence, or figure of the calyx. His claſſes are, 1. Herbs berry-bearing, 2. Monopetalous, or with one flower-leaf. 3. Tetrapetalous and regular, with four petals. 4. Tetrapetalous and irregular. 5. Pentapetalous, or with five petals. 6. Hexapetalous, or ſix petals. 7. Polypetalous, or many petals. 8. Multicapſular, or many capſules. 9. Naked ſeeds. 10. Solid, or not downy. 11. Downy ſeeds. 12. Without petals. 13. Stamineous, without petals or calyx. 14. Imperceptible. 15. Imperfect. 16. Trees. 17. Shrubs.

The ſections or ſubdiviſions of the claſſes in Knaut's method are 62 in number; and ariſe from the figure of the ſtem and petals, the number of capſules and cells, their figure, the number of ſeeds and leaves, and ſituation of the flowers.

Herman's method.

In 1696, a new method, propoſed by Dr Herman profeſſor of botany at Leyden was publiſhed by Zumbac, who arranged according to it the plants contained in the public garden of Leyden. Rudbeckius the Younger, in a diſſertation publiſhed the ſame year, on the

the fundamental knowledge of plants, adopted Herman's method, with a few inconſiderable variations. The claſſes of Dr Herman are 25 in number. They are founded on the ſize and duration of the plants; the preſence or abſence of the petals and calyx; the number of capſules, cells, and naked ſeeds; the ſubſtance of the leaves and fruit; the form and conſiſtence of the roots; the ſituation and diſpoſition of the flowers, leaves, and calyx; and figure of the fruit. 1. Herbs having one naked ſeed and a ſimple flower. 2. Having one naked ſeed and a compound flower. 3. With two naked ſeeds, and ſtellated or ſtar-ſhaped. 4. Two naked ſeeds, and umbelliferous. 5. Four naked ſeeds, and rough leaves. 6. Four naked ſeeds, and verticillated or whorl-ſhaped. 7. With many naked ſeeds. 8. Having ſeed-veſſels bulbous and tricapſular. 9. Having one ſeed-veſſel. 10. With two ſeed-veſſels. 11. With three ſeed-veſſels. 12. With four ſeed-veſſels. 13. With five ſeed-veſſels. 14. Podded, which are always tetrapetalous. 15. Leguminous and papilionaceous. 16. With many capſules. 17. Having fleſhy fruit, berry-bearing. 18. With fleſhy fruit, apple-bearing. 19. Without petals, but having a calyx. 20. Without petals, chaffy or ſtaminous. 21. Without petals, calyx, chaff, or ſtamina, *i. e.* a naked antheræ, as the moſſes. 22. Trees. Imperfect fructification, bearing catkins. 23. Trees with a fleſhy fruit umbilicated. 24. Trees with a fleſhy fruit not umbilicated. 25. Trees with a dry fruit.

The claſſes in Herman's method are ſubdivided into 82 ſections or orders; which have for their baſis the number of petals, ſeeds, capſules, and cells, the figure of the ſeeds and petals, and diſpoſition of the flowers.

Boerhaave's method.

To the method of Dr Herman ſucceeded that of Dr Boerhaave, who ſucceeded to the botanical chair of Leyden in 1709. His method is that of Herman, blended with part of the ſyſtems of Tournefort and Ray; and contains the following claſſes. 1. Herbs ſubmarine, or ſea plants. 2. Imperfect land plants. 3. Capillary plants, of the fern kind. 4. Many naked ſeeds. 5. Four naked ſeeds, and verticillated. 6. Four naked ſeeds, and rough leaves. 7. Four naked ſeeds, and four petals. 8. Plants having one ſeed-veſſel. 9. Two ſeed-veſſels. 10. Three ſeed-veſſels. 11. Four ſeed veſſels. 12. Five ſeed-veſſels. 13. Many ſeed-veſſels. 14. Two naked ſeeds, and umbelliferous. 15. Two naked ſeeds, and ſtar-ſhaped. 16. One naked ſeed, and a ſimple flower. 17. One naked ſeed and compound flowers ſemifloſculous. 18. One naked ſeed, and compound flowers radiated. 19. One naked ſeed, and compound flowers corymbiferous. 20. One naked ſeed, and compound flowers floſculous. 21. Berry-bearing herbs. 22. Apple-bearing herbs. 23. Without petals. 24. One cotyledon, and having petals. 25. One cotyledon, and without petals. 26. Trees having one cotyledon. 27. Many podded. 28. Podded. 29. Tetrapetalous and cruciform. 30. Leguminous. 31. Having no petals. 32. Bearing catkins. 33. Monopetalous flowers. 34. Roſaceous flowers.

Theſe 34 claſſes of Dr Boerhaave are ſubdivided in to 104 ſections, which have for their characters, the figure of the leaves, ſtem, calyx, petals, and ſeeds; the number of petals, ſeeds, and capſules; the ſubſtance of the leaves; the ſituation of the flowers, and their difference in point of ſex. By this method, Dr Boerhaave arranged near 6000 plants, the produce of the botanical garden at Leyden, which he carefully ſuperintended for the ſpace of 20 years, and left to his ſucceſſor Dr Adrien Royen, in a much more flouriſhing ſtate than he himſelf had received it. His Index or Catalogue of the Leyden plants was publiſhed in octavo in 1710; and afterwards, with great additions, in quarto, in 1720. This laſt edition contains deſcriptions of 5650 plants; of which number upwards of two-thirds had been introduced into the garden ſince the time of Herman, by his illuſtrious ſucceſſor. Boerhaave's characters are derived from the habit or general appearance of plants combined with all the parts of fructification; ſo that, as Linnæus very properly obſerves, he was the firſt who employed the calyx, ſtamina, and ſtyle, in determining the genus. About 17 new genera were eſtabliſhed by this author; among others, the very ſplendid family of the protea and ſilver tree, which, although partly deſcribed by Morriſon, had remained generally unknown till this period. His method was adopted by one Emſting, a German, in a treatiſe entitled *The firſt Principle of Botany*, publiſhed in octavo at Wolfenbuttle, in 1748.

Rivinus's method.

Hitherto all the botaniſts had been intent upon inveſtigating the order of nature, rather than facilitating the arrangement of vegetables; therefore their methods were very intricate and perplexed; and their writings, however entertaining to the learned, could afford but very little inſtruction to the young botaniſt. In 1690, however, Auguſtus Quirinus Rivinus, a German, profeſſor of botany at Leipſic, relinquiſhing the purſuit of natural affinities, and convinced of the inſufficiency of characteriſtic marks drawn only from the fruit, attached himſelf to the flower, which, he was ſenſible, would furniſh characters no leſs numerous, permanent, and conſpicuous, than thoſe drawn from the fruit. The calyx, petals, ſtamina, and ſtyle, or pointal, which conſtitute the flower, are ſufficiently diverſified in point of number, figure, proportion, and ſituation, to ſerve as the baſis of a mode of arrangement; yet all are not equally proper for this purpoſe. Rivinus made uſe of the petals as the largeſt and moſt beautiful part, and that from which the flower itſelf is commonly characterized. His method conſiſts in the following 18 claſſes, which have for their baſis the perfection and diſpoſition of the flowers, and regularity and number of the petals. 1. Regular monopetalous, or having one petal. 2. Dipetalous. 3. Tripetalous, 4. Tetrapetalous. 5. Pentapetalous. 6. Hexapetalous. 7. Polypetalous, or having many petals. 8. Irregular monopetalous. 9. Irregular dipetalous. 10. Irregular tripetalous. 11. Irregular tetrapetalous. 12. Irregular pentapetalous. 13. Irregular hexapetalous. 14 Irregular polypetalous. 15. Compound flowers of regular florets. 16. Compound flowers of regular and irregular florets. 17. Compound flowers of irregular florets only. 18. Incomplete, or imperfect plants.

As Rivinus ſet out with the profeſſed deſign of imparting facility to botany, he judged very properly in diveſting his method of all extraneous matter, and rendering it as ſimple and uniform as the nature of the ſcience would admit. The diſtinction into herbs and trees had been adopted by every writer on plants ſince the time of Ariſtotle. Rendered in ſome meaſure ſacred by its antiquity, this diſtinction maintained a kind of

of importance to which it was by no means eſſentially entitled. Rivinus was the firſt who in this matter dared to think for himſelf. He was early ſenſible of the inconveniences to which thoſe had ſubmitted who employed it as a primary diviſion; and therefore reſolved at once to get rid of a diſtinction that is frequently uncertain, always deſtructive to uniformity, and in its nature repugnant to the genuine ſpirit of ſyſtem, becauſe totally unconnected with the parts of fructification. In the uniformity of its orders or ſecondary diviſions, which are 91 in number, and acknowledge the fruit for their principle, Rivinus's method equals, perhaps excels, all that went before or ſucceeded it. Only three claſſes of his method were publiſhed by Rivinus himſelf. Theſe are the 11th, 14th, and 15th, which were offered to the public at different times, illuſtrated with very ſplendid figures. The method was completed and publiſhed entire by Heucher, in a work entitled *Hortus Wirtenbergenſis*, printed in quarto at Wirtenberg in 1711.

Followers of Rivinus.

Several German authors have followed Rivinus's method, either wholly or in part, without offering any conſiderable amendment. The principal of theſe are, Koenig, in a work on vegetables, publiſhed at Baſil in 1696; Welch, in his *Baſis Botanica*, printed at Leipſic in octavo, in 1697; Gemeinhart, in a catalogue of plants publiſhed in 1725; Kramer, in a work entitled *Tentamen Botanicum*, publiſhed at Dreſden in 1728, and afterwards reprinted with additions at Vienna in 1744; and Hecker in a diſſertation on botany publiſhed at Hal in Saxony, in 1734. To theſe may be added Hebenſtreit, an ingenious botaniſt, who in a treatiſe on plants publiſhed at Leipſic in 1731, juſt before his famous African expedition, eſtabliſhed generical characters, which had hitherto been wanting in Rivinus's method.

The writers who have attempted to improve upon Rivinus's method are Bernard Ruppius, Chriſtopher Ludwig, and Chriſtian Knaut. Ruppius, in his *Flora Jenenſis*, publiſhed at Francfort in 1718, has arranged the 1200 plants there deſcribed by a method partly Rivinus's and partly his own. It conſiſts of 17 claſſes, and ſets out with the ſame diviſions and ſubdiviſions as that of Rivinus's; with this difference, however, that, whereas in Rivinus's method all perfect flowers are divided into ſimple and compound, in Ruppius the diviſion of regular and irregular flowers precedes that juſt mentioned, and ſimple and compound flowers are made ſubdiviſions of the regular flowers only.

Ludwig's method.

Chriſtopher Ludwig's method which was publiſhed in 1737, and conſiſts of 20 claſſes, differs but little from that of Rivinus. The author accompanied Hebenſtreit on his expedition to Africa, and ſeems to have made plants his favourite ſtudy. The improvement, however, which he has made on Rivinus's plan, conſiſts only in rendering it more univerſal, having enriched it with a multitude of genera collected from the works of Tournefort, Ray, Boerhaave, Dillenius, and other eminent botaniſts, whoſe generical characters he has likewiſe adopted. His plan of arrangement has been followed by two ſucceeding writers: M. Wedel, in a botanical eſſay publiſhed in 1747; and three years after by M. Bochmer, in his catalogue of the plants which grow in the garden of Leipſic.

The method of Chriſtian Knaut is much more properly his own, and departs in a much greater degree from that of Rivinus than either of the two former. The regularity and number of the petals furniſhed the claſſical diviſions in Rivinus's method: in that of Knaut, number takes place of regularity; ſo that it is very properly termed by Linnæus, "The ſyſtem of Rivinus inverted." This method was publiſhed in 1716; and ſets out with a diviſion into flowers which have one petal, and ſuch as have more than one. It conſiſts of the 17 following claſſes. 1. Monopetalous uniform or regular. 2. Monopetalous difform or irregular. 3. Monopetalous compound uniform or regular. 4. Monopetalous compound difform or irregular. 5. Monopetalous compound uniform and difform together. 6. Dipetalous uniform or regular. 7. Dipetalous difform or irregular. 8. Tripetalous uniform or regular. 9. Tripetalous difform or irregular. 10. Tetrapetalous uniform or regular. 11. Tetrapetalous difform or irregular. 12. Pentapetalous uniform or regular. 13. Pentapetalous difform or irregular. 14. Hexapetalous uniform or regular. 15. Hexapetalous difform or irregular. 16. Polypetalous uniform or regular. 17. Polypetalous difform or irregular. Chriſtian Knaut's method.

The ſections or ſecondary diviſions in Knaut's method are 121, and depend upon the internal diviſions of the fruit; and upon this his opinions are ſomewhat ſingular. Every kind of fruit, whether pulpy or membranaceous, is termed by our author a *capſule*. Neither is the term reſtricted to fruits properly ſo called: it is extended alſo to thoſe termed by botaniſts *naked ſeeds*, the exiſtence of which Knaut abſolutely denies. Agreeable to this opinion, capſules, he ſays, with reſpect to their conſiſtence or ſubſtance, are of two ſorts; pulpy, or membranaceous. The former correſpond to the fruits of the apple, berry, and cherry kind; the latter to the capſules properly ſo called, and naked ſeeds of other botaniſts. Again, with reſpect to their cells or internal diviſions, capſules are either ſimple or compound. Simple capſules have an undivided cavity or a ſingle cell; compound capſules are internally divided into two or more cells. With other botaniſts, the umbelliferous flowers bear two, the lip flowers four, naked ſeeds; according to Knaut, the former produce two, the latter four, ſimple capſules. Ranunculus, adonis, anemony, herb-bennet, and ſome other plants, have their flowers ſucceeded by a number of naked ſeeds collected into an aggregate or head; each of theſe ſeeds paſſes with Knaut for a ſimple capſule; ſo that the whole is an aggregate of ſeveral capſules with an undivided cavity or ſingle cell. In numbering the cells or internal diviſions of the pulpy fruits, our author has adopted a very ſingular method. Some fruits of the apple kind encloſe a capſule that is divided into five membranaceous cells. It might then be very reaſonably expected to find ſuch fruits arranged with compound capſules of five cells: but, inſtead of this, the author whimſically enough combines in their arrangement the idea both of a ſimple and compound capſule. The pulpy part is undivided; in other words, it is a ſimple capſule furniſhed with one cell; the compound capſule encloſed contains five cells, which added to that of the pulp make the number ſix; and thus theſe kinds of fruits are arranged with thoſe having capſules of ſix cells. By the ſame kind of reaſoning, the fruit of the dogwood, which is of the cherry kind, and contains a

ſtone

ſtone with two cells or cavities, is placed by Knaut among compound capſules with three cells; the pulp paſſing for one diviſion, and cavities of the ſtone or nut for the remaining two. This method of calculation is not the only ſingularity for which Knaut is remarkable. The eſſence of the flower is made by Ray, Tournefort, Rivinus, and moſt other botaniſts, to conſiſt in the ſtamina and ſtyle. This poſition Knaut abſolutely denies; and has eſtabliſhed for a principle, that the flower is eſſentially conſtituted by the petals only. With him, the flower cup, ſtamina, and ſtyle, are of little ſignificance: their preſence does not conſtitute a flower, if the petals are wanting; neither is their abſence ſufficient to deſtroy its exiſtence, if the petals are preſent: from this it follows, 1. That there can be no flowers without petals; and, 2. That the regularity or irregularity of the flower can never depend on the ſtamina and ſtyle, which are only occaſionally preſent, and nowiſe eſſential to its exiſtence; both of which are evidently falſe to every botanical reader.

Tournefort's method.

Since the time of Rivinus, no leading method in botany has appeared except that of Tournefort and Linnæus. Tournefort ſets out with reviving the diſtinction of plants into herbs and trees, which had been exploded by Rivinus. His ſyſtem is founded on the regularity and figure of the petals, together with the twofold ſituation of the receptacle of the flowers; his orders, on the piſtillum or calyx. The claſſes are, 1. Herbs with ſimple flowers monopetalous, and bell-ſhaped. 2. Simple flowers monopetalous, tunnel and wheel-ſhaped. 3. Simple flowers monopetalous, labiated or lipped. 4. Simple flowers monopetalous, anomalous or irregular. 5. Simple flowers polypetalous cruciform or croſs-ſhaped. 6. Simple flowers polypetalous, and roſaceous or roſe-like. 7. Simple flowers polypetalous, umbellated. 8. Simple flowers polypetalous, caryophyllaceous, or clove-form. 9. Simple flowers polypetalous, liliaceous or lily-form. 10. Simple flowers polypetalous, papilionaceous, or butterfly-form. 11. Simple flowers polypetalous, anomalous or irregular. 12. Compound flowers, floſculous, tubular or whole florets. 13. Compound flowers, ſemifloſculous, flat or half florets. 14. Compound flowers radiated, like the ſpokes of a wheel. 15. Apetalous, having no petals 16. No flower, but bearing ſeed. 17. No flower nor ſeed, in the vulgar eſtimation. 18. Trees with no petals, but bare ſtamina. 19. Trees with no petals bearing catkins. 20. Trees monopetalous. 21. Trees roſaceous. 22. Trees papilionaceous.

The ſecondary diviſions in Tournefort's method, which are 122 in number, have obtained the name of *ſections*. Their general diſtinctions are founded principally upon the fruit, as thoſe of the claſſes are upon the flower.

Other writers.

Tournefort hath been followed by a vaſt number of botanical writers, of whom the moſt conſiderable are, Dr William Sherard, an eminent botaniſt of the laſt and preſent centuries. In 1689, he publiſhed the firſt ſketch of Tournefort's method, under the title of *Schola Botanices*; or a catalogue of the plants demonſtrated by Dr Tournefort, in the royal garden at Paris. It was not till five years after, that the *Elementa Botanica*, a work which contains the rudiments and illuſtration of his method, was publiſhed by Tournefort himſelf.—Father Plumier, termed by way of eminence the *Tournefort of America*, publiſhed in 1703, at Paris, a deſcription of American plants, which he has arranged according to the ſyſtem of Tournefort. In this work he accurately characterized 96 new genera. Falugi, an Italian, has deſcribed, in pretty elegant Latin verſe, all the genera of Tournefort, in a work entitled *Proſopopœiæ Botanicæ*, publiſhed at Florence, 12mo, 1705. Several celebrated French academicians, particularly Marchant, Dodart, Niſſole, Joſſieu, and Vaillant, have alſo occaſionally paid their tribute of acknowledgement to this author, from the year 1700 to 1740. The other authors of note who have followed Tournefort's method, are, M. Petit, an ingenious French botaniſt; Johren, a German, author of a treatiſe publiſhed at Colberg in 1710, entitled *Vade mecum Botanicum, ſeu Odegus Botanicus*; Fueille, in his deſcription of the plants of Chili and Peru, publiſhed at Paris in quarto, 1714; Chriſtopher Valentin, a German author of a book entitled *Tournefortius Contractus*, publiſhed at Francfort, in folio, 1715; Ripa, an Italian, in a work entitled *Hiſtoriæ Univerſalis Plantarum Conferibendi Propoſitum*, publiſhed in quarto, at Padua, in 1718; Michæl Valentin, a German, in his *Viridarium Reformatum*, publiſhed in folio, at Francfort, in 1719; the celebrated Dillenius, profeſſor of botany at Oxford, and author of ſeveral much eſteemed publications on botany, particularly the *Hortus Eltbamenſis*, and Hiſtory of Moſſes, in his Flora Giſſenſis, printed at Francfort in 1719; Pontedera, an Italian, author of the dilineation of a method which combines thoſe of Tournefort and Rivinus, publiſhed at Padua, in his botanical diſſertations, in 1720; Monti, an Italian, in a work publiſhed at Bologna in 1724, under the title of *Indices Plantarum Varii*; Lindem, a German, in his *Tournefortius Alſaticus*, firſt publiſhed in 1728; Signior Micheli, author of ſeveral curious diſcoveries reſpecting moſſes and muſhrooms, in his *Nova Genera Plantarum*, publiſhed in folio at Florence in 1729; Elvebemes, a Swede, in a work publiſhed in the Swediſh language at Upſal in 1730; Fabricius, a German, author of a work entitled *Primitiæ Floræ Butiſbacenſis, ſeu ſex Decades Plantarum Rariorum*, publiſhed in 1743; Sabbati, an Italian, in his catalogue of the plants that grow in the neighbourhood of Rome, printed at Rome in 1745; and the ingenious Dr Charles Alſton, late profeſſor of botany at Edinburgh, in his *Tyrocinium Botanicum*, publiſhed at Edinburgh in 1753.

Plumier's method.

Of all this numerous liſt of writers, Father Plumier and Pontedera alone have ventured to quit the track pointed out by Tournefort. The former, in his arrangement of American plants, has relinquiſhed the diſtinction into herbs and trees; but the latter has attempted more conſiderable variations. His claſſes are, 1. Uncertain. 2. Having no flowers. 3. Without buds, imperfect plants. 4. Anomalous or irregular. 5. Labiated. 6. Bell-ſhaped. 7. Saucer-ſhnped. 8. Wheel-ſhaped. 9. Tunnel-ſhaped. 10. Floſculous. 11. Semifloſculous. 12. Radiated. 13. Irregular. 14. Papilionaceous. 15. Liliaceous. 16. Caryophyllaceous. 17. Cruciform or croſs-ſhaped. 18. Umbellated. 19. Staminous, or with naked ſtamina. 20. Bearing buds apetalous, or without petals. 21. Bearing buds irregular. 22. Bearing buds bell-ſhaped. 23. Bearing

ing buds wheel-ſhaped. 24. Bearing buds tunnel-ſhaped. 25. Bearing buds papilionaceous. 26. Bearing buds roſaceous.

Magnol's method.

Beſides all theſe methods, there have been invented two others, founded upon the calyx. The firſt of theſe was the invention of Peter Magnol, a celebrated profeſſor of botany at Montpellier, and publiſhed in 1720, five years after the author's death. The other was delineated by Linnæus, and publiſhed in his *Claſſes Plantarum* in 1738, three years after the publication of the ſexual ſyſtem. Magnol diſtinguiſhes two kinds of calyx; one external, which envelopes and ſuſtains the flower, and is the flower-cup properly ſo called; the other internal, which is the ſeed-veſſel or fruit. According to this idea, all plants, whether herbaceous or woody, are furniſhed with either the external calyx only, or with both. His claſſes are, 1. Herbs with the calyx external, including a flower unknown. 2. Calyx external, including a flower ſtaminous. 3. Calyx external, including a flower monopetalous. 4. Calyx external, including a flower polypetalous. 5. Calyx external, including a flower compound. 6. Calyx external, ſupporting a flower monopetalous. 7. Calyx external, ſupporting a flower polypetalous. 8. Calyx internal only, which is the corolla. 9. Calyx external and internal, flower monopetalous. 10. Calyx external and internal, flower with two and three petals. 11. Calyx external and internal, tetrapetalous. 12. Calyx external and internal, polypetalous. 13. Trees with the calyx external only. 14. Calyx internal only. 15. Calyx external and internal both.

The characters of the orders, or ſecondary diviſions, in Magnol's method, are derived chiefly from the figure of the calyx, petals, and ſeeds; from the diſpoſition of the flowers; from the number of petals, and ſubſtance of the fruit. Fifty-five ſections or orders ariſe from the combination of theſe characters with thoſe of the claſſes; and theſe are again ſubdivided into genera, which poſſeſs this ſingularity, that, in place of diſtinctive characters hitherto employed, they exhibit complete deſcriptions of all the parts of fructification of one or two ſpecies of each genus. From this improvement Linnæus manifeſtly borrowed the hint of his generical characters.

Sir John Hill's ſyſtem.

Sir John Hill, in his Vegetable Syſtem, endeavours to claſs plants according to their internal ſtructure *. "Perhaps (ſays he), upon the foundation of a true anatomy of plants a natural method may be eſtabliſhed: for it is certain, the forms of all the external parts of vegetables depend on the diſpoſition of the internal; and all their differences are founded there. On the different inner ſtructure of the vegetable body, under certain courſes of its veſſels, evidently depend the differences which characterize the ſeven firſt families, to the diſtinctions of which all claſſes are ſubordinate; and as theſe original diſtinctions are truly natural, we may here begin very ſafely.

* Vol. i. p. 130.

"The ſeven families are theſe, 1. The muſhrooms. 2. The algæ, or foliaceous ſea and land plants. 3. The moſſes. 4. The ferns. 5. The graſſes. 6. The palms. 7. The common race of plants. Their diſtinctions one from another are theſe:

"1. The muſhrooms are fleſhy; and are deſtitute of leaves and viſible flowers. 2. The algæ are merely foliaceous, the entire plant conſiſting of a leafy matter without other viſible parts. 3. The moſſes have proceſſes of the inner rind for leaves. 4. The ferns conſiſt of a ſingle leaf raiſed on a ſtalk; and bear their flowers upon its back. 5. The graſſes have jointed ſtalks and undivided leaves, and huſks to hold the ſeeds. 6. The palms have a ſimple trunk, with leaves only on the top, and have the flowers and fruit in divided ears."

Laſtly, The ſeventh claſs, which he calls the *common race of plants*, are ſuch as have their roots, leaves, ſtalks, flowers and fruits, diſtinct and obvious; and have not the characters of any of the other ſix families.

To this natural method his artificial one, conſiſting of 43 claſſes, and which takes up the whole of his voluminous work, is deſigned only as an index; but as this is univerſally allowed to be inferior to Linnæus's, though he intends to improve that ſyſtem, we think it needleſs to take any further notice of it.

Linnæus's arrangement by the calyx.

Beſides the ſexual ſyſtem of Linnæus, which is now almoſt univerſally followed, he formed another, which, like that of Magnol, had the calyx for its baſis, but greatly ſuperior both in the idea and execution, being indeed ſingularly ſerviceable to the novice in botany, by familiarizing to him various appearances of an organ ſo important in its nature, and ſo diverſified in its form, as the calyx is. The claſſes are, 1. Spathaceous, like a ſheath or hoſe. 2. Glumoſe or chaffy. 3. Amentaceous, or catkins. 4. Umbellated. 5. Common calyx or flower-cup. 6. Double calyx. 7. Flowering; the petals and ſtamina inſerted into the flower-cup. 8. Crowned, or crown-ſhaped, with a radius. 9. Irregular. 10. Difform, or different ſhapes. 11. Caducous, which fall off or ſhed their leaves. 12. Not caducous, uniform and monopetalous. 13. Not caducous, uniform and polypetalous. 14. Not caducous, difform and monopetalous. 15. Not caducous, difform and polypetalous. 16. Incomplete calyx. 17. Apetalous, or a bare calyx without petals. 18. Naked, or neither petals nor calyx.

Sect. IV. *Of the Sexes of Plants.*

As many philoſophers and botaniſts deny that ſuch a thing as the diſtinction of ſexes takes place in vegetables, it will be neceſſary to give a ſtatement of the arguments employed by both parties on this ſubject. We ſhall begin with the arguments in favour of the ſexes.

Sexual ſyſtem ancient

I. Linnæus is at great pains in tracing the notion of ſexes in plants to the remoteſt periods of antiquity. He informs us, that Empedocles, Anaxagoras, and other ancient philoſophers, not only attributed the diſtinction of ſexes to plants, but maintained that they were capable of perceiving pleaſure and pain.

Hippocrates and Theophraſtus are next introduced as diſtinguiſhing the conyza, the abies, the filix, &c. into male and female. The latter of theſe writers affirms that the fruit of the female palm will not germinate, unleſs the pollen of the male be ſhaken over the ſpatha of the female previous to the ripening of the ſeed.

Dioſcorides takes notice of a male and female mandragora, mercurialis, ciſtus, &c.

Pliny does not confine his views of ſex to animals, but exclaims, that every thing this earth produces is characterized by the diſtinction of ſex.

From the days of Pliny to thoſe of Cæſalpinus, who lived in the 16th century, the analogy between the vegetable and animal ſeems to have been entirely neglected. Cæſalpinus tells us, that the males of the oxycedrus, taxus, mercurialis, urtica, and cannabis, are barren; and that the females of theſe plants only bear fruit.

After Cæſalpinus, we find Dr Grew and Sir Thomas Millington engaged in a converſation concerning the utility of the ſtamina and ſtyli of plants. The reſult of this converſation was the mutual agreement of theſe two eminent naturaliſts, that the ſtamina and ſtyli of vegetables were analogous to the organs of generation in animals, and that they were adapted by nature to anſwer the ſame purpoſes. Dr Grew, in his anatomy of plants, after enumerating the analogies between plants and animals, concludes, that the pollen probably emits certain *viviſic* effluvia, which may ſerve for the impregnation of the ſeeds.

Mr Ray gave a further ſanction to the doctrine of ſexes, by concuring with Grew, and adding ſome further illuſtrations from analogy.

In the year 1695, Camerarius attempted to prove the ſexes of plants. But, as he truſted ſolely to the palm-tree, and withal ſeemed to be doubtful as to the authenticity of the fact, he cannot be conſidered as having done any thing in confirmation of the ſexual hypotheſis.

Mr Morland, in the year 1703, adopted the ſame hypotheſis; but gave it a new modification, by ſuppoſing that the pollen contained the ſeminal plant in miniature, and conſequently that it behoved one pollen at leaſt to be conveyed into every ſeparate ſeed before it could be properly impregnated. Analogy and the ſtructure of the parts are the only arguments he employs.

Some years after this, Mr Geoffroy wrote a treatiſe on the ſexes of plants: but as he advanced nothing new, we ſhall take no farther notice of him.

Vaillant, in the year 1717, judiciouſly conſidering that the canal in the ſtylus of moſt plants was too narrow to admit the pollen itſelf, republiſhed Dr Grew's theory of impregnation by means of a ſubtile ſeminal aura.

Theſe are the ſentiments of the principal botaniſts with regard to the generation of plants, till the celebrated Linnæus made his appearance as a botanical writer, who has extended the idea ſo far as to compoſe a complete ſyſtem upon it.

Although Linnæus can have no claim to the ſuppoſed diſcovery of the ſexual hypotheſis, his being preciſely the ſame with that of Dr Grew; yet, as he is the chief ſupporter and improver of this doctrine, we ſhall give a ſuccinct narration of the arguments he makes uſe of in order to prove that vegetables propagate their ſpecies by a regular commerce of ſexes.

In a treatiſe entitled, *Sponſalia Plantarum*, publiſhed as an inaugural diſſertation by Wahlbom, in the firſt volume of the *Amœnitates Academicæ*, all the arguments made uſe of by Linnæus in his *Fundamenta Botanica*, and other works, are collected and arranged in one view. But as Wahlbom honeſtly attributes all the merit of this diſſertation to his great maſter, we ſhall here drop his name altogether, and give the arguments as the property of Linnæus, by whom they were originally employed.

Linnæus, then, firſt attempts to ſhow, that vegetables are endowed with a certain degree of life; and, ſecondly, that they propagate their ſpecies in a manner ſimilar to that of animals.

Vegetables poſſeſs life.

"That vegetables are really living beings (ſays he), muſt be obvious at firſt ſight; becauſe they poſſeſs all the properties contained in that accurate definition of life laid down by the great Dr Harvey, namely, *Vita eſt ſpontanea propulſio humorum.* But univerſal experience teaches, that vegetables propel humours or juices: hence it is plain that vegetables muſt be endowed with a certain degree of life."

Not truſting ſolely to a ſyllogiſm founded on a definition, Linnæus proceeds to ſupport the life of vegetables by arguments drawn from the following particulars in their economy; the firſt of which he entitles,

"1. *Nutritio.*—The very idea of nutrition implies a propulſion of humours, and of courſe the idea of life. But vegetables derive their nouriſhment from the earth, air, &c. and conſequently muſt be conſidered as living creatures.

"2. *Ætas.*—Every animal muſt not only begin to exiſt, and have that exiſtence diſſolved by death, but muſt likewiſe paſs through a number of intermediate changes in its appearance and affections. *Infancy*, *youth*, *manhood*, *old age*, are characterized by *imbecility*, *beauty*, *fertility*, *dotage*. Are not all theſe viciſſitudes conſpicuous in the vegetable world? Weak and tender in *infancy*; beautiful and ſalacious in *youth*; grave, robuſt, and fruitful, in *manhood*; and when *old age* approaches, the head droops, the ſprings of life dry up, and, in fine, the poor tottering vegetable returns to that *duſt* from whence it ſprung.

"3. *Motus.*—No inanimate body is capable of ſelf-motion. Whatever moves ſpontaneouſly, is endowed with a living principle: for motion depends on the ſpontaneous propulſion of humours: and wherever there is a ſpontaneous propulſion of humours, there alſo is life. That vegetables are capable of motion, is evident from the following facts: Plants, when confined within doors, always bend towards the light, and ſome of them even attempt to make their eſcape by the windows. The flowers of many plants, eſpecially thoſe of the ſyngeneſia claſs, purſue the ſun from eaſt to weſt, rejoicing in his beams. Who then can deny that vegetables are poſſeſſed of living and ſelf-moving powers?

"4. *Morbus.*—The term *diſeaſe* means nothing more than a certain corruption of life. It is well known, that vegetables are ſubject to diſeaſes as well as animals: when over-heated, they turn thirſty, languiſh, and fall to the ground; when too cold, they are tormented with the chilblain, and not unfrequently *expire*: they are ſometimes afflicted with cancers; and every plant is infeſted with lice peculiar to its ſpecies.

"5. *Mors.*—Death is oppoſed to life, the former being only a privation of the latter. Experience ſhows that every living creature muſt die. But as vegetables are daily cut off by internal diſeaſes and external injuries; as they are ſubject to death from the attacks of hunger,

hunger, thirſt, heat, cold, &c. with what propriety could vegetables be thus ſaid to *die*, unleſs we allow that they previouſly *lived?*

" 6. *Anatomia.*—Under this article we are referred to Malpighius and Grew for the organic fibres, membranes, canals, veſicles, &c. of plants, as additional proofs of their living powers.

" 7. *Organizatio.*—Vegetables not only propel humours, but alſo prepare and ſecern a number of different juices for the fruit, the nectar, &c. analogous to the various ſecretions in animal bodies."

From theſe facts and obſervations, Linnæus concludes, that plants are unqueſtionably endowed with life as well as animals; and then proceeds in the following manner to ſhow how theſe animated vegetables propagate their ſpecies.

Arguments for the ſexual ſyſtem.

After diſcuſſing the long-exploded doctrine of equivocal generation, he lays hold of another maxim of Dr Harvey, viz. *Omne vivum ex ovo.*—" It being fully evident (ſays he), from the foregoing chain of reaſoning, that vegetables are endowed with life, it neceſſarily follows, agreeable to this maxim of Harvey's, that every vegetable muſt in like manner derive its exiſtence from an *egg*. But as vegetables proceed from eggs, and as it is the diſtinguiſhing property of an egg to give birth to a being ſimilar to that which produced it, the ſeeds muſt of courſe be the *eggs* of vegetables.

" Granting then that the ſeeds of vegetables are intended by nature to anſwer the ſame end as the eggs of animals, and conſidering at the ſame time that no egg can be fecundated without receiving an impregnation from the male, it follows, that the ſeed or eggs of vegetables cannot be fecundated by any other means. Hence alſo the neceſſity of vegetables being provided with organs of generation. But where are theſe organs ſituated? The anſwer is eaſy:—We have already found impregnated ſeeds within the flowers of plants; and it is natural to expect that the *genitalia* ſhould not be at a greater diſtance. Now, as *copulation* always precedes *birth*, and every *flower* precedes the *fruit*, the *generating faculty* muſt be aſcribed to the *flower*, and the *birth* to the *fruit*. Again, As the *antheræ* and *ſtigmata* are the only eſſential parts of flowers, theſe parts muſt neceſſarily be the *organs of generation*."

Being thus far advanced, Linnæus affirms, that the *antheræ* are the *teſtes*, and that the pollen performs the office of the male *ſemen*. Theſe affirmations he attempts to eſtabliſh by the following arguments; the firſt of which he terms

" 1. *Præcedentia.*—The antheræ, or vegetable teſtes, always precede the fruit; and as ſoon as the antheræ come to maturity, which conſtantly happens before the maturity of the fruit, they continue to throw out their pollen as long as the flower laſts; but decay and fall off whenever the fruit comes to perfection.

" 2. *Situs.*—The antheræ of all plants are uniformly ſituated in ſuch a manner that the pollen may with the greateſt facility fall upon the ſtigma or female organ.

" 3. *Tempus.*—The antheræ and ſtigma always flouriſh at the ſame time, whether the flowers be of the hermaphrodite or dioicous kind.

" 4. *Loculamenta.*—When the antheræ are diſſected, they diſcover as great a variety of ſtructure as the pericarpia or ſeed-capſules; for ſome of them have one cell, as the mercury; ſome two, as the hellebore, &c.

" 5. *Caſtratio.*—If all the antheræ be cut off from an hermaphrodite plant, juſt before the flowers begin to expand, taking care at the ſame time that no plant of the ſame ſpecies grow near it, the fruit will either prove entirely abortive, or produce barren ſeeds.

" 6. *Figura.*—When the pollen of different plants is examined by the microſcope, it exhibits as great a variety of figures as is diſcoverable in the ſeeds themſelves.

" The accumulated force of theſe arguments (concludes Linnæus) amounts to a full demonſtration that the antheræ are the teſtes, and that the pollen is the ſemen or genitura of vegetables.

" The male organ being thus inveſtigated, we hope (ſays Linnæus) that none will heſitate to pronounce the ſtigma to be the female organ, eſpecially when the following obſervations are attended to.

" The piſtillum is compoſed of the germen, ſtylus, and ſtigma. The germen, being only a kind of rudiment of the future fœtus or ſeed, ceaſes to exiſt as ſoon as the flower comes to maturity. Neither is the ſtylus an eſſential part, as many flowers have no ſtylus. But no fruit ever comes to maturity without the aſſiſtance of the ſtigma. It follows, that the ſtigma muſt be the female organ adapted by nature for the reception of the pollen or impregnating ſubſtance. This will appear ſtill clearer from the following chain of reaſoning.

" 1. *Situs.*—The ſtigmata are always ſituated ſo that the pollen may with moſt eaſe fall upon them. Beſides, it is remarkable, that in moſt plants (though not in all) the number of the ſtigmata exactly correſponds with the loculamenta or cells of the pericarpium.

" 2. *Tempus.*—Here the obſervation, that the ſtigmata and antheræ conſtantly flouriſh at the ſame time, is repeated.

" 3. *Decidentia.*—The ſtigmata of moſt plants, like the antheræ, decay and fall off as ſoon as they have diſcharged their proper function; which evidently ſhows, that their office is not to ripen the fruit, but ſolely to anſwer the important purpoſe of impregnation.

" 4. *Abſciſſio.*—The argument here is preciſely the ſame with the caſtration of the antheræ; and the reſult is likewiſe the ſame, namely the deſtruction of the fruit.

" Theſe arguments (concludes Linnæus) are ſufficient to demonſtrate, that the ſtigma is the female organ of generation, or that organ which is ſuited for the reception and conveyance of the ſemen to the *vegetable eggs*. Hence plants may be ſaid to be *in actu veneris*, when the antheræ or teſticuli ſpread their pollen over the ſtigma or female *vulva*."

To ſhow how the *coitus* of vegetables is effected, is our author's next object of inveſtigation. He affirms, that the pollen is conveyed, by means of the wind or inſects, to the moiſt ſtigma, where it remains until it diſcharges a ſubtile fluid, which being abſorbed by the veſſels of the ſtigma, is carried to the ſeeds or ova, and impregnates them. His proofs are taken from the following particulars.

" 1. *Oculus.*—When the flowers are in full blow, and the pollen flying about, every one may then ſee the pollen adhering to the ſtigma. This he illuſtrates by

mentioning as examples the viola tricolor, iris, campanula, &c.

" 2. *Proportio.*—The ſtamina and piſtilla, in moſt plants, are of equal heights, that the pollen, by the intervention of the wind may, with the greater facility, fall upon the ſtigma.

" 3. *Locus.*—The ſtamina of moſt plants ſurround the piſtillum, to give the pollen an opportunity of falling upon the ſtigma at every breeze of wind. Even in the moncœcia claſs, the male flowers ſtand generally above the female ones, to afford an eaſier conveyance of the pollen to the ſtigma.

" 4. *Tempus.*—It is remarkable that the ſtamina and piſtilla conſtantly appear at the ſame time, even in plants belonging to the moncœcia claſs.

" 5. *Pluviæ.*—The flowers of moſt plants expand by the heat of the ſun, and ſhut themſelves up in the evening or in rainy weather. The final cauſe of this muſt be to keep the moiſture from the pollen, leſt it ſhould be thereby coagulated, and of courſe prevented from being blown upon the ſtigma.

" 6 *Palmicolæ.*—That the cultivators of palm-trees were in uſe to pull off the ſpadices from the males, and ſuſpend them over the ſpathæ of the females, is atteſted by Theophraſtus, Pliny, Proſper Alpinus, Kempfer, and many others. If this operation happened to be neglected, the dates were ſour and deſtitute of nuts. Kempfer adds this ſingular circumſtance, that the male ſpadix, after being thoroughly dried and kept till next ſeaſon, ſtill retained its impregnating virtue.

" 7. *Flores nutantes.*—As the pollen is ſpecifically heavier than air, ſuch flowers as have their piſtillum longer than the ſtamina, hang down, or incline to one ſide, *e. g.* the fritillaria, campanula, &c. An eaſy admiſſion of the pollen to the ſtigma is the final cauſe of this appearance.

" 8. *Submerſi.*—Many plants that grow below water, emerge when their flowers begin to blow, and ſwim upon the ſurface till they receive their impregnation, and then ſink down.

" 9. *Omnium florum genuina conſideratio.*"—Here a number of particulars are recited. We ſhall confine ourſelves to thoſe that are moſt ſtriking and applicable to the ſubject.

" When the flowers of the male hemp are pulled off before thoſe of the female are fully expanded, the females do not produce fertile ſeeds. But as a male flower is ſometimes found upon a female plant, this may be the reaſon why fertile ſeeds are ſometimes produced even after this precaution has been obſerved.

" The tulip affords another experiment of the ſame purpoſe. Cut off all the antheræ of a red tulip before the pollen is emitted; then take the ripe antheræ of a white tulip, and throw the pollen of the white one upon the ſtigma of the red; the ſeeds of the red tulip being thus impregnated by one of a different complexion, will next ſeaſon produce ſome red, ſome white, but moſt variegated flowers."

In the year 1744, Linnæus publiſhed a deſcription of a new genus which he called *peloria*, on the ſuppoſition of its being a *hybrid* or *mule* plant, *i. e.* a plant produced by an unnatural commixture of two different genera. The root, leaves, caulis, &c. of this plant are exceedingly ſimilar to thoſe of the antirrhinum linaria; but the flower and other parts of the fructification are totally different. On account of its ſimilarity to the linaria in every part but the flower, Linnæus imagined it to have been produced by a fortuitous commixture of the linaria with ſome other plant, although he has never yet been able to point out the father. This doctrine of the production of *mule* plants has ſince been greatly prized, and carefully propagated, by Linnæus and the other ſupporters of the ſexual hypotheſis. In the third volume of the *Amœnitates Academicæ*, there is a complete diſſertation, entitled *Plantæ Hybridæ*, wherein the doctrine of *vegetable mules* is much improved and extended. This diſſertation contains a liſt of 47 mules, with their ſuppoſed fathers and mothers. For example.

The Veronica ſpuria is ſaid to be a *mule* plant *begot by* the Verbena officinalis *upon* the Veronica maritima.

The Delphinium hybridum, a *mule begot* by the Aconitum napellus *upon* the Delphinium elatum.

The Arctotis calendula, a *mule begot* by the Calendula pluvialis *upon* the Arctotis triſtis.

The Aſclepias nigra, a *mule begot* by the Cynanchum acutum *upon* the Aſclepias vincetoxicum, &c.

From the examples given in this diſſertation, Linnæus draws this concluſion, That only two ſpecies of each genus exiſted *ab origine;* and that all the variety of ſpecies which now appear have been produced by unnatural embraces betwixt ſpecies of different genera.

Under this head Linnæus likewiſe quotes from Ray the ſtory of Richard Baal gardener at Brentford. This Baal ſold a large quantity of the ſeeds of the braſſica florida to ſeveral gardeners in the ſuburbs of London. Theſe gardeners, after ſowing their ſeeds in the uſual manner, were ſurpriſed to find them turn out to be plants of a different ſpecies from that which Baal made them believe they had purchaſed; for, inſtead of the braſſica florida, the plants turned out to be the braſſica longifolia. The gardeners, upon making the diſcovery, commenced a proſecution of fraud againſt Baal in Weſtminſter-hall. The court found Baal guilty of fraud, and decerned him not only to reſtore the price of the ſeeds, but likewiſe to pay the gardeners for their loſt time, and the uſe of their ground. " Had theſe judges (ſays Linnæus) been acquainted with the ſexual hypotheſis, they would not have found Baal guilty of any crime, but would have aſcribed the accident to the fortuitous impregnation of the braſſica florida by the pollen of the braſſica longifolia."

Linnæus next proceeds to celebrate the utility of inſects, becauſe they convey the pollen of the male to the ſtigma of the female. " In this way (ſays he), it is reaſonable to think that many dioicous plants are impregnated. Nay, even the hermaphrodites themſelves are greatly obliged to the different tribes of inſects, which, by fluttering and treading in the corolla, are conſtantly ſcattering the pollen about the ſtigma.

" Upon the whole then, (concludes Linnæus), the coitus of vegetables is evident to a demonſtration. This coitus is nothing more than the conveyance of the pollen to the ſtigma, to which it adheres till it burſts, and diſcharges a ſubtile elaſtic fluid. This fluid or aura is abſorbed by the veſſels of the ſtylus, and carried directly to the ovarium or germen, where the myſterious work of impregnation is fully completed."

These are the arguments employed by Linnæus and other

other advocates for the ſexual commerce of vegetables. Let us next attend to thoſe employed by the oppoſers of this hypotheſis.

Objections to the ſexual ſyſtem.

It is admitted by Pontedera, Dr Alſton, &c. that ſome of the ancients applied the terms *male* and *female* to ſeveral plants. But then they deny that theſe terms conveyed the ſame ideas to the ancients that they do to the moderns. *Male* and *female*, when applied to plants, were to the ancients mere terms of diſtinction, ſerving only as trivial names to diſtinguiſh one ſpecies or variety from another. The ancients were ignorant of the very characters which conſtitute the difference between what is called a *male* and *female* plant among the moderns. Theophraſtus, Dioſcorides, Pliny, and, in a word, the whole ancient botanical writers, confound the very notion of the modern ſexes: they call the real female, or ſeed-bearing plant, the *male*; and the male, or barren plant, the *female*. Nay, they have even applied the terms *male* and *female* to many plants which bear nothing but hermaphrodite flowers.

Such is the nature of this controverſy, that it cannot be determined with any degree of certainty, but by experiments made upon dioicous plants. If a female plant can produce fertile ſeeds without having any communication with the pollen of the male, the uſe of this pollen with reſpect to the impregnation of ſeeds muſt of neceſſity be entirely ſuperſeded.

Now, both Camerarius and Dr Alſton tried theſe experiments with the ſame ſucceſs. Theſe two eminent botaniſts took female plants of the mercury, ſpinage, and hemp; tranſplanted them at a great diſtance from any males of the ſame genus, and beſides had them encloſed by double rows of hedges. The reſult was, that each of theſe plants produced great quantities of fertile ſeeds. Tournefort made the ſame trial upon the lupulus, Miller upon the bryony, and Geoffroy upon the mays; and all of them declared that the ſeeds of theſe plants were as fertile as if they had been ſurrounded by a thouſand males.

Linnæus, in his firſt argument for the coitus of plants, refers every man to the evidence of his ſenſes.

"Do we not ſee (ſays he) the ſtigma of almoſt every hermaphrodite flower covered over with the pollen or impregnating ſubſtance? Do not we ſee the parietaria, the urtica, &c. by violent exploſions, diſcharging their pollen in the open air, that it may be carried in that vehicle to the ſtigmata of their reſpective females?—All this is admitted by the oppoſers of the ſexes: but then they deny that theſe exploſions, &c. are intended to create any intercourſe between the male and the female; and further allege, that this ejection of the pollen is intended by nature to throw off ſomething excrementitious, or at leaſt ſomething which, if retained, would prove noxious to the fructification.

Linnæus takes his ſecond argument from the proportion which the ſtamina bear to the ſtylus, alleging that they are generally of the ſame height.—This obſervation (ſay the anti-ſexualiſts) is not only contrary to experience, but, allowing it to be univerſal, no concluſion can be drawn from it either for or againſt the ſexual hypotheſis.

The third argument is taken from the *locus* or ſituation of the ſtamina with reſpect to the ſtylus: "and as the male flowers in the monœcia claſs ſtand always above the female flowers, it muſt be concluded (ſays Linnæus), that the intention of nature, in this diſpoſition of the parts, is to allow a free and eaſy acceſs of the pollen to the ſtigma."—But the ſtamina cannot be ſaid to ſurround the piſtillum in the monandria and diandria claſſes: and the poſition of the male flowers in the monœcia claſs is a mere chimera; for in the ricinus, one of the examples which Linnæus mentions in confirmation of his doctrine, the female flowers ſtand uniformly ſome inches above the males.

That the ſtamina and piſtilla generally come to perfection at the ſame time, and that this happens even in the dioicous plants, is Linnæus's fourth argument. But, as it is acknowledged by Linnæus himſelf, that there are many exceptions with reſpect to this fact, the oppoſers of the ſexual hypotheſis allege that it carries the beſt anſwer in its own boſom.

The fifth argument is founded on the circumſtance of ſome flowers ſhutting up their petals in rainy or moiſt evenings.—But many flowers do not ſhut themſelves up, either in the night or moiſt weather, as the paſſion-flower, &c.: the lychnis noctiflora, mirabilis peruviana, &c. open their flowers in the night, and ſhut them at the approach of the ſun. Hence this is another final cauſe (ſay the anti-ſexualiſts) perverted to ſupport a favourite hypotheſis.

We come now to the culture of the palm tree, which is the ſixth and moſt plauſible argument employed by the ſexualiſts. Of this, the moſt authentic account we have is the following by Dr Haſſelquiſt, in one of his letters to Linnæus, dated Alexandria May 18. 1750. "The firſt thing I did after my arrival was to ſee the date tree, the ornament and a great part of the riches of this country. It had already bloſſomed; but I had, nevertheleſs, the pleaſure of ſeeing how the Arabs aſſiſt its fecundation, and by that means ſecure to themſelves a plentiful harveſt of a vegetable, which was ſo important to them, and known to them many centuries before any botaniſt dreamed of the difference of ſexes in vegetables. The gardener informed me of this before I had time to enquire; and would ſhow me as a very curious thing, the male and female of the date or palm trees: nor could he conceive how I, a Frank, lately arrived, could know it before; for (ſays he) all who have yet come from Europe to ſee this country, have regarded this relation either as a fable or miracle. The Arab ſeeing me inclined to be further informed, accompanied me and my French interpreter to a palm tree, which was very full of young fruit, and had by him been wedded or fecundated with the male when both were in bloſſom. This the Arabs do in the following manner: when the ſpadix has female flowers, that come out of its ſpatha, they ſearch on a tree that has male flowers, which they know by experience, for a ſpadix which has not yet burſted out of its ſpatha: this they open, take out the ſpadix, and cut it lengthwiſe in ſeveral pieces, but take care not to hurt the flowers. A piece of this ſpadix with male flowers they put lengthwiſe between the ſmall branches of the ſpadix which hath female flowers, and then lay the leaf of a palm over the branches. In this ſituation I yet ſaw the greateſt part of the ſpadices which bore their young fruit; but the male flowers which were put between were withered. The Arab beſides gave me the following anecdotes: Firſt, Unleſs they in this manner, wed and fecundate the date tree, it bears no fruit. Secondly,

condly, They always take the precaution to preſerve ſome unopened ſpathæ with male flowers from one year to another, to be applied for this purpoſe, in caſe the male flowers ſhould miſcarry or ſuffer damage. Thirdly, If they permit the ſpadix of the male flowers to burſt or come out, it becomes uſeleſs for fecundation: it muſt have its *maidenhead* (theſe were the words of the Arab), which is loſt in the ſame moment the bloſſoms burſt out of their caſe. Therefore the perſon who cultivates date trees muſt be careful to hit the right time of aſſiſting their fecundation, which is almoſt the only article in their cultivation. Fourthly, On opening the ſpatha, he finds all the male flowers full of a liquid which reſembles the fineſt dew; it is of a ſweet and pleaſant taſte, reſembling much the taſte of freſh dates, but much more refined and aromatic; this was likewiſe confirmed by my interpreter, who hath lived 32 years in Egypt, and therefore had opportunities enough of taſting both the nectar of the bloſſoms and the freſh dates."

Now, though this account ſeems fully to confirm the fact, viz. that ſuch a practice obtains among the Arabs, and that they aſſert its efficacy in fecundating the trees, it is certain (ſay the oppoſers of this doctrine), that no intelligent perſon, who is not already wedded to an hypotheſis, will attempt to found an argument upon the aſſertions of a people ſo full of ridiculous ſuperſtitions. Before Dr Haſſelquiſt, or any other perſon, can draw any argument from the above mentioned account, he ought to ſee the experiment ſeveral times repeated, with his own eyes, and not take it upon the word of a people who, beſides their ſuperſtition, may very probably find it their intereſt to impoſe upon travellers.

Mr Milne, author of the Botanical Dictionary, however, relates an experiment, near akin to the above mentioned, which merits ſome attention: "In the garden of M. de la Serre, of the Rue S. Jacques at Paris, was a female turpentine tree, which flowered every year, without furniſhing any fruit capable of vegetation. This was a ſenſible mortification to the owner, who greatly deſired to have the tree increaſed. Meſſieurs Duhamel and Jeſſieu very properly judged that they might procure him that pleaſure by the aſſiſtance of a male piſtachio tree. They ſent him one very much loaded with flowers. It was planted in the garden of M. de la Serre, very near the female turpentine tree, which the ſame year produced a great quantity of fruits, that were well conditioned, and roſe with facility. The male plant was then removed; the conſequence of which was, that the turpentine tree of M. de la Serre in none of the ſucceeding years bore any fruit that, upon examination, was found to germinate."

Upon this experiment it is obſerved by the antiſexualiſts, that, though it were a thouſand times repeated, it never could be deciſive. The nature of the controverſy, ſay they, is ſuch, that one experiment is more deciſive in favour of their opinion, that 10,000 can be againſt them. The reaſon is plain: If there is ſuch a thing as a ſexual intercourſe in vegetables, it is as wonderful that any ſeeds ſhould be perfected without that intercourſe, as that a virgin ſhould have a child; the laſt is not in the leaſt more extraordinary than the firſt. One experiment, therefore, which ſhows that ſeeds may be perfected without ſuch ſexual intercourſe, is either to be reſolved into a miracle, or muſt prove abſolutely deciſive againſt the ſexual ſyſtem; while numberleſs experiments ſuch as that above mentioned could prove nothing, becauſe we know not what effect vegetables may have by growing in each other's neighbourhood, independent of any ſexual intercourſe.

In Milne's Botanical Dictionary, under the article *Sexus Plantarum*, the author quotes Dr Alſton's experiments partially. The facts recorded by Dr Alſton are as follow: 1. Three ſets of ſpinach, planted at a great diſtance from each other, proved all of them fertile, and ripened *plenty* of ſeeds, which were found to anſwer as well as other ſpinach ſeed. 2. A plant of hemp growing by itſelf, being taken care of, produced about 30 good ſeeds, though in a ſituation very much expoſed, and plucked up too ſoon, on account of bad weather, in the autumn. 3. This experiment, which is the moſt remarkable of the three, we ſhall give in the Doctor's own words. "In the ſpring of 1741, I carried two young ſeedling plants of the French mercury, long before there was any in, from this city phyſic garden, the only place where it was then to be found in this country, to the king's garden at the Abbey; which are more than 700 yards diſtant from one another, with many high houſes, trees, hedges, and part of a high hill between them; and planted one of them in one enclоſure, where it was ſhaded from the ſun the greateſt part of the day; and the other in another 25 yards diſtant, expoſed to the ſouth and weſt. Both plants ripened fertile ſeeds; and the laſt ſhed them ſo plentifully, that it proved a troubleſome weed for ſeveral years, though none of the ſpecies was to be found in that garden for more than 20 years preceding."

Of this experiment Mr Milne hath not taken any notice; but upon the other two, has the following remark: "The reſult of theſe, and ſuch like experiments, can be accounted for, on the principle of the ſexes, in no other way than on the ſuppoſition that ſome male flowers have been intermixed with the female, and operated the fecundation in queſtion. This appears the more probable, as only *a part* of the ſeeds in the above experiments attained to perfect maturity, ſo as to be capable of vegetation.

The ſeventh argument of Linnæus is taken from the *flores nutantes*.—The piſtils of theſe flowers, according to Linnæus, are always longer than the ſtamina; and nature has aſſigned them this penſile poſture, that the pollen, which is ſpecifically heavier than air, may the more conveniently fall upon the ſtigma. But the piſtils of the campanula, lilium, and many other *flores nutantes*, are not longer than the ſtamina. Beſides, granting this were uniformly the caſe; yet, as the pollen is heavier than air, this poſture muſt of neceſſity either make the pollen miſs the piſtillum altogether, or, at any rate, it can only fall upon the back part of the piſtil in place of the ſtigma; and, of courſe, ſuch a direction would rather tend to fruſtrate than promote the impregnation of the ſeed.

The eighth argument is taken from the *plantæ ſubmerſæ*, which are ſaid to emerge as ſoon as their flowers begin to blow, leſt the pollen ſhould be coagulated or waſhed off by the water. But many ſubmarine and aquatic plants fructify entirely below water; and, ſuppoſing they did not, the ſame argument would equally

prove

prove it to be the intention of nature, that the pollen ſhould be blown away by the winds, as that it ſhould be ſubſervient to the impregnation of the ſeed.

The ninth and laſt argument is entitled *Omnium florum genuina conſideratio;* which (ſay the antiſexualiſts) is nothing more than a collection of vague obſervations upon the ſtructure and economy of particular plants, ſome of them true, others falſe, but all of them evidently thruſt in as ſupports to a favourite hypotheſis.

Farther arguments by Linnæus.

THUS the diſpute reſted ſome years ago; but of late there has appeared a tranſlation of one of Linnæus's works upon the ſubject, which, though publiſhed in 1759, was but little known in this country. A treatiſe on the Sexual Syſtem had alſo been publiſhed by the Abbe Spalanzani, in which he not only oppoſed the Linnæan doctrine, but treated it with ridicule, though without taking any notice of this laſt publication, which he ſeems to have been ignorant of. In this he mentions an experiment with hemp ſimilar to ſome of thoſe already related; but which was alſo tried by Linnæus, and in his hands turned out the very reverſe of what it did with Spalanzani. In the treatiſe alluded to, Linnæus mentions Sir Thomas Millington as the firſt among the moderns who thought of the diſtinction of ſexes in plants. He was Savilian profeſſor at Oxford; and Dr Grew, in his Anatomy of Plants, relates, that in a converſation on the nature of the antheræ of flowers, Sir Thomas hinted, that thoſe parts might probably be analogous to the male organs of animals, and ſerve for the impregnation of the fruit. Grew improved on the idea, and purſued it. That the ſubject, however, may be properly underſtood, our author is of opinion, that we ſhould firſt accurately underſtand the nature of vegetable bodies; and in order to do this, we ought firſt to conſider the operations of nature in the human frame, and from thence continue our reſearches through the various tribes of inferior animals, till at laſt we arrive at the vegetable creation. In like manner, to illuſtrate the generation of plants, we muſt likewiſe take our firſt lights from the animal kingdom, and purſue the ſame chain till we come to vegetables. This ſubject, indeed, he owns to be ſo obſcure, that no naturaliſt has hitherto been able to ſay any thing ſatisfactory concerning it; he only mentions ſome remarkable facts concerning the production of mule animals from the copulation of two individuals of different ſpecies. In the horſe kind we ſee two different kinds of mules produced. "From the mare and male aſs (ſays he proceeds the mule properly ſo called, which in its nature, that is, in its medullary ſubſtance and nervous ſyſtem, agrees with its mother; but in its cortical ſubſtance and outward form, in its mane and tail, reſembles the aſs. Between the female aſs and the horſe, the other kind of mule is engendered, whoſe nature or medullary ſubſtance reſembles that of the aſs; but its cortical ſtructure that of the horſe. If the he-goat of Angora copulates with the common ſhe-goat, the kid, by that means procured, inherits the external ſtructure and valuable coat of its father; while, on the other hand, if the common he-goat impregnates the goat of Angora, the kid produced has the ſame external form, and bears the ſame worthleſs hair with its father. Hence it ſeems probable, that the medullary ſubſtance, with what Malpighi calls the keel (*carina*), and the nervous ſyſtem, are latent in the egg of the mother; the cortical ſubſtance, or vaſcular ſyſtem, being derived from the father."

Theſe cortical and medullary ſubſtances are previouſly explained by our author to be thoſe of which both animal and vegetable bodies are compoſed. By the medullary ſubſtance in animal bodies, he means the ſpinal marrow ariſing from the organized brain, and ſending off the nerves; by the cortical ſubſtance the veſſels with the heart attached to them, by which the medullary part is nouriſhed. In vegetables, the cortical part nouriſhes the plant, not only by its roots, but with its whole ſurface. For a ſmall branch torn from the parent ſtem, and placed in water, imbibes nouriſhment at its pores. Thus the *Fuci*, and other marine vegetables, are nouriſhed without a root, ſolely by the pores diſperſed through their whole ſubſtance. The bark of trees every year depoſites its gelatinous internal layer, which is added to the wood, and aſſimilates itſelf to it. The medullary, which is the other eſſential part of vegetables, is multiplied and extended without end; and whenever it is entirely loſt, the death of the plant neceſſarily follows. In examining this ſubſtance, we muſt be careful, in two caſes, that we be not miſled; firſt, by the ſtraws of graſſes, and by other hollow ſtems, where the medulla lines the inſide of the bark; and ſecondly, by large trees, whoſe trunks become perfectly ſolid throughout, except in the very ſummits of the branches. The wood performs the office of bones, when there is no longer any occaſion for the medulla in that part; and trees, although become hollow, continue nevertheleſs to grow ſo long as this ſubſtance remains in the extreme branches. It is by no means neceſſary that the medulla ſhould have any connexion with the root, as it is only nouriſhed by the cortical ſubſtance of the plant, and is therefore increaſed at its upper extremity without end if it meets with no reſiſtance. In thoſe animals whoſe ſpinal marrow is ſurrounded by a bony covering, as in the larger and more perfect kinds, this ſubſtance never comes out of its confinement; and the harder its caſe, the more abſolutely is its increaſe prevented; but in the ſmaller tribes of worms, where this covering is leſs rigid, a perpetual and unlimited increaſe of the animal takes place.

"The moſt important parts of the flower, and which are abſolutely eſſential to it, (our author proceeds to obſerve *), are the ſtamina and piſtilla. So eſſential are they, that among the many thouſands of flowers with which we are acquainted, no one can be found not furniſhed with both theſe organs. The ſtamina derive their origin from the ſubſtance of the wood, which was originally formed from the inner bark, and they may therefore be ſaid to ſpring from the cortical ſubſtance of the vegetable. This is perfectly evident in the aſarum (aſarabacca), whoſe twelve ſtamina proceed from twelve fibres in the inner bark. Double flowers illuſtrate the ſame fact: in them, the ſtamina being weakened and diſſolved by exceſs of nouriſhment, the woody ſubſtance reaſſumes the ſoftneſs of the inner bark, of which it was originally formed. All ſtamina conſiſt of veſſels containing the pollen, or impregnating powder, which they diſcharge in due time, not without the ſtricteſt obſervance of certain natural laws. The form of theſe veſſels, like that of the

* *Differ. on the Sexes of Plants*, Smith's Tranſl. p. 28. ſeq.

the capſules of the fruit, is accurately defined, as well as their cells, their particular manner of burſting, and the pollen which they contain; this pollen, likewiſe, is no leſs certain and uniform in its figure, ſize, and colour, than the ſeeds themſelves.

"The piſtillum is the only part which originates from the medullary ſubſtance, and is therefore invariably ſituated in the centre of the flower. It always contains the rudiments of the ſeed, which, in proceſs of time, ripen into fruit. The rudiments of the fruit are called the *germen*, or ſeed-bud; this has conſtantly another organ connected with it, named the *ſtigma*, which is in its higheſt degree of vigour and perfection during the time of flowering.

"Another circumſtance worthy of attention is, that the root, which the firſt year of its growth is large and filled with medullary pulp, the following ſeaſon becomes hollow, in producing the ſtem, flowers, and ſeed; all this pulp being conveyed to the flower, and ſeeming to be only deſtined to the formation of ſeed, ſo many new and diſtinct animations being formed from it as there are rudiments of new plants. This is particularly obſervable in the turnip.

"Thus vegetables, like inſects, are ſubject to a metamorphoſis; with this difference only, that their flowers are fixed to one ſpot, inſtead of being able, like inſects, to fly from place to place; and that their nouriſhment is not given them by means of peculiar organs for the formation of chyle. We have ſeen, that the outer bark becomes calyx, the internal bark corolla, the wood ſtamina, and the medulla piſtillum; the fructification exhibiting the internal parts of a plant naked and unfolded. We have likewiſe ſeen, that the fructification puts an end to vegetation in the part from whence it ariſes, ſtopping the progreſs of the medulla, which would otherwiſe have extended itſelf without end by the branches, and occaſioning the diviſion of that medulla into a number of ſeeds, each endowed with a ſeparate living principle. But as the medulla exiſts naked in the germen, it cannot ſupport itſelf, or make any farther progreſs, without the aſſiſtance of the cortical ſubſtance which it has left; it muſt therefore receive this aſſiſtance by ſome means or other, and in fact does receive it from the ſtamina and their pollen, which owe their origin to the woody matter derived from the inner bark, and originally generated by the outer bark. But if it happens that the cortical ſubſtance is able to inveſt the medullary rudiments of the ſeed in the flower itſelf, the plant becomes viviparous, as in *feſtuca*, *aira*, and *poa vivipara*, in which nearly the ſame thing takes place as in the medulla of other plants, which remains in the branches, and is variouſly diſtributed, being at once both clothed and nouriſhed by the bark, and enabled to form new branches, juſt as it happens in the compound animals, or *ſertulariæ*.

"The organs common in general to all plants are, 1. The root, with its capillary veſſels, extracting nouriſhment from the ground. 2. The leaves, which may be called the *limbs*, and which, like the feet and wings of animals, are organs of motion; for being themſelves ſhaken by the external air, they ſhake and exerciſe the plant. 3. The trunk, containing the medullary ſubſtance, which is nouriſhed by the bark, and for the moſt part multiplied into ſeveral compound plants. 4. The fructification, which is the true body of the plant, ſet at liberty by a metamorphoſis, and conſiſts only of the organs of generation; it is often defended by a calyx, and furniſhed with petals, by means of which it in a manner flutters in the air.

"Many flowers have no calyx, as ſeveral of the lily tribe, the *hippuris*, &c.; many want the corolla, as graſſes, and the plants called *apetalous*; but there are none deſtitute of ſtamina and piſtilla, thoſe important organs deſtined to the formation of fruit. We therefore infer from experience, that the ſtamina are the male organs of generation, and the piſtilla the female; and as many flowers are furniſhed with both at once, it follows that ſuch flowers are hermaphrodites. Nor is this ſo wonderful, as that there ſhould be any plants in which the different ſexes are in diſtinct individuals; for plants being immoveably fixed to one ſpot, cannot, like animals, travel in ſearch of a mate. There exiſts, however, in ſome plants, a real difference of ſex. From ſeeds of the ſame mother, ſome individuals ſhall be produced, whoſe flowers exhibit ſtamina without piſtilla, and may therefore be properly called *males;* while the reſt, being furniſhed with piſtilla without ſtamina, are therefore denominated *females:* and ſo uniformly does this take place, that no vegetable was ever found to produce female flowers, without flowers furniſhed with ſtamina being produced, either on the ſame individual, or on another plant of the ſame ſpecies, and *vice verſa*.

"As all ſeed-veſſels are deſtined to produce ſeeds, ſo are the ſtamina to bear the *pollen*, or fecundating powder. All ſeeds contain within their membranes a certain medullary ſubſtance, which ſwells when dipped into warm water. All pollen, likewiſe, contains in its membrane an elaſtic ſubſtance, which, although very ſubtile and almoſt inviſible, by means of warm water often explodes with great vehemence. While plants are in flower, the pollen falls from the antheræ, and is diſperſed abroad, as ſeeds are diſlodged from their ſituation when the fruit is ripe. At the ſame time that the pollen is ſcattered, the piſtillum preſents its ſtigma, which is then in its higheſt vigour, and, for a portion of the day at leaſt, is moiſtened with a fine dew. The ſtamina either ſurround this ſtigma, or, if the flowers are of the drooping kind, they are bent towards one ſide, ſo that the pollen can eaſily find acceſs to the ſtigma; where it not only adheres by means of the dew of that part, but the moiſture occaſions its burſting, by which means its contents are diſcharged. What iſſued from it, being mixed with the fluid of the ſtigma, is conveyed to the rudiments of the ſeed. Many evident inſtances of this preſent themſelves to our notice; but I have nowhere ſeen it more manifeſt than in the jacobean lily (*amaryllis formoſiſſima*), the piſtillum of which, when ſufficient heat is given the plant to make it flower in perfection, is bent downwards, and from its ſtigma iſſues a drop of limpid fluid, ſo large that one would think it in danger of falling to the ground. It is, however, gradually re-abſorbed into the ſtyle about three or four o'clock, and becomes inviſible till about ten the next morning, when it appears again; by noon it attain its largeſt dimenſions; and in the afternoon, by a gentle and ſcarcely perceptible decreaſe, it returns to its ſource. If we ſhake the antheræ over the ſtigma, ſo that the pollen may fall

fall on this limpid drop, we ſee the fluid ſoon after become turbid, and aſſume a yellow colour; and we perceive little rivulets, or opake ſtreaks, running from the ſtigma towards the rudiments of the ſeed. Some time afterwards, when the drop has totally diſappeared, the pollen may be obſerved adhering to the ſtigma, but of an irregular figure, having loſt its original form. No one, therefore, can aſſent to what Morland and others have aſſerted, that the pollen paſſes into the ſtigma, pervades the ſtyle, and enters the tender rudiments of the ſeed, as Leeuwenhoek ſuppoſed his worms to enter the ova. A moſt evident proof of the falſehood of this opinion may be obtained from any ſpecies of *mirabilis* (marvel of Peru), whoſe pollen is ſo very large, that it almoſt exceeds the ſtyle itſelf in thickneſs, and, falling on the ſtigma, adheres firmly to it; that organ ſucking and exhauſting the pollen, as a cuttle-fiſh devours every thing that comes within its graſp. One evening in the month of Auguſt I removed all the ſtamina from three flowers of the *mirabilis longiflora*, at the ſame time deſtroying all the reſt of the flowers which were expanded; I ſprinkled theſe three flowers with the pollen of *mirabilis jalappa*: the ſeed-buds ſwelled, but did not ripen. Another evening I performed a ſimilar experiment, only ſprinkling the flowers with the pollen of the ſame ſpecies; all theſe flowers produced ripe ſeeds.

"Some writers have believed, that the ſtamina are parts of the fructification, which ſerve only to diſcharge an impure or excrementitious matter, and by no means formed for ſo important a work as generation. But it is very evident, that theſe authors have not ſufficiently examined the ſubject; for as, in many vegetables, ſome flowers are furniſhed with ſtamina only, and others only with piſtilla, it is altogether impoſſible, that ſtamina ſituated at ſo very great a diſtance from the fruit as on a different branch, or perhaps on a ſeparate plant, ſhould ſerve to convey any impurities from the embryo.

"No phyſiologiſt could demonſtrate, *à priori*, the neceſſity of the maſculine fluid to the rendering the eggs of animals prolific; but experience has eſtabliſhed it beyond a doubt. We therefore judge *à poſteriori* principally of the ſame effect in plants.

"In the month of January 1760 the *antholyza cunonia* flowered in a pot in my parlour: but produced no fruit, the air of the room not being ſufficiently agitated to waft the pollen to the ſtigma. One day, about noon, ſeeing the ſtigma very moiſt, I plucked off one of the antheræ, by means of a fine pair of forceps, and gently rubbed it on one of the expanded ſtigmata. The ſpike of flowers remained eight or ten days longer; when I obſerved, in gathering the branch for my herbarium, that the fruit of that flower only on which the experiment had been made had ſwelled to the ſize of a bean. I then diſſected this fruit, and diſcovered that one of the three cells contained ſeeds in conſiderable number, the other two being entirely withered.

"In the month of April I ſowed the ſeeds of hemp (*cannabis*) in two different pots. The young plants came up ſo plentifully, that each pot contained 30 or 40. I placed each by the light of a window, but in different and remote apartments. The hemp grew extremely well in both pots. In one of them I permitted the male and female plants to remain together, to flower and bear fruit, which ripened in July; and being macerated in water and committed to the earth, ſprung up in twelve days. From the other, however, I removed all the male plants as ſoon as they were old enough for me to diſtinguiſh them from the females. The remaining females grew very well, and preſented their long piſtilla in great abundance, theſe flowers continuing a very long time, as if in expectation of their mates; while the plants in the other pot had already ripened their fruit, their piſtilla having, quite in a different manner, faded as ſoon as the males had diſcharged all their pollen. It was certainly a beautiful and truly admirable ſpectacle, to ſee the unimpregnated females preſerve their piſtilla ſo long green and flouriſhing, not permitting them to begin to fade till they had been for a conſiderable time expoſed, in vain, to the acceſs of the male pollen. Afterwards, when theſe virgin plants began to decay through age, I examined all their calyxes in the preſence of ſeveral botaniſts, and found them large and flouriſhing, although every one of the ſeed-buds was brown, compreſſed, membranaceous, and dry, not exhibiting any appearance of cotyledons or pulp. Hence I am perfectly convinced, that the circumſtance which authors have recorded, of the female hemp having produced ſeeds, although deprived of the male, could only have happened by means of pollen brought by the wind from ſome diſtant place. No experiment can be more eaſily performed than the above; none more ſatisfactory in demonſtrating the generation of plants.

"The *clucia tenella* was in like manner kept growing in my window through the months of June and July. The male plant was in one pot, the female in another. The latter abounded with fruit, not one of its flowers proving abortive. I removed the two pots into different windows of the ſame apartment: ſtill all the female flowers continued to become fruitful. At length I took away the male entirely, leaving the female alone, and cutting off all the flowers which it had already borne. Every day new ones appeared from the axilla of every leaf; each remained eight or ten days; after which their footſtalks turning yellow, they fell barren to the ground. A botanical friend, who had amuſed himſelf with obſerving this phenomenon with me, perſuaded me to bring from the ſtove in the garden a ſingle male flower, which he placed over one of the female ones, then in perfection, tying a piece of red ſilk round its piſtillum. The next day the male flower was taken away, and this ſingle ſeed-bud remained and bore fruit. Afterwards I took another male flower out of the ſame ſtove, and with a pair of ſlender forceps pinched off one of its antheræ, which I afterwards gently ſcratched with a feather, ſo that a very ſmall portion of its pollen was diſcharged upon one of the three ſtigmata of a female flower, the two other ſtigmata being covered with paper. This fruit likewiſe attained its due ſize; and on being cut tranſverſely, exhibited one cell filled with a large ſeed, and the other two empty. The reſt of the flowers, being unimpregnated, faded and fell off. This experiment may be performed with as little trouble as the former.

"The *datiſca cannabina* came up in my garden from ſeed ten years ago, and has every year been plentifully increaſed by means of its perennial root. Flowers in

great number have been produced by it; but being all female, they proved abortive. Being desirous of procuring male plants, I obtained more seeds from Paris. Some more plants were raised; but these likewise, to my great mortification, all proved females, and bore flowers but no fruit. In the year 1757, I received another parcel of seeds. From these I obtained a few male plants, which flowered in 1758. These were planted at a great distance from the females; and when their flowers were just ready to emit their pollen, holding a paper under them, I gently shook the spike or panicle with my finger, till the paper was almost covered with the yellow powder. I carried this to the females, which were flowering in another part of the garden, and placed it over them. The cold nights of the year in which this experiment was made, destroyed these datiscas, with many other plants, much earlier than usual. Nevertheless, when I examined the flowers of those plants which I had sprinkled with the fertilizing powder, I found the seeds of their due magnitude; while in the more remote datiscas, which had not been impregnated with pollen, no traces of seeds were visible.

Several species of *momordica*, cultivated with us, like other Indian vegetables, in close stoves, have frequently borne female flowers; which, although at first very vigorous, after a short time have constantly faded and turned yellow, without perfecting any seed, till I instructed the gardener, as soon as he observed a female flower, to gather a male one and place it above the female. By this contrivance we are so certain of obtaining fruit, that we dare pledge ourselves to make any female flowers fertile that shall be fixed on.

"The *jatropha urens* has flowered every year in my hot-house; but the female flowers coming before the males, in a week's time dropped their petals, and faded before the latter were opened; from which cause no fruit has been produced, but the germina themselves have fallen off. We have therefore never had any fruit of the jatropha till the year 1752, when the male flowers were in vigour on a tall tree at the same time that the females began to appear on a small jatropha which was growing in a garden pot. I placed this pot under the other tree, by which means the female flowers bore seeds, which grew on being sown. I have frequently since amused myself with taking the male flowers from one plant, and scattering them over the female flowers of another, and have always found the seeds of the latter impregnated by it.

"Two years ago I placed a piece of paper under some of these male flowers, and afterwards folded up the pollen which had fallen upon it, preserving it so folded up, if I remember right, four or six weeks, at the end of which time another branch of the same jatropha was in flower. I then took the pollen, which I had so long preserved in paper, and strewed it over three female flowers, the only ones at that time expanded. These three females proved fruitful, while all the rest which grew in the same bunch fell off abortive.

"The interior petals of the *ornithogalum*, commonly, but improperly, called *canadense*, cohere so closely together, that they only just admit the air to the germen, and will scarcely permit the pollen of another flower to pass: this plant produced every day new flowers and fruit, the fructification never failing in any instance; I therefore, with the utmost care, extracted the antheræ from one of the flowers with a hooked needle; and, as I hoped, this single flower proved barren. This experiment was repeated about a week after with the same success.

"I removed all the antheræ out of a flower of *chelidonium corniculatum* (scarlet horned poppy), which was growing in a remote part of the garden, upon the first opening of its petals, and stripped off all the rest of the flowers; another day I treated another flower of the same plant in a similar manner, but sprinkled the pistillum of this with the pollen borrowed from another plant of the same species: the result was, that the first flower produced no fruit, but the second afforded very perfect seed. My design in this experiment was to prove, that the mere removal of the antheræ from a flower is not in itself sufficient to render the germen abortive.

"Having the *nicotiana fruticosa* growing in a garden-pot, and producing plenty of flowers and seed, I extracted the antheræ from a newly-expanded flower before they had burst, at the same time cutting away all the other flowers; this germen produced no fruit, nor did it even swell.

"I removed an urn, in which the *asphodelas fistulosus* was growing, to one corner of the garden, and from one of the flowers which had lately opened I extracted its antheræ; this caused the impregnation to fail. Another day I treated another flower in the same manner: but bringing a flower from a plant in a different part of the garden, with which I sprinkled the pistillum of the mutilated one, its germen became by that means fruitful.

"*Ixia chinensis*, flowering in my stove, the windows of which were shut, all its flowers proved abortive. I therefore took some of its antheræ in a pair of pincers, and with them sprinkled the stigmata of two flowers, and the next day one stigma only of a third flower; the seed-buds of these flowers remained, grew to a large size, and bore seed; the fruit of the third, however, contained ripe seed only in one of its cells.

"To relate more experiments would only be to fatigue the reader unnecessarily. All nature proclaims the truth I have endeavoured to inculcate, and every flower bears witness to it. Any person may make the experiment for himself, with any plant he pleases, only taking care to place the pot in which it is growing in the window of a room sufficiently out of the reach of other flowers; and I will venture to promise him that he will obtain no perfect fruit, unless the pollen has access to the pistillum."

Sect. V. *Of the Natural Method of Classification.*

Besides all the abovementioned methods of classing and distributing plants into their different orders, genera, &c. which are deduced from the fructification, and are therefore called *artificial*, Linnæus and most other botanists are of opinion that there is a natural method, or nature's system, which we should diligently endeavour to find out. That this system, say they, is no chimera, as some imagine, will appear particularly from hence, that all plants, of what order soever, show an affinity to some others; and thus, as formerly observed,

ſerved, not only the virtues of a great number of ſpecies may be aſcertained, but we may know with certainty how to find a proper ſuccedaneum for plants which cannot eaſily be had.—Linnæus divides vegetables into the 58 natural methods following.

1. *Palmæ.* Theſe are perennial, and moſtly of the ſhrub and tree kind. The ſtem is in height from 2 to 100 feet and upwards. The roots form a maſs of fibres which are commonly ſimple and without any ramifications. The ſtem is generally ſimple, without branches, cylindrical, and compoſed of ſtrong longitudinal fibres. The leaves, which are a compoſition of a leaf and a branch, by Linnæus called *frondes*, are of different forms; being ſometimes ſhaped like an umbrella or fan; ſometimes ſingly or doubly winged; the ſmall or partial leaves, which are often three feet in length, being ranged alternately. The branches, or principal leaves, are ſix, eight, ten, or twelve feet long; the length varying according to the age and ſize of the plant. They are covered at firſt with a thick brown duſt, like thoſe of the ferns. The baſe of the leaves frequently embraces the greater part of the ſtem. The flowers are male and female upon the ſame or different roots. The flowers are all diſpoſed in a panicle or diffuſed ſpike, except in the hydrocharis, ſtratiotes, and vallisneria; in which they proceed ſingly from the wings or angles of the leaves. The common calyx, in this order, is that termed a *ſpatha* or *ſheath*, and has either one or two valves. The ſpadix, or head of flowers protruded from the ſheath, is generally branched. Each flower is generally furniſhed with a perianthium or proper flower-cup, conſiſting of three leaves or diviſions that are ſmall and permanent. The petals are three in number, of a ſubſtance like leather, and permanent like the leaves of the calyx. The ſtamina are from 2 to 20 and upwards, cohering ſlightly at their baſe. The ſeed-buds are from one to three in number, placed in the middle of the flower, and ſupporting a like number of ſtyles, which are very ſhort. The ſeed-veſſel is generally a pulpy fruit of the berry or cherry kind, containing one cell filled with fibrous fleſh, and covered with a ſkin which is of a ſubſtance like leather. The ſeeds are in number from one to three in each pulpy fruit, of a hard bony ſubſtance, round or oval, and attached by their baſe to the bottom of the fruit.—Theſe plants, particularly the ſeeds, are aſtringent, and of efficacy in dyſenteries.

2. *Piperitæ.* Theſe plants are moſtly herbaceous and perennial. The ſtalks of pothos creep along rocks and trees, into which they ſtrike root at certain diſtances. The greateſt height which any of them is known to attain is 15 feet; the greater part do not exceed three or four. The fleſhy roots of many of theſe plants are extremely acrid when freſh. They loſe this pungent quality, however, by being dried, and become of a ſoapy nature. The ſmell of many of them is extremely fetid, frequently reſembling that of human excrements. The flowers, however, of an Ethiopian dracunculus or arum, and the cover in which they are involved, are ſaid to emit a very fragrant odour. With regard to their virtues, theſe plants are commonly aſtringent.

3. *Calamariæ.* In this claſs the baſe of the leaf, which embraces the ſtalk like a glove, has no longitudinal aperture, but is perfectly entire. The ſtalk is generally triangular, and without knots or joints. The roots of ſome are long and knotty; in others they are compoſed of fleſhy fibres which pierce deep into the ground: and in others, of a bulb. The flowers are either hermaphrodite, or male and female upon the ſame root. The mode of inflorescence in this order is generally a ſpike; ſometimes a capitulum or head. The calyx is either a gluma or an amentum. The corolla is wanting. The filaments of the ſtamina are three in number, ſhort, ſlender like a hair, and ſometimes briſtly. The antheræ are generally long, ſlender, and erect. The ſeed-bud is very ſmall, blunt, and ſometimes three-cornered. The ſtyle is thread-ſhaped, and of the length of the ſcaly calyx. The ſtigmata are generally three in number; ſlender, hairy, and ſometimes permanent. The virtues, uſes, and ſenſible qualities, of this order of plants are the ſame with thoſe of the following.

4. *Gramina.* Moſt of theſe plants are annual or perennial herbs; ſome of them creep upon the ground, others are erect. The roots, in the greateſt number, are creeping, and emit fibres from each knot or joint; in others they are ſimply branching and fibrous. The ſtems and branches are round. The leaves are ſimple, alternate, entire, very long, and commonly narrow. They form below a ſort of ſheath, which embraces or ſurrounds the ſtem, and is generally cleft or divided on one ſide through its whole length. The flowers are either hermaphrodite, male and female on the ſame root, or hermaphrodite and male on the ſame root. They proceed either ſingly from the ſheath of the leaves, or are formed into a panicle or looſe ſpike. The calyx and corolla in this order are not ſufficiently aſcertained; in ſome a ſingle ſcale or huſk, in others two, ſupply the place of both covers; ſome graſſes have four huſky ſcales, two of which ſerve for the calyx, and the other two for the corolla; ſome have five; others ſix, four of which conſtitute the calyx, and the other two are termed improperly enough the *huſky petals*. The corolla is ſometimes compoſed of one petal with two diviſions; and in general the huſks of the calyx are always placed oppoſite to thoſe of the corolla. The ſtamina are generally three in number, and placed irregularly with regard to the ſituation of the calyx and corolla. The antheræ are long, furniſhed with two cells, and ſlightly attached to the filaments. The ſeed-bud is placed upon the ſame receptacle as the calyx, corolla, and ſtamina. The ſtyle is generally double, and crowned with a hairy ſtigma or ſummit. The ſeed-veſſel is wanting. The ſeeds are ſingle, oval, and attached below to the bottom of the flower.—The roots of the graſſes are opening; ſuch as have an aromatic ſmell are ſtomachic; their ſeeds are mealy, mucilaginous, and nouriſhing. All the parts of theſe plants are wholeſome.

5. *Tripetaloideæ* (from *tres*, three; and *petalum*, a petal). Theſe plants have no very ſtriking characters, and are nearly allied to the graſſes. All the genera of this order have not the circumſtance expreſſed in the title.

6. *Enſatæ.* This order, which is very nearly allied to the graſſes and liliaceous plants, furniſhes a very

beautiful collection of perennial herbs, which are of different heights, from one inch to 15 feet. The roots are tuberous or fleſhy, and garniſhed with fibres; the ſtalks are ſimple, and commonly flat or compreſſed on the ſides. The leaves are ſimple, alternate, entire, ſword-ſhaped, and, like the liliaceous plants, form at their origin a ſheath or glove, which in the greateſt number is cleft or divided through the whole length, except at the baſe, where it is entire, and embraces the ſtalk like a ring. The flowers are hermaphrodite, and generally proceed from the ſummit of the ſtalks either ſingly, in an umbel, a ſpike, or in a panicle. In pontederia they proceed from the wings or angles of the leaves either ſingly or in an umbel. Moſt of theſe plants want the perianthium or flower-cup; the flowers burſt from a common cover or ſheath, termed by Linnæus *ſpatha*, which in this order is frequently permanent. The petals are in number from one to ſix. The ſtamina are generally three. The ſeed-bud is placed ſometimes above the flower, ſometimes below it. The ſtyle is generally ſingle, and crowned with a triple ſtigma. The ſeed-veſſel is a dry capſule, generally of an oblong ſhape, and opens at three valves, diſcovering the ſame number of cells, each incloſing a quantity of roundiſh ſeeds.—Theſe plants reſemble the liliaceous in their powers and ſenſible qualities; very few of them, however, are uſed in medicine.

7. *Orchideæ*. The roots of many of theſe plants are compoſed of one or more fleſhy tubercles or knobs, attached to the lower part of the ſtem, and ſending forth fibres from the top. Thoſe of orchis bear an obvious reſemblance to the ſcrotum in animals: from which circumſtance the genus has derived its name. The leaves are of a moderate ſize, inſcribed with a number of longitudinal nerves or ribs, and without any footſtalk. At their origin they form round the ſtalk a kind of ſheath, which is long, entire, cylindrical, but not furniſhed, like the graſſes and ſome other plants, with a crown at top. The flowers are hermaphrodite, and placed at the ſummit of the ſtalk either in a ſpike or in a panicle. The calyx is that ſort termed by Linnæus a *ſpatha* or *ſheath*, that burſting open protrudes a head or cluſter of flowers, termed the *ſpadix*, which have no perianthium or flower-cup. The petals are five in number, and very irregular. The nectarium in this order is remarkably conſpicuous; yet ſo different in the different genera, that Linnæus has employed it for his principal character or mark of diſtinction, inſtead of the root, which had chiefly engaged the attention of former botaniſts. It has the appearance of a ſixth petal. The filaments are always two in number, and placed upon the piſtillum or female organ. The antheræ are erect, and generally covered by the upper lip of the nectarium. The ſeed-bud is either oblong or pillar-ſhaped, twiſted like a ſcrew, and univerſally placed below the receptacle of the flower. The ſtyle is ſingle, very ſhort, and forms one ſubſtance with the inner margin of the nectarium. The ſeed-veſſel is generally a capſule with one cavity or cell, and three valves or openings, which are keel-ſhaped, and open on the angular ſides, being jointed both at the bottom and top. The ſeeds are numerous; very ſmall, like ſaw-duſt; and attached, without footſtalks, to a ſlender receptacle or rib, which extends itſelf lengthwiſe in the middle of each incloſure or valve. The plants of this order are reckoned ſtrong aphrodiſiacs.

8. *Scitamineæ*. This claſs conſiſts of beautiful exotic plants, all natives of very warm countries. Some of them furniſh exquiſite fruits; but though the plants riſe very high, they are perennial only by their roots. Thoſe which have only one filament, have in all their parts an aromatic odour, and an acrid or poignant taſte; qualities, however, poſſeſſed in a much greater degree by the roots, which are hot and reſinous.

9. *Spathaceæ*, ſo called becauſe their flowers are protruded from a *ſpatha* or ſheath. They are nearly allied in habit and ſtructure to the liliaceous plants, from which they are chiefly diſtinguiſhed by the ſpatha out of which their flowers are protruded.

10. *Coronariæ*. Theſe plants are herbaceous, perennial, and from one inch to 15 feet high. The roots are either bulbous, fibrous, or compoſed of ſmall fleſhy knots, which are jointed at top. The bulbs either conſiſt of ſcales laid over each other like tiles, or are ſolid. The ſtem of the liliaceous bulbous plants is properly wanting; what ſupplies its place being nothing elſe than the baſe of the leaves, which, wrapping or enfolding each other, form at bottom a roundiſh fleſhy bulb hitherto diſtinguiſhed, though perhaps improperly, by the name of *root*. In the others the ſtem is ſimple, that is, has few branches, and is either furniſhed with leaves, or riſes naked. The branches are alternate and cylindrical. The leaves are ſimple, alternate, and entire. Thoſe next the root, termed *radical leaves*, generally form at their origin a ſheath, which in a great number is entire; that is, goes all round; whilſt in others, it is cleft or divided longitudinally on one ſide. The flowers are univerſally hermaphrodite, except in white hellebore, which has both male and hermaphrodite flowers mixed together on the ſame root. The flowers are ſometimes ſingle, and terminate the ſtem; ſometimes they form an umbel, ſometimes a ſpike, and ſometimes a panicle. The calyx or flower cup, in this order, according to Linnæus, is generally wanting. In ſtrict propriety, however, the ſingle cover that is preſent in moſt of theſe plants, though beautifully coloured, ought to be denominated a *calyx;* as its diviſions, generally ſix in number, are placed oppoſite to the ſtamina. The petals, or, to ſpeak more properly, the coloured leaves of the flower, are in number from one to ſix. Plants which have a ſingle petal, have the limb or upper part ſplit into ſix diviſions or ſegments. The petals in ſome ſpecies are rolled or turned back. The nectarium is various; in the lily it is a longitudinal line which runs through each petal, and reaches from the baſe to the middle. In crown imperial, it is a ſmall hollow or pore, formed at the baſe of each petal; in aſphodel it conſiſts of ſix very ſmall valves, which, approaching, form a globe, and are inſerted into the baſe of the petal; in hyacinth, it is compoſed of three melliferous pores, ſituated on the top of the ſeed-bud. In pine-apple, it is a ſmall ſcale lying within the ſubſtance of each petal above the baſe; and in albuca, or baſtard ſtar of Bethlehem, it conſiſts of two ſharp-pointed bodies proceeding from the furrows of the ſeed-bud, and covered by the broader baſe of the three fertile filaments. In ſome ſpecies of lily the nectarium is hairy; in others it is naked. The ſtamina are ſix in number; erect,

erect, and inſerted into the common receptacle, if the flower conſiſts of many petals; into the tube, or diviſions of the corolla, if it conſiſts of one. The antheræ are long, commonly divided below, and ſlightly attached by their ſides to the filaments on which they turn like a vane or the needle of a compaſs. The ſeed-bud is ſingle, and placed either within the flower-cup or below it. The ſtyle is ſingle, thread-ſhaped, and generally of the length of the petals. The ſtigma is generally ſingle, of a conic form, and ſhaggy or hairy at the extremity. The ſeed-veſſel is generally a capſule, divided externally into three valves, internally into three cells.—With reſpect to the powers of the plants of this order, it may be affirmed in general, that ſuch as have little taſte or ſmell, as the roots of tulip, and ſtar of Bethlehem, are perfectly innocent; whilſt thoſe which have a heavy nauſeous ſmell, as ſquill, hyacinth, crown imperial, and ſpider-wort, are at leaſt ſuſpicious, and frequently prove noxious.

11. *Sarmentoſæ*, (from *ſarmentum*, a long ſhoot, like that of a vine.) This order conſiſts of plants which have climbing ſtems and branches, that, like the vine, attach themſelves to the bodies in their neighbourhood for the purpoſe of ſupport. Theſe plants are far from being a true natural aſſemblage; in fact they ſcarce agree in a ſingle circumſtance, except that expreſſed in the title, which is far from being peculiar to this order.

12. *Holeraceæ*. This order conſiſts of plants which are uſed for the table, and enter into the œconomy of domeſtic affairs: it contains trees, ſhrubs, perennial, and annual herbs. Some of the woody vegetables retain their green leaves during the winter. The roots are very long, and frequently ſpindle-ſhaped; from the knots on the ſtems and branches of ſuch plants as creep on the ground, or float on the water, proceed fibrous and branching roots. The ſtems and young branches are cylindric; and in the greateſt part of the aquatic plants of this order, the ſtalks are hollow within. The buds are of a conic form, and naked; that is, not accompanied with ſcales. The leaves are generally ſimple, entire, alternate, and attached to the branches by a cylindric foot-ſtalk, which is ſometimes very long, but commonly very ſhort. Some plants of this kind have two ſtipulæ or ſcales which are attached to the branches near the origin of the foot-ſtalk of each leaf. In many others, inſtead of ſtipulæ, each leaf bears on its foot-ſtalk a membranaceous ſheath, which is cylindric, frequently fringed on the margin, and pierced or penetrated by the ſtem. The flowers are either hermaphrodite; male and female upon the ſame root; male and female upon different roots; hermaphrodite and male on the ſame root; hermaphrodite and female on the ſame root; or hermaphrodite and male on different roots.

13. *Succulentæ*. This order conſiſts of flat, fleſhy, and juicy plants, moſt of them evergreens. They are aſtringent, refreſhing, and very wholeſome.

14. *Gruinales* (from *grus* a crane). Theſe conſiſt of *geranium*, vulgarly called *cranes-bill*, and a few other genera which Linnæus conſiders as allied to it in their habit and external ſtructure. This order furniſhes both herbaceous and woody plants. The roots are ſometimes fibrous, ſometimes tuberous. In ſome ſpecies of wood-ſorrel they are jointed. The ſtems are cylindric; the young branches, in ſome, nearly ſquare. The buds are of a conic form, and covered with ſcales. The leaves are either ſimple or compound. The flowers are hermaphrodite; they proceed from the wings of the leaves either ſingly or in cluſters. The calyx or flower-cup conſiſts of five diſtinct leaves, or of one leaf divided almoſt to the bottom into five parts. It generally accompanies the ſeed-bud to its maturity. The petals are five in number, ſpreading, and frequently funnel-ſhaped. The ſtamina are generally ten in number, awl-ſhaped, erect, and of the length of the petals. The ſtamina are generally oblong; and frequently attached to the filaments by the middle, ſo as to lie, and ſometimes to veer about, upon them. The ſeed-bud is either oblong or five-cornered. The number of ſtyles is either one or five. In *tribulus*, the ſtyle is wanting. The ſeed-veſſel is generally a five-cornered capſule, with one, three, five, or ten cells. The ſeeds are generally equal in number to the internal diviſions or the cells of the ſeed-veſſel; one ſeed being placed in each cell.

15. *Inundatæ*. The plants of this order are aquatic, of low ſtature, herbaceous, and moſtly perennial. The roots are fibrous. The ſtem is generally wanting. In its place is an aſſemblage of leaves, which wrapping or enfolding each other mutually form a ſheath; and from the middle of this ſheath is produced the foot-ſtalk of the flower. The leaves are ſometimes alternate, ſometimes placed in whirls round the ſtem. In a great many genera the foot-ſtalk is extended at its origin into a membranaceous ſubſtance, which forms a ſheath that is cleft through the whole length, on the ſide oppoſite to the leaf. The flowers are hermaphrodite, or male and female on the ſame root. The flower-cup is either wanting, or conſiſts of three, four, or five diviſions or leaves, which accompany the ſeed-bud to its maturity. The petals are generally wanting. The ſtamina are in number from 1 to 16 and upwards. The filaments in ſome genera are ſo ſhort, that they ſeem wanting. The antheræ are ſhort, and generally marked with four longitudinal furrows. The ſeed-buds are in number from one to four, the ſtyle is frequently wanting. The ſeed-veſſel is univerſally wanting, except in elatine, which has a dry capſule, with four external openings, and the ſame number of cells. The ſeeds are generally four in number.

16. *Calycifloræ*, (from *calyx* the flower-cup, and *flos* the flower), conſiſting of ſuch plants as have the ſtamina (the flower) inſerted into the calyx. All the plants of this order are of the ſhrub and tree kind. Some of them riſe to the height of 12 or 14 feet; others not above two or three. The roots are branching, fibrous, and woody. The ſtems are cylindric. The branches, when young, are cornered; the buds of a conic form, and without ſcales. The leaves are ſimple, alternate, and attached to the branches by a very ſhort foot-ſtalk. The flowers are either male or female upon diſtinct roots, or hermaphrodite and male on the ſame root. The calyx is a perianthium compoſed of one leaf divided into two, three, or four ſegments. It is commonly placed upon the germen or ſeed-bud, which accompanies it to maturity. The corolla is univerſally wanting, except in *trophis*, the male plants of which, according to Linnæus, have four obtuſe and ſpreading petals. The ſtamina are generally four in number, ſlender

ſlender like a hair, ſhort, placed at a conſiderable diſtance from the ſtyle, and inſerted into the tube of the calyx. The piſtillum is compoſed of a roundiſh germen, crowned with the calyx; a ſingle thread-ſhaped ſtyle; and a cylindric ſtigma. The ſeed-veſſel is either an obtuſe oval fruit of the cherry kind, or a globular berry with one cell, containing a roundiſh ſeed. The plants of this order are aſtringent.

17. *Calycanthemæ*, (from *calyx* the flower-cup, and ἄνθος the *flower*); conſiſting of plants, which, among other characters, have the corolla and ſtamina inſerted in the calyx. This order furniſhes trees, ſhrubs, and annual, biennial, and perennial herbs. The herbaceous annuals are by much the moſt numerous. The roots are branching and fibrous; the ſtems and branches cylindric, ſquare, or four-cornered while young. The buds are of a conic form, and without ſcales. The leaves are generally either alternate, ſimple, and attached to the branches by a ſhort foot-ſtalk, or oppoſite at the bottom of the ſtem; and in ſome, alternate towards the top. They are univerſally ſeſſile; that is, attached to the branches, without any foot-ſtalk. The calyx is univerſally a perianthium, and generally monophyllous, or compoſed of one leaf. The corolla conſiſts of four, five, and ſix petals, which are attached to the tube of the calyx, and are ſometimes placed alternate, ſometimes oppoſite to the diviſions of the limb. The ſtamina, which are in number from 4 to 20 and upwards, are attached to the tube of the calyx either on its margin or lower down. When the number of ſtamina is double the diviſions of the calyx, the ſtamina which ſtand oppoſite theſe diviſions are a little longer than the reſt. The antheræ are generally of a hemiſpherical figure; frequently cleft or ſlit below; and by that aperture attached ſlightly to the filaments, on which they often veer about like a vane or needle. They are ſurrounded longitudinally, and open on the ſides into two loculi or cells. The pollen, or male duſt, conſiſts of a number of minute particles, of an oval figure, yellow and tranſparent. The germen, or ſeed-bud, is placed either above or under the receptacle of the flower. The ſtyle is ſingle, thread-ſhaped, and of the length of the ſtamina. The ſtigma is generally ſingle and undivided. The ſeed-veſſel is a capſule, which is generally divided internally into four loculi or cells. The ſeeds are numerous, minute, and frequently three-cornered. The plants of this order are reckoned aſtringent.

18. *Bicornes*, (from *bis* twice, and *cornu* a horn), plants whoſe antheræ have the appearance of two horns. This appearance, however, is not very conſpicuous, unleſs in a few genera. The plants of this order are all of the ſhrub and tree kind. The roots are branching and fibrous. The ſtems and branches are cylindric. The buds conic, ſometimes covered with ſcales, and ſometimes naked. The leaves are generally alternate. In moſt plants of this order they are either ſeſſile, or ſupported by a very ſhort foot-ſtalk, which is ſemicylindric, and flat above. The flowers are univerſally hermaphrodite, except in one genus, the Indian date-plum, where hermaphrodite and male flowers are produced in the ſame ſpecies upon diſtinct roots. They proceed either ſolitary, or in a corymbus from the angles formed by the leaves and branches: or hang down in ſpikes and cluſters at the end of the branches; each flower having a ſmall ſcale or floral leaf placed under it. In moſt plants of this order the calyx is placed around or below the germen. The calyx is univerſally a perianthium, and generally monophyllous or of one piece, deeply divided into four or five ſegments, which are permanent, that is, accompany the germen to its maturity. The ſegments are often acute, and ſometimes coloured. The corolla is generally monopetalous, and bell or funnel-ſhaped; the figure, however, is not very conſtant, even in plants of the ſame genus. The limb, or upper part of the petal, is generally divided into four or five ſegments, which are ſometimes rolled back, ſometimes bent inwards. The limb too is ſometimes ſlightly cut, ſometimes divided almoſt to the bottom. The tube, or lower part of the petal, is cylindric, and generally of the ſame length with the calyx. The number of ſtamina is from 4 to 20. Theſe are generally erect, and attached to the lower part of the tube of the corolla. The antheræ are bifid or forked below, and, being ſlightly attached to the filaments, are frequently inverted in ſuch a manner as to exhibit the appearance of two horns at top. The germen or ſeed-bud, is generally roundiſh, and ſeated above the receptacle. The ſtyle is ſingle, thread-ſhaped, of the ſame length with the corolla, and in a few genera permanent. The ſeed-veſſel is either a capſule with five cells, a roundiſh berry, or an oblong four-corned nut with two cells. —The plants of this order are aſtringent.

19. *Heſperideæ*, (from the Heſperides, whoſe orchards are ſaid to have produced golden apples). The plants of this order are of the ſhrub and tree kind, and moſtly evergreen. The bark of the ſtalks is ſlender, and comes off in thin plates. The leaves are generally oppoſite, and covered with ſmall tranſparent points. In ſome, the leaves are placed oppoſite at the bottom of the ſtalks, and alternate above. The buds are of a conic form, the flowers generally hermaphrodite; they proceed from the wings of the leaves either ſingly, or in cluſters like ivy-berries. The calyx is placed above the ſeed-bud, and accompanies it to its maturity. The petals are three, four, or five in number, and ſtand upon the brims of the tube of the calyx. The ſeed-bud is large, oblong, and placed below the receptacle of the flower. The ſtyle is ſingle, awl-ſhaped, of the length of the ſtamina, and terminated with a ſingle ſtigma. The ſeed-veſſel in ſome genera is a berry furniſhed with one or three cells; a capſule with four cells, or of the nature of a cherry, containing a ſtone. The ſeeds are generally numerous, ſmall, and oblong. The leaves and fruits are aſtringent, the berries eſculent.

20. *Rotaceæ*, (from *rota*, a wheel), conſiſting of plants with one wheel-ſhaped petal without a tube. Theſe reſemble in quality thoſe of the order of *Preciæ*, to which they are in all reſpects very nearly allied; but very few of them can be ſaid in ſtrict propriety to poſſeſs the character ſpecified in the title.

21. *Preciæ*, (from *precius* early). Theſe conſiſt of primroſe, an early flowering plant, and ſome others which agree with it in habit and ſtructure, though not always in the character or circumſtance expreſſed in the title. Theſe plants, which poſſeſs no ſtriking uniform characters, are, in general, innocent in their quality; yet the root of ſow-bread is dangerous, if taken internally.

22. *Caryophylleæ*. All the plants of this order are herbaceous, and moſtly annual. Some of the creeping kinds

kinds do not riſe above an inch, and the talleſt exceed not ſeven or eight feet. The roots are branching, fibrous, and of a moderate length. The ſtems are cylindrical. The branches proceed from the wings or angles of the leaves, and are generally oppoſite, and as it were jointed at each knot. In ſome ſpecies of ceraſtium the branches are ſquare. The leaves are generally placed oppoſite in pairs, ſo as to reſemble a croſs; and are ſlightly united at the bottom by their foot-ſtalks, which form a ſort of glove round the ſtem. The hairs are ſimple, like ſilk. The flowers are hermaphrodite; but ſome have male and female flowers upon diſtinct roots. They either ſtand ſingle on their foot-ſtalks, and proceed from the wings or angles of the leaves and branches, or are diſpoſed in a ſpike, corymbus, umbel, or panicle. The calyx is permanent, and compoſed either of one piece with five indentments, or of four or five diſtinct leaves. The corolla generally conſiſts of five petals, which have claws of the length of the calyx; and a ſpreading limb, ſometimes entire, but oftener cleft or divided in two. The ſtamina are in number from 3 to 15, and of a moderate length. When their number is double the diviſions of the calyx, they are attached alternately to the claws of the petals, thoſe ſo attached being ſhorter than the reſt; the remaining ſtamina are inſerted into the common receptacle, and ſtand oppoſite to the ſegments of the calyx. In ſome genera of this order the number of ſtamina is found to vary, even in the different flowers of the ſame plant. The antheræ are ſhort, hemiſpherical, marked with four longitudinal furrows, frequently divided or cleft below, moſt commonly erect; ſometimes, however, *incumbent*, that is, faſtened to the filaments by the ſides. The pointal is compoſed of a ſingle ſeed-bud, which is generally roundiſh, ſometimes cornered. The ſtyles are thread-ſhaped, of the length of the ſtamina, and crowned with a ſimple ſtigma, which is ſleek or ſmooth externally, and ſlightly hollowed or vaulted within. The ſeed-veſſel is a dry capſule, of an oval form, of the length of the calyx, and conſiſts of one or three cells. The plants of this order are innocent in their quality; they abound in a watery ſort of phlegm, and have bitter ſeed. With reſpect to their virtues, they are reckoned aſtringent, attenuating, and deterſive.

23. *Tribilatæ*, (from *tres* three, and *bilum* an external mark on the ſeed); conſiſting of plants with three ſeeds, which are marked diſtinctly with an external cicatrix or ſcar, where they are faſtened within to the fruit.

24. *Corydales*, (from κορυς a helmet); conſiſting of plants which have irregular flowers, ſomewhat reſembling a helmet or hood. Theſe plants are moſtly herbaceous and perennial. The roots are tuberous or knobby. The ſtems are generally branching. The leaves are alternate, ſometimes ſimple, but moſt commonly winged. The foot-ſtalk of the leaves is ſtrait or narrow, except in *epimedium*, where it is large, and has a membranous edge or border. The flowers are univerally hermaphrodite. They proceed either ſingly from the wings and angles of the leaves, or are collected in cluſters at the end of the branches. The calyx conſiſts of two, four, five, or ſix leaves, which are frequently coloured, and commonly fall off immediately before, or very ſoon after, the expanſion of the petals. The corolla is generally irregular; of one, or many pieces; gaping; and furniſhed with a nectarium, which is very different in the different genera. The ſtamina are in number from two to ſix, and of a proportionate length, except in honey-flower, which has two ſhorter than the reſt. The filaments are diſtinct, except in two genera, fumitory and *monnieria*, which have two ſets of ſtrings or filaments united in a cylinder. The antheræ are univerſally diſtinct, except in *impatiens*, where they are formed into a cylinder divided at the baſe. The ſeed-bud is generally roundiſh, but ſometimes angular or cornered. The ſtyle is commonly ſingle, extremely ſhort, ſlender, or thread-ſhaped, and crowned with a ſimple ſtigma. The ſeed-veſſel is either a hollow blown-up berry, a capſule of one cell, a longiſh, or a roundiſh pod. The ſeeds are generally numerous and round.

25. *Putamineæ*, (from *putamen* a ſhell): conſiſting of a few genera of plants allied in habit, whoſe fleſhy ſeed-veſſel or fruit is frequently covered with a hard woody ſhell. Moſt of theſe plants are acrid and penetrating; and yield, by burning, a great quantity of fixed alkali. With reſpect to their virtues, they are powerful aperients. The Indians pretend that the fruit of a ſpecies of caper-buſh, which they call *baducca*, extinguiſhes the flames of love.

26. *Multiſiliquæ*, (from *multus* many, and *ſiliqua* a pod); conſiſting of plants which have more ſeed-veſſels than one. From the etymology of the term, one would naturally imagine that the ſeed-veſſels in queſtion were of that kind called by Linnæus *ſiliqua*, or pod; but the fact is, that not a ſingle plant of this order bears pods; the greater part having many dry capſules, and the remainder being furniſhed properly with no ſeed-veſſel, but bearing numerous diſtinct ſeeds. Plants of this order are moſtly perennial herbs: the ſtems of ſome are erect; others creep upon the ground, and produce roots near the origin of each leaf; laſtly, others climb, and attach themſelves to the bodies in their neighbourhood, either by the foot-ſtalk of the leaves, or by tendrils and claſpers which terminate the foot-ſtalk. The greateſt height of thoſe which riſe erect, ſeldom exceeds eight feet. Thoſe which climb, rarely exceed 15 or 20 feet. The roots are generally fleſhy. In ſome they are hand-ſhaped; in others finger-ſhaped, or cylindric. In ſome ſpecies of hellebore and ranunculus they are divided into ſpherical knobs. Laſtly, In ſome plants of this order, the roots are fibrous. The ſtems and young branches are cylindric. The leaves, which are of different forms, being ſometimes ſimple and entire, ſometimes hand-ſhaped or winged, are generally alternate. The foot-ſtalk, which is ſometimes cylindric, ſometimes angular, is membranous, and very large at its origin, ſurrounding a great part of the ſtem from which it proceeds. The flowers are hermaphrodite. They proceed either ſingly from the wings of the leaves or termination of the branches, or terminate the branches in a ſpike, panicle, or head. The calyx in ſome is wanting; in others it is generally compoſed of five pieces, which fall off with the petals. The petals are in number from 4 to 15; generally equal, and ſometimes diſpoſed in two or three ſeries; five is the prevailing number. The ſtamina are in number from 5 to 300, diſtinct, and attached generally in ſeveral rows or ſeries to the receptacle. The ſeed-buds are generally numerous; the ſtyle is frequently wanting. In

ſome

ſome the ſeed-veſſel is wanting; in others it is compoſed of ſeveral dry capſules, each containing a ſingle cell. The ſeeds are numerous, and frequently angular. Moſt of theſe plants are acrid, and many of them poiſonous. In general, plants that have a great number of ſtamina are noxious in their quality. When burnt, theſe plants furniſh a fixed alkali; by diſtillation there is drawn from them a kind of nitrous and aluminous ſubſtance. With reſpect to their virtues, they are cauſtic and purgative.

27. *Rhœadeæ*, conſiſting of poppy, and a few genera which reſemble it in habit and ſtructure. Theſe plants, upon being cut, emit plentifully a juice, which is white in poppy, and yellow in the others. With reſpect to their virtues, they ſeem to operate principally upon the nerves. Their juice is ſoporific and narcotic, their ſeeds leſs ſo, their roots aperient. Applied externally, they are ſlightly corroſive.

28. *Luridæ*, conſiſting of plants whoſe pale and ominous appearance ſeems to indicate ſomething baleful and noxious in their natural quality. Moſt of theſe plants are herbaceous and perennial. Many of them are of the maſked tribe of flowers; others reſemble theſe in their general appearance, but differ from them eſſentially in the equality of their ſtamina. The roots are generally branched, ſometimes tuberous. The ſtems and branches are cylindric. The leaves are generally ſimple, and placed alternate. The flowers are hermaphrodite. They proceed either ſingly or in cluſters from the angle formed by the leaves and branches. In ſome ſpecies of lycium, they terminate the branches. The calyx is generally of one piece deeply divided into five parts. The corolla conſiſts of one petal, which is either bell, funnel, or wheel-ſhaped. The ſtamina are four or five in number; and thoſe either of equal lengths, as in the greater, or unequal. The ſeed-bud is placed above the receptacle of the flower. The ſtyle is ſingle; and is terminated by a ſummit which is hemiſpherical, and frequently channelled or furrowed. The ſeed-veſſel, in ſuch as have equal ſtamina, is a berry; in the reſt, it is generally a capſule. The ſeeds are numerous, and frequently kidney-ſhaped.—Theſe plants in general are poiſonous. They have an inſipid taſte, and a nauſeous diſagreeable ſmell.

29. *Campanaceæ*, (from *campana*, a bell); plants with bell-ſhaped flowers. The plants of this order are herbaceous and perennial. The roots are either ſpindle-ſhaped, or branching and fibrous. The ſtems are round. The branches are generally alternate. The leaves are ſimple, alternate, and commonly attached to the branches by a ſemi-cylindric foot-ſtalk, which is furrowed above. The indentments are terminated by a ſmall white tubercle or knob, which renders them conſpicuous. The flowers are hermaphrodite; and proceed either ſolitary from the wings of the leaves, or are collected into a ſpike and head at the end of the flower-ſtalk. The calyx is univerſally a perianthium ſituated upon or round the germen, and generally compoſed of one leaf deeply divided into five ſegments. The corolla is monopetalous, and of the bell, funnel, or wheel-ſhape. The tube, in flowers of the bell and wheel-ſhape, is very ſhort; in thoſe of the funnel-ſhape, very long. In Greek valerian, the tube is ſhut with five valves, which are placed on its apex or top. The limb or upper part of the corolla is deeply divided into five ſegments, which ſpread, and are alternate with the diviſions of the calyx. The corolla is generally permanent. The ſtamina are five in number, attached to the baſe of the tube of the corolla, alternate with its diviſions, and oppoſite to thoſe of the calyx. The filaments are diſtinct; very large at their origin; and frequently approach ſo as to form a ſort of vault, which covers the ſummit of the germen. They are ſlender and awl-ſhaped above. The antheræ are very long; oval; marked with four longitudinal furrows, either diſtinct, or united in a cylinder. The pollen is compoſed of very ſmall, ſpherical, white, ſhining, and tranſparent particles. The germen is roundiſh, and ſituated either wholly or in part under the flower. The ſtyle is generally ſingle, and of the length of the ſtamina or corolla. The ſtigma is commonly ſingle, but deeply divided. The ſeed-veſſel is a roundiſh capſule, generally divided into three cells, and furniſhed externally with the ſame number of valves. The ſeeds are ſmall, numerous, attached to a receptacle in the centre of the fruit, generally rounded, and ſometimes cornered.—This order furniſhes many excellent medicines. The plants abound with a white milky juice, which, upon the ſtalk being cut, flows out in great quantities.

30. *Contortæ*, (from *con* together, and *torqueo* to twiſt); conſiſting of plants which have a ſingle petal that is twiſted or bent towards one ſide. This order furniſhes trees, ſhrubs, and fat ſucculent plants, ſome of which retain their leaves during the winter. The herbaceous vegetables in this order are generally perennial. The roots are ſometimes branching, but commonly fleſhy, ſucculent, and garniſhed with fibres or ſtrings like thoſe of turnip. The ſtems are round and in ſome genera pulpy and ſucculent. The branches are ſometimes placed alternate, and ſometimes oppoſite. The buds are of a conic form, and naked or without ſcales. The leaves are ſometimes alternate, ſometimes placed oppoſite in pairs, and not ſeldom ſurround the ſtem in whirls. They are attached to the branches by a cylindrical foot-ſtalk, which is ſhort, and frequently united to the foot-ſtalk of the oppoſite leaf. The defenſive and offenſive weapons in this order are a downy ſort of pubeſcence, and ſimple, or forked prickles, which, in ſome genera, iſſue from the wings of the leaves. The flowers are hermaphrodite; and ſtand either ſingly upon their footſtalks, or are collected into umbels and cluſters. Theſe bunches or collections of flowers ſometimes terminate the branches, ſometimes proceed from the angles of the branches, and ſometimes ſtand at the ſide of the wings without iſſuing from them. The flower-cup is compoſed of one leaf divided almoſt to the baſe in five unequal ſegments, which embrace each other, and are permanent, or accompany the ſeed-bud to its maturity. The corolla conſiſts of one petal, which in the different genera is bell, ſalver, funnel, or wheel-ſhaped. The limb, or upper ſpreading part of the petal, is generally divided into five equal parts, which are ſlightly bent or twiſted to the left, and embrace or enfold each other like the petals of the mallow tribe. The tube is generally long and cylindrical; ſometimes club-ſhaped, and often wanting. In ſeveral flowers of this order the petal is accompanied with that ſpecies of ſuperfluity termed a *nectarium*. In the different genera, however, it aſſumes very different appearances. The ſtamina are five in number, ſhort,

equal

equal, attached at the ſame height to the tube of the petal, alternate with its diviſions, and oppoſite to thoſe of the calyx. The antheræ are generally erect, and frequently approach ſo as to form a compact body in the middle of the flower. The ſeed-bud is either ſingle or double. In ſome the ſtyle is wanting. The ſtigma is frequently double. The ſeed-veſſel in ſome genera is a pulpy fruit, of the berry and cherry kind; but moſt frequently that ſpecies termed by Linnæus *conceptaculum*, and *folliculus*, which has one valve or external encloſure, opens lengthways on one ſide, and has not the ſeeds faſtened to it. Two of theſe dry fruits, with a ſingle cell, compoſe the ſeed-veſſel of moſt plants of this order. The ſeeds are generally numerous, and in ſeveral genera crowned with a long pappus or downy wing like that of the compound flowers, by means of which they eaſily diſperſe and ſow themſelves. —The plants of this order being cut, emit a juice which is generally milky, and ſometimes of a greeniſh white. From the circumſtance of their abounding in this milky juice, the greater part are deemed poiſonous; repeated obſervations having eſtabliſhed this aphoriſm, That milky plants, except thoſe of the plain compound flowers, are generally of a baneful deſtructive nature, and ought at leaſt to be adminiſtered with caution. With reſpect to their ſenſible qualities, they are bitter; particularly the ſeed roots and bark, in which reſides their principal virtue.

31. *Vepreculæ*, (from *vepres*, a briar or bramble), conſiſting of plants reſembling the daphne, dirca, gnidia, &c. but which, however, do not conſtitute a true natural aſſemblage.

32. *Papilionaceæ*, plants that have papilionaceous flowers, *i. e.* ſomewhat reſembling a butterfly in ſhape; of which number are all the leguminous plants. The plants of this order are of very different duration; ſome of them being herbaceous, and thoſe either annual or perennial: others woody vegetables of the ſhrub and tree kind, a few of which riſe to the height of 70 feet and upwards. The herbaceous plants of this order generally climb; for, being weak, and as it were helpleſs of themſelves, they are provided by nature with tendrils, and even ſharp-pointed hooks, at their extremities, to faſten upon the neighbouring trees or rocks; or the ſtalks are endowed with a faculty of twiſting themſelves, for the purpoſe of ſupport, around the bodies in their neighbourhood. The pea, vetch, and kidney-bean, afford familiar examples of this appearance. The ſhrubs and trees of this order are moſtly armed with ſtrong ſpines. The roots are very long, and furniſhed with fibres; but ſome genera have fleſhy knobs or tubercles placed at proper intervals along the fibres. The ſtems are cylindric, as likewiſe the young branches, which are placed alternately: thoſe which climb, twiſt themſelves from right to left, in a direction oppoſite to the apparent motion of the ſun. The bark of the large trees is extremely thick and wrinkled, ſo as to reſemble a net with long meſhes; the wood is very hard in the middle, and commonly coloured or veined. The buds are hemiſpherical, without ſcales, and proceed from the branches horizontally a little above the angle which they form with the leaves. The leaves are alternate, and of different forms, being either ſimple, finger-ſhaped, or winged. This laſt form is very common; the lobes or leſſer leaves are entire, and ſometimes placed in pairs, but moſt commonly the winged leaf is terminated by an odd lobe. The winged or pinnated leaves of this order have a daily or periodical motion, depending upon the progreſs of the ſun in his diurnal courſe. The common footſtalk of the winged and compound leaves is marked on the upper ſurface with a cavity or furrow which runs through its whole length. The flowers are hermaphrodite; and proceed either from the wings of the leaves, or from the extremity of the branches. The calyx is a perianthium of one leaf, bell-ſhaped, bunching out at the bottom, and cut on its brim or margin into five irregular diviſions or teeth; the lowermoſt of which, being the odd one, is longer than the reſt: the other four ſtand in pairs, of which the uppermoſt is ſhorteſt, and ſtands fartheſt aſunder. The bottom of the calyx is moiſtened with a ſweet liquor like honey, ſo may be deemed the nectarium of theſe plants. The petals are four or five in number, very irregular, and from their figure and poſition bear an obvious reſemblance to a butterfly expanding its wings for flight. Theſe petals have been characterized by diſtinct names: the upper one, which is commonly the largeſt, is termed the *ſtandard*, (*vexillum*); the two ſide petals, the *wings*, (*alæ*); and the lowermoſt, which is generally united at top, and divided at bottom, the *keel*, (*carina*). The ſtamina are generally ten: theſe are either totally diſtinct, or united by the filaments into one or two bundles involving the ſeed-bud. In the latter caſe, where there are two ſets of united filaments, one of the ſets is compoſed of nine ſtamina, which are united into a crooked cylinder, that is cleft on one ſide through its whole length; along this cleft lies the tenth filament or ſtamen, which conſtitutes the ſecond ſet, and is often ſo cloſely attached to the ſecond bundle, that it cannot be ſeparated without ſome difficulty. The antheræ are ſmall, round, marked with four longitudinal furrows, and ſlightly attached to the filaments. In lupine, the antheræ are alternately round and oblong. The ſeed-bud is ſingle, placed upon the receptacle of the flower, oblong, cylindrical, ſlightly compreſſed, of the length of the cylinder of the united ſtamina by which it is involved, and ſometimes elevated by a ſlender footſtalk which iſſues from the centre of the calyx. The ſtyle is ſingle, ſlender, and generally crooked or bent. The ſtigma is commonly covered with a beautiful down, and placed immediately under the antheræ. The ſeed-veſſel is that ſort of pod termed a *legumen*, which is of an oblong figure, more or leſs compreſſed, with two valves, and one, two, or more cavities. Theſe cavities are often ſeparated, when ripe, by a ſort of joints. The ſeeds are generally few in number, round, ſmooth and fleſhy. Jointed pods have generally a ſingle ſeed in each articulation. The ſeeds are all faſtened along one ſuture, and not alternately to both, as in the other ſpecies of pod termed *ſiliqua*.—The plants of this family are, in general, mucilaginous. From the inner bark of moſt of them flows, either naturally or by inciſion, a clammy liquor, which dries and hardens like gum; the juice of others is ſweet like ſugar; ſome taſte bitter, and are purgative, emetic, or even mortal. A ſpecies of eaſtern aſtragalus, with goats-rue leaves, is ſaid to be remarkably cauſtic, and to burn the tongue exceſſively when chewed. In general, however, theſe plants are ſoft and clammy. With reſpect to their virtues, the plants of this order are highly emollient; ſome of them are

vulnerary and aſtringent; and the root of anonis, or reſt-harrow, is diuretic.

33. *Lomentaceæ*, (from *lomentum*, a colour uſed by painters). Many of theſe plants furniſh beautiful tinctures, and ſome of them are much uſed in dyeing. They very much reſemble the laſt order, differing only in the following particulars. 1. In all plants of this order, except milk-wort, the ſtamina are diſtinct. The flower is not ſhaped like a butterfly, but is leſs irregular, and frequently conſiſts but of one petal. The leaves are ſometimes ſimple, but moſt commonly winged. The ſeeds are commonly marked with a circular furrow on both ſides. Like thoſe of the leguminous tribe, the plants of this order are generally mucilaginous. From the inner bark of the greater number exſudes, either naturally or by inciſion, a mucilaginous liquor, which ſometimes dries upon the plant, and becomes a gummy ſubſtance.

34. *Cucurbitaceæ*, (from *cucurbita*, a gourd); conſiſting of plants which reſemble the gourd in external figure, habit, virtues, and ſenſible qualities.—The plants of this order, which generally climb, and have long diffuſed branches, are moſtly herbaceous and perennial. The roots in the perennial plants of this order are ſhaped like thoſe of the turnip; in the annuals they are branching and fibrous. The ſtems are cylindric and ſucculent. The young branches have generally five corners. In ſome ſpecies of paſſion-flower they are ſquare. The leaves are alternate, angular, and ſometimes hand-ſhaped. They are attached to the branches by a foot-ſtalk, which is pretty long and cylindrical, without any furrow. From the wing or angle of each of the upper leaves proceeds a tendril, which is either ſimple or branching, and twiſts itſelf ſpirally round the different bodies in its neighbourhood, for the purpoſe of ſupporting and training of the branches. The lower leaves have no tendril. The flowers are either hermaphrodite or male and female. In this laſt, the male flowers are generally ſeparated from the female upon the ſame root; and that either in the ſame wing or angle of the leaves, or in different angles. The flower-cup, in the female flowers, is placed upon the ſeed-bud; and generally conſiſts of one bell-ſhaped leaf, that is deeply divided into five unequal ſegments, and unlike the other plants which have the calyx ſeated upon the fruit, falls off with the petals and the other parts of the flower. The corolla conſiſts of one petal, with five equal diviſions, which adhere to the tube of the calyx, as if glued to it. A ſpecies of paſſion-flower, termed by Linnæus *paſſiflora ſuberoſa*, wants the petals. The ſtamina are in number from one to five, ſhort, and generally inſerted into the calyx. The filaments are diſtinct; the antheræ of many genera are united in a cylinder. In the paſſion-flower they are ſlightly attached to the filaments, on which they turn like a vane or the needle of a compaſs. The ſeed-bud is ſingle, and placed below the receptacle of the flower. The ſtyle is generally ſingle, cylindrical, of the length of the calyx, and crowned with a triple ſtigma. The ſeed-veſſel is generally pulpy, of the apple or berry kind, and conſiſts of one, two, or three cells. The ſeeds are numerous, generally flat or compreſſed, and ſometimes covered with that kind of proper coat called by Linnæus *arillus*.—The fruit of theſe plants is generally purgative and refreſhing; that of ſome of them proves a very violent emetic when uſed too freely.

35. *Senticoſæ*, (from *ſentis*, a briar or bramble); conſiſting of the roſe, bramble, and other plants which reſemble them in port and external ſtructure. Theſe plants are ſo nearly allied in form, habit, and ſtructure, to thoſe of the natural order *Pomaceæ* that they ought never to have been ſeparated from it. The leaves have a ſtyptic taſte; the fruits are acid and cooling. With reſpect to their virtues, the leaves are vulnerary and aſtringent, the roots are diuretic. The acid fruits, as ſtrawberry and raſpberry, are uſed with ſucceſs in putrid and bilious fevers, as likewiſe in contagious and epidemic dyſenteries, which prevail in ſummer and autumn, and are occaſioned by a ſudden tranſition from a hot to a cold air, or by the acrid humour which flows into the inteſtines.

36. *Pomaceæ*, (from *pomum* an apple); conſiſting of thoſe which have a pulpy eſculent fruit, of the apple, berry, or cherry kind. The plants of this order, which furniſh many of our moſt eſteemed fruits, are moſtly of the ſhrub and tree kind. The roots are branched, fibrous, and in the greater part very long. The ſtems and branches are cylindric. Theſe laſt are placed alternate; and, when young, are, in ſome genera angular. The bark is thick and wrinkled. The buds are of a conic form, placed in the angles of the leaves, and covered with ſcales which lie over each other like tiles. The leaves, which differ in form, being in ſome genera ſimple, in others winged, are, in the great number, placed alternate. The footſtalk of the leaves is furrowed above, and frequently accompanied by a number of knobs like glands. Moſt of theſe plants are furniſhed with two ſtipulæ at the origin of the young foot-ſtalks of the leaves. Theſe, in ſome genera are pretty large: in others, they are ſo ſmall as ſcarce to be perceived; and in cocoa-plumb, in particular, they by their minuteneſs reſemble hairs. The flowers are univerſally hermaphrodite, except in *ſpiræa aruncus*, in which male and female flowers are produced on diſtinct plants. In the greater number of genera they are produced in cluſters or heads at the end of the branches. The calyx is of one piece, with five ſegments or diviſions, which are permanent, and placed above the ſeed-bud in ſome; in the reſt, they either fall off with the flower, or wither upon the ſtalk. The petals are five in number, and are inſerted into the tube of the calyx. The ſtamina are generally 20 and upwards, and attached like the petals to the margin of the tube of the calyx. The antheræ are ſhort, and ſlightly attached to the filaments. The ſeed-bud is ſingle; and in thoſe genera which have the calyx permanent, it is placed below the receptacle of the flower. The ſeed-veſſel is a pulpy fruit of the apple, berry, or cherry kind. Thoſe of the apple kind are divided internally into a number of cavities or cells. The ſeeds are numerous.—The pulpy fruits of this order are acid, eſculent, and of great efficacy in putrid and bilious fevers.

37. *Columniferæ*, (from *columna* a pillar, and *fero* to bear); conſiſting of plants whoſe ſtamina and piſtil have the appearance of a column or pillar in the centre of the flower. This order furniſhes a choice collection of herbs both annual and perennial, ſhrubs and trees. Theſe are very different in ſize and height, from the creeping

creeping mallows, and low ſhrubby tea-tree, to the fleſhy limes, and the more lofty ſilk-cotton trees, which by ſome modern writers are affirmed to be ſo large as not to be fathomed by 16 men, and ſo tall that an arrow cannot reach their top. The ſhrubs and trees of this order are deciduous, pretty thick, of a beautiful appearance, with an erect ſtem, which is formed by its branches and foliage into a round head. The roots are extremely long, branch but little, and either run perpendicularly downwards, or extend themſelves horizontally below the ſurface. The ſtems are cylindric. The young branches, though commonly of the ſame figure, are ſometimes angular. The bark is thick and pliant. The wood, in general, is very ſoft and light. The buds are of a conic form, naked, or without ſcales; and ſituated either at the extremity of the branches, or in the angle formed by the branch and leaf. The leaves are alternate, ſimple, divided into ſeveral lobes, and frequently hand or finger-ſhaped. The ribs or nerves on the back of the leaf, in ſome genera of this order, are provided near their origin with a number of hollow furrows or glands, which, being filled with a clammy honey-like liquor, have been conſidered as ſo many veſſels of ſecretion. The footſtalk of the leaves is cylindric, ſwelled at its origin, and appears jointed at its junction with the branch. The flowers are univerſally hermaphrodite, except in *biggeleria*, and a ſpecies of Virginian marſhmallow, called by Linnæus *napæa dioica*; the former of which bears male and female, the latter male and hermaphrodite, flowers on different roots. In many plants of this order, the flowers generally open about nine in the morning, and remain expanded till one in the afternoon. The flowers either terminate the branches, proceed from the angles of the leaves, or are diſpoſed either ſingly or in a corymbus along the branches or ſtem. In moſt of theſe genera the calyx is ſingle, but in others frequently double. In theſe laſt the inner calyx is always of one piece, generally divided into five ſegments; the outer conſiſts either of one leaf, of three diſtinct leaves, or of many. The calyx, when ſingle, is ſometimes compoſed of one leaf which is permanent, or of ſeveral diſtinct leaves which are generally coloured, and fall off with the petals. In plants that have a double calyx, both flower-cups are generally permanent. The petals in this order are from four to nine; five is the prevailing number. The ſtamina, which are in number from 5 to 20 and upwards, are generally inſerted into the common receptacle of the calyx, or into the piſtillum or ſeed-bud. The filaments are either diſtinct, or united in a cylinder, which, proceeding from the receptacle of the calyx, ſurrounds the ſeed-bud, and attaches itſelf to the baſe of the petals, with which it ſlightly unites. The antheræ are frequently roundiſh, and placed erect on the filament; moſt commonly, however, they are oblong or kidney-ſhaped, and ſlightly attached by the middle, or ſides, to the filaments, on which they turn like a vane or needle. This laſt is, particularly, the characteriſtic of all the mallow tribe. The ſeed-bud is generally roundiſh or conic; and ſometimes, as in the tea tree, angular. The ſeed-veſſel is generally a capſule; ſometimes a pulpy fruit of the berry or cherry kind. In ſome, it is a woody or membranous capſule, divided into as many cells internally as there were partitions in the ſeed-bud. The ſeeds are generally ſolitary, ſometimes angular, and ſometimes kidney-ſhaped.—Theſe plants are mucilaginous and lubricating.

38. *Tricocceæ* (from τρεις *three*, and κοκκος a *grain*); conſiſting of plants with a ſingle three-cornered capſule, having three cells or internal diviſions, each containing a ſingle ſeed. The ſingle ſeed-veſſel of theſe plants is of a ſingular form, and reſembles three capſeles, which adhere to one common footſtalk as a centre, but are divided externally into three pretty deep partitions. This family is not completely natural. It muſt be obſerved, however, that the character expreſſed in the title is a ſtriking one; and that though the plants which poſſeſs it are not connected by ſuch numerous relations as to form a true natural aſſemblage, yet they are by that circumſtance diſtinguiſhed from all other plants with as great, nay greater facility, than by any artificial character yet known. But all the genera of this order have not the ſtriking character juſt mentioned.

39. *Siliquoſæ*, (from *ſiliqua* a pod); conſiſting of plants which have a pod for their ſeed-veſſel. This order chiefly furniſhes biennial and perennial herbs of an irregular figure. The roots are long, branched, crooked, and fibrous. In ſome they are ſucculent and fleſhy, in others jointed. The ſtems and young branches are cylindric. The leaves, which differ in point of form, being ſometimes ſimple, ſometimes winged, are generally placed alternate. The flowers are hermaphrodite, and in the greater number diſpoſed in a ſpike at the extremity of the branches. The flower-cup is compoſed of four leaves, which are oblong, hollow, blunt, bunched at the baſe, and fall with the flower. Theſe leaves are ſometimes erect, and ſometimes ſpread horizontally. The petals, which are four in number, ſpread at top, and are diſpoſed like a croſs: the claws or lower part of the petals are erect, flat, awl-ſhaped, and ſomewhat longer than the calyx. The upper part widens outwards. The ſtamina are ſix in number; two of which are of the length of the calyx, and the remaining four ſomewhat longer, but ſhorter than the petals. The antheræ are of an oblong figure, pointed, thicker at the baſe, and erect. Betwixt the ſtamina, in plants of this order, are generally lodged one, two, or four, round greeniſh knots, which in ſome genera are ſo ſmall as to elude the ſight. Theſe glands, called by Linnæus *glandulæ nectariferæ*, and uſed very improperly by that author as an eſſential character in diſcriminating the genera, ſeem to be prominences of the receptacle of the flower, occaſioned by the ſtamina being deeply lodged in its ſubſtance. The ſeed-bud is ſingle, and ſtands upon the receptacle of the flower. The ſtyle, which is either cylindric or flat like a ſcale, is of the length of the four longer ſtamina in ſome genera: in others it is very ſhort, or even wanting. It accompanies the ſeed-bud to its maturity. The ſtigma is blunt, and ſometimes deeply divided into two parts. The ſeed-veſſel is either a long pod, or a ſhort and round one. Either ſort has two valves or external openings, and in a great many genera the ſame number of internal cavities or cells, the partition of which projects at the top beyond the valves. The ſeeds are roundiſh, ſmall, and attached alternately by a ſlender thread to both ſutures or joinings of the valves. Theſe plants have a watery, ſharp, lixivial taſte; and are charged with a fixed alkaline

ſalt, which is drawn from them by burning, and being diſtilled without any addition produces a volatile alkali. Moſt of them have a ſtinking ſmell. With reſpect to their virtues, they are diuretic, attenuating, deterſive, and antiſcorbutic. Theſe qualities, however, are moſt eminently poſſeſſed by the live plants; when dried, they either entirely diſappear, or are greatly diminiſhed. Applied externally, theſe plants are uſeful in diſeaſes of the ſkin, as the itch, leproſy, &c.

40. *Perſonatæ*, (from *perſona*, a maſque); conſiſting of a number of plants whoſe flowers are furniſhed with an irregular, gaping, or grinning petal, in figure ſomewhat reſembling the ſnout of an animal. This order furniſhes both herbaceous and woody vegetables of the ſhrub and tree kind. The roots are generally fibrous and branched. The ſtems and branches are cylindric when young, except in ſome ſpecies of figwort, in which they are ſquare. The leaves are ſimple, generally placed oppoſite in pairs at the bottom of the branches, but in many genera ſtand alternate towards the top. The flowers are univerſally hermaphrodite; they proceed either ſingly or in cluſters from the wings of the leaves, or terminate the branches in a ſpike, panicle, or head. The calyx is of one leaf, which is cut into two, three, four, or five ſegments, or diviſions, that are permanent. The corolla is compoſed of one irregular petal, with two lips, reſembling, as was already obſerved, the head or ſnout of an animal. In ſome plants the ſtamina are two or four in number, and of an equal length; in others they are univerſally four in number, two of which are long and two ſhort. The ſeed-bud is ſingle, and placed above the receptacle of the flower. The ſtyle is ſingle; thread-ſhaped; bent in the direction of the ſtamina; and crowned with a ſtigma, which is generally blunt, and ſometimes divided into two. The ſeed-veſſel is a capſule, generally divided internally into two cavities or cells, and externally into the ſame number of valves or encloſures. The ſeeds are numerous, and affixed to a receptacle in the middle of the capſule.—Theſe plants poſſeſs nearly the ſame qualities with the lip flowers, though in a leſs degree. With reſpect to their virtues, many of them are aperient, anodyne, purgative, and even emetic. The internal uſe of many of them is extremely pernicious; applied externally, they are anodyne, and powerful reſolvents.

41. *Aſperifoliæ*, rough-leafed plants. The greateſt part of theſe are herbaceous and perennial. The roots are branching and fibrous; the ſtems and branches rounded; the buds of a conic form, naked or without ſcales. The leaves are ſimple, alternate, commonly very rough to the touch, and in moſt of the herbaceous plants ſeſſile, or attached to the ſtem and branches without any footſtalk. In the few trees, however, of this order, the leaves have a footſtalk, the lower part of which, after the fall of the leaves, remains like a ſpine or thorn. The hairs are ſimple, and generally very rough to the touch. The flowers are in ſome genera ſolitary; but commonly collected into a ſpike or corymbus. They do not proceed from the angle formed by the ſtem or branch with the leaf, as in many plants; but from the ſide of the leaf, or from that part of the ſtem which is oppoſite to the leaf. They are almoſt univerſally hermaphrodite: in a few ſpecies of *cordia*, male and female flowers are produced upon different roots. The calyx is compoſed of one leaf, which is divided from three to ten equal or unequal parts. Thoſe with four naked ſeeds have the calyx deeply divided into five parts which are permanent. The corolla is monopetalous, or compoſed of one petal, which in different plants is bell, funnel, ſalver, and wheel-ſhaped. The diviſions of the limb or upper part of the petal are generally five, alternate with thoſe of the calyx; equal and regular, except in *echium*. The ſtamina are five in number, alternate with the diviſions of the corolla. They are equal, attached to the tube of the corolla a little above its origin, and of the ſame height. The antheræ are in ſome genera *connivent*; that is, approach and form a compact body above the filaments. The piſtillum is generally compoſed of a ſlender ſtyle of the ſame length with the ſtamina, and crowned with a ſimple ſtigma. It proceeds from a germen or ſeed-bud, which in ſome plants is undivided, but generally ſplit into four. The ſeeds are generally four in number, and lodged in the bottom of the calyx. Moſt of the rough-leaved plants are uſed in medicine: the flowers are eſteemed cordial; the leaves and roots vulnerary and aſtringent; and the hard bony ſeeds are reckoned powerful promoters of urine. Externally, theſe plants are uſed for burnings and poiſonous bites; they extirpate warts, and relieve diſorders of the loins.

42. *Verticillatæ*, conſiſting of herbaceous vegetables, having four naked ſeeds, and the flowers placed in whorls round the ſtalk. The roots are branched and fibrous. The ſtems are round when old, but ſquare when young; as are likewiſe the young branches, which ſtand oppoſite. The leaves are oppoſite, and in the greater number covered with tranſparent points. Thoſe which are placed next the flower generally differ from the ſtem leaves. In the greater number of plants of this kind, the leaves are ſupported upon a long cylindrical footſtalk that is furrowed above. The flowers are univerſally hermaphrodite, except in a ſpecies of thyme mentioned by Mr Adanſon, which appears to have male or barren flowers on one root, and female or fertile flowers on the other. They are diſpoſed round the ſtem in whorls or ſmall heads with ſhort footſtalks. The calyx is of one piece, that is generally cut into five unequal diviſions, whoſe diſpoſition ſometimes repreſents two lips; the uppermoſt of which has commonly a leſs number of diviſions: it accompanies the ſeeds, which it nouriſhes in its boſom, to their maturity. The petal is of the gaping or lip kind, and in the different genera is more or leſs irregular or unequal, either in its tube, or in the diviſions of the lips; the number of which varies from two to five. Theſe diviſions frequently form two lips; of which the uppermoſt, termed the *creſt* and the *helmet*, is ſometimes entire, ſometimes more or leſs deeply cut into two; the lowermoſt, termed the *beard*, generally into three. The ſtamina are two or four in number. In the greater part there are four ſtamina of unequal length, two of them being long and two ſhort. Theſe four unequal ſtamina are frequently diſſimilar, and approach by pairs: they are inclined towards the back of the petal, and parallel: the two innermoſt being ſhorteſt, and attached ſomewhat lower than the two others to the tube of the flower. The ſeed-bud, which conſiſts of four diſtinct ovaries, is placed upon the ſeat of the flower, and elevates

vates from their centre a common ſtyle, which is ſlender, bent in the ſame manner as the filaments, which it ſomewhat exceeds in length, and terminated by a double ſtigma or ſummit, the diviſions of which are unequal, and turned backwards. The ſeed-veſſel in this order is wanting. The ſeeds are four in number, and lodged in the bottom of the calyx as in a matrix or ſeed-veſſel. Each ſeed has two covers; the one external, of a cartilaginous or leathery ſubſtance; the other internal, membranaceous, of a very fine texture, and placed immediately above the radicle or embryo plant. The plants of this order are fragrant, warm, penetrating, and accounted cordial and cephalic. Their chief virtue reſides in the leaves.

43. *Dumoſæ*, (from *dumus*, a buſh); conſiſting of a number of ſhrubby plants, which are thick ſet with irregular branches, and buſhy. The plants of this order are all of the ſhrub and tree kind, thick and buſhy, riſing from 6 to 25, 30, and even 40 feet high. Many of them too, as baſtard alaternus, holly, iron wood, New Jerſey tea, ſtar apple, viburnum, winter berry, and ſome others, retain their beautiful leaves during the whole year. The roots are branched and fibrous. The ſtems are cylindric; the young branches ſometimes angular. The buds are naked, that is, without ſcales, in the evergreen ſhrubs of this order; covered with ſcales in moſt of the others. The leaves, which in ſome genera are ſimple, in others compound, are placed alternate in ſome, and oppoſite in others. The flowers are moſtly hermaphrodite. They proceed from the wings of the leaves either ſingly or in cluſters; or they terminate the ſtem in that ſort of flowering head called a *corymbus*. The calyx is generally very ſmall, placed below or around the ſeed-bud; and conſiſts of one leaf, with four, five, or ſix diviſions, which are permanent. The rhamnus has no calyx. The petals are in number from one to five. The ſtamina are either four, five, ſix, or ten. The ſeed-bud is generally roundiſh, and placed within the flower. The ſtyle is commonly ſingle, and ſometimes wanting. The ſtigma, is either ſingle or triple. The ſeed-veſſel is generally a berry, ſometimes a dry capſule; the ſeeds are generally ſingle and egg-ſhaped. The berries, bark, and flowers of many of theſe plants are purgative, and act particularly on the lymph and bile.

44. *Sepiariæ*, (from *ſepes* a hedge); conſiſting of a beautiful collection of woody plants, ſome of which, from their ſize, elegance, and other circumſtances, are very proper furniture for hedges. This order furniſhes woody plants both of the ſhrub and tree kind, moſt of which do not drop their leaves till nearly the time when the new leaves begin to appear.

45. *Umbellatæ*, (from *umbella* an umbel); conſiſting of plants whoſe flowers grow in umbels, with five petals that are often unequal, and two naked ſeeds, that are joined at top and ſeparated below. Theſe plants are herbaceous, and chiefly perennial. The roots are either tuberous or ſpindle ſhaped, and ſometimes forked. The ſtems are cylindric, full of pitch, and frequently hollow. The branches are alternate. The leaves, which like the branches are put on alternately, are very different in point of form; being ſimple and entire in ſome; target-ſhaped, in a ſpecies of navel-wort; finger or hand-ſhaped, in ſome others; and winged or pinnated with numerous minute diviſions, as in the greater number. They are ſupported by a footſtalk, which is very broad and membranous at its origin, and commonly embraces the whole contour of the ſtem and branches. The flowers are in general hermaphrodite. There are, however, ſome that have male or barren flowers in the ſame umbel. This is particularly the caſe with thoſe umbelliferous plants which have the petals in the flowers of the circumference large and unequal. In theſe plants the flowers in the circumference only prove fertile; thoſe in the centre, or diſk, proving abortive. Oenanthe and imperatoria, on the contrary, have the flowers in the circumference abortive. In ginſeng, hermaphrodite and male flowers are produced upon diſtinct plants. The flowers are diſpoſed in an umbel, which is either ſimple or compound. The common calyx in this order is that ſort termed very improperly by Linnæus *involucrum*, or the flower-cover; which in the greater number conſiſts of one or more leaves placed under the partial or univerſal umbel, or both, for the purpoſe of ſupport. The preſence or abſence of one or both of theſe covers affords excellent marks in diſcriminating the genera of this very ſimilar order of plants. The proper calyx of each flower, in the aggregate, conſiſts of five minute indentments placed upon the ſeed-bud, which it envelopes, and accompanies to its maturity. The petals are five in number, and diſpoſed upon the ſides of the flower-cup in form of a roſe. In the florets of the centre, the petals are generally pretty equal and ſmall; in thoſe of the circumference, they are frequently unequal and larger; in the greater number, they are heart-ſhaped, and cut almoſt to the middle in two. The ſtamina are five in number, placed oppoſite to the diviſions of the flower-cup, and alternate with the petals. The ſeed-bud is univerſally placed under the ſeat of the flower, and ſupports two ſtyles which are turned backwards, and crowned with ſimple ſummits which do not differ in appearance from the ſtyles. The ſeed-veſſel in this order is wanting. The ſeeds are two in number, which, when ripe, ſeparate below, but remain cloſely attached at top. The plants of this order, which grow in dry places, are ſudorific, ſtomachic, and warming. Their virtue reſides chiefly in the ſeeds and leaves. Thoſe which grow in marſhy places are generally poiſonous; but, notwithſtanding the extremely warm and even cauſtic quality of moſt of theſe plants, many of them are employed in the kitchen, and in the economy of domeſtic affairs.

46. *Hederaceæ*, (from *hedera*, ivy); conſiſting of ivy and a few other genera that ſeem nearly allied to it. This order furniſhes both herbaceous and ſhrubby plants; moſt of which, particularly ivy and vine, have creeping branches, which attach themſelves by roots or tendrils to the bodies in their neighbourhood. The roots are long, with few branches. The ſtems and young branches are cylindric. In ſome ſpecies of vine they are ſquare. The leaves are alternate; ſometimes ſimple, ſometimes winged, in which the ſurface of the leaves is covered with points. The footſtalk of the leaves is cylindrical, and without any furrow. The buds are of a conic form, and without any ſcales. The flowers are either hermaphrodite, male and female upon different roots, or hermaphrodite and male upon different roots. In ſome they terminate the branches in an umbel; in others they proceed in cluſters from the

ſide

ſide oppoſite to the leaves; and in ſome, they are produced along the branches. The calyx conſiſts of one leaf divided in five parts, which are ſmall and generally permanent. The ſtamina are in number five; awl-ſhaed, erect, and generally of the length of the petals. Ciſſus has only four ſtamina, which are inſerted into the nectarium, a ſort of border ſurrounding the ſeed-bud. The antheræ are roundiſh, and ſometimes, as in ivy, attached to the filaments by the ſides. The ſeed-bud is ſometimes round, ſometimes ſhaped like a top or pear, and ends in one, two, or five awl-ſhaped ſtyles, which are crowned with a ſimple ſtigma. The flowers of the vine have no ſtyle. The ſeed-veſſel is of the berry kind, with one, two, or five ſtyles. The ſeeds are from one to five in number; placed either in diſtinct cells, or diſperſed through the pulp without any partition.

47. *Stellatæ*, (from *ſtella*, a ſtar); conſiſting of plants with two naked ſeeds, and leaves diſpoſed round the ſtem in form of a radiant ſtar. This order contains herbs, ſhrubs, and trees. The herbs, which are moſt numerous, are chiefly annual, and creep along the ſurface of the ground. The ſhrubs and trees are moſtly evergreens, which riſe erect, and are of an agreeable conic form.—Theſe plants are opening; ſome of their ſeeds, particularly thoſe of coffee, are bitter and cordial; ſome of them are uſed in dyeing, and others in medicine.

48. *Aggregatæ*, (from *aggregare*, to aſſemble or collect); comprehending thoſe plants which have aggregate flowers, conſiſting of a number of florets or ſmall flowers, each of which have a proper and common calyx.

49. *Compoſitæ*, conſiſting of plants with compound flowers. In this order Linnæus has conſtructed his firſt or primary diviſions from the different ſexes of the florets, which he terms *polygamy;* the ſubaltern diviſions are conſtructed from the figure of the petals, the diſpoſition of the flowers, the pappus or crown of the ſeed, the common receptacle, and other circumſtances which characterize the ſubaltern diviſions in other authors.

50. *Amentaceæ* (from *amentum* a catkin), plants bearing catkins; as ſalix, populus, plantanus, &c.

51. *Coniferæ*, (from *conus* a cone, and *fero* to bear); conſiſting of plants, whoſe female flowers, placed at a diſtance from the male, either on the ſame or diſtinct roots, are formed into a cone. In this character, the only one expreſſed in the title, the plants in queſtion ſeem to be nearly allied to the family of moſſes: from which, however, they are eaſily diſtinguiſhed by their habit, as well as by the ſtructure of the ſmall flowers, in which the ſtamina are united below into a cylinder, and diſtinct at top. The plants of this order are moſtly of the ſhrub and tree kind, and retain their leaves all the year. The form of theſe plants is generally conic, and extremely beautiful, from the diſpoſition of the branches, which cover the ſtems even to the roots, extending themſelves horizontally and circularly like ſo many rays. The height of ſome genera of this order does not exceed half a foot, that of others approaches to a hundred. The roots are ſhort, branching, not very fibrous, and extend horizontally. The ſtems and branches are cylindric. The bark is thin, and ſplit into ſlender ſcales. The wood, except that of the yew tree, poſſeſſes little hardneſs. The buds are of a conic form, and naked, or without ſcales. The leaves are entire, ſmall, and thick, frequently triangular, and generally pointed. Juniper has a prickly and thorny leaf. With reſpect to ſituation, they admit of great variety, being either alternate, oppoſite, placed in whorls round the ſtem, or collected into ſmall bundles which proceed from a ſingle point. They are placed on the branches without any ſenſible footſtalk. The flowers in this order are univerſally male and female. In ſome genera, the male flowers are collected into a ſpike or cone at the end of the branches; in others, they proceed ſingly from the wings of the leaves, or termination of the branches. The female flowers are generally collected into a cone; but in yew tree and ſhrubby horſe-tail they are ſingle, and terminate the branches. The calyx of the male flowers is a catkin; of the female, a cone. The petals of this order are wanting; except in the female flowers of juniper, which have three ſharp, rigid, and permanent petals. The ſtamina are in number from 3 to 20 and upwards; united by their filaments into a cylinder or pillar, which riſes out of the centre of the calyx. The antheræ are erect, diſtinct, of a roundiſh form, and divided into internal partitions or cells, which, in the different genera, are in number from two to ten. The ſeed-buds are generally numerous, and placed betwixt the ſcales of the cone, which ſerve for a calyx. From each ſeed-bud ariſes a very ſhort cylindric ſtyle, crowned with a ſimple ſtigma, of a conic form. Theſe plants have probably no ſeed-veſſel or fruit; the ſeeds being naked, and involved only by the ſcales of the calyx. In ſome genera theſe ſcales are of a bony nature, and almoſt united; in others, they are of a ſubſtance like leather; in juniper, they are united, and become fleſhy and ſucculent like a berry. The ſeeds in this order, being nouriſhed, as in a ſeed-veſſel, by the ſcales of the cone, or common calyx, differ in nothing from the germina or ſeed-buds.—Moſt of the cone-bearing plants are reſinous, or gummy; and the gums proceeding from them have a bitter taſte, but generally a very agreeable ſmell.

52. *Coadunatæ*, (from *coadunare*, to join or gather together); ſo termed from the general appearance of the ſeed-veſſels, which are numerous, and being ſlightly attached below, form all together a ſingle fruit in the ſhape of a ſphere or cone; the parts of which, however, are eaſily ſeparated from one another. This order, which conſiſts of exotic plants, furniſhes a beautiful and choice collection of ſhrubs and trees, both evergreen and deciduous. The trees are often 60 feet high, and garniſhed from the bottom to the top with ſpreading branches and leaves of a bright green colour, which aſſume a very agreeable conic form. The roots are branching and fibrous. The ſtems are cylindric, and the wood very hard. The buds are conic, flat, and generally without ſcales. The leaves are univerſally ſimple and alternate. The footſtalk is cylindric, without furrows, frequently ſwelled at its origin, and appears jointed at its inſertion into the branch. The flowers are hermaphrodite, and are generally produced either along or at the end of the branches. The calyx generally conſiſts of three oblong plain leaves, like petals, which fall off with the flower. The petals are in number from 6 to 18, oblong, concave, and frequently diſpoſed in two or three ſeries or rows, the outermoſt of which are largeſt. The ſtamina are numerous, ſhort, and inſerted into the common

common receptacle in ſome, and into the ſeed-bud in others. The filaments are very ſhort and ſlender, ſome genera having ſcarce any at all. The antheræ are numerous, ſlender, and placed round the ſeed-bud. The piſtillum generally conſiſts of a number of ſeed-buds diſpoſed in the form of a cone, and ſeated upon a receptacle which riſes like a ſmall pillar above the receptacle of the calyx. From each ſeed-bud generally ariſes a cylindric ſtyle, which is very ſhort. The ſtigma is commonly blunt. The ſeed-veſſel is commonly a berry; but in magnolia it is an oval cone, conſiſting of a number of roundiſh capſules laid over each other like tiles. The fruits or ſeed-veſſels, whether of the berry, capſule, or cherry kind, are equal in number to the ſeed-buds, and generally ſlightly attached below. The ſeeds are numerous, hard, roundiſh, and ſometimes cornered. The plants of this order have a ſtrong, agreeable, and aromatic ſmell; the fruits and ſeeds have a pungent taſte like pepper: the bark and wood are bitter.

53. *Scabridæ*, (from *ſcaber*, rough, rugged or briſtly), conſiſting of plants with rough leaves. There ſeems to be ſome impropriety in characterizing theſe plants by a name expreſſive of the roughneſs of their leaves, as that circumſtance had previouſly furniſhed the claſſic character of the *Aſperifoliæ*. The degree of roughneſs, however, is much greater in the plants which make the ſubject of the preſent article.—The plants of this order are in general of an aſtringent nature: their taſte is bitter and ſtyptic.

54. *Miſcellaneæ*, miſcellaneous plants. This order conſiſts of ſuch genera as are not connected together by very numerous relations. They are, datiſca, poterium, reſeda, ſanguiſorba, lemna, piſtia, coriaria, empetrum, achyranthus, amaranthus, celeoſia, gomphrena, ireſine, phytolacca, nymphæa, ſaracenia, cedrela, ſwietenia, corrigola, limeum, telephium.

55. *Filices*, ferns; conſiſting of plants which bear their flower and fruit on the back of the leaf or ſtalk. Theſe plants, in figure, approach the more perfect vegetables; being furniſhed, like them, with roots and leaves. The roots creep, and extend themſelves horizontally under the earth, throwing out a number of very ſlender fibres on all ſides. The ſtem is not to be diſtinguiſhed from the common foot-ſtalk, or rather middle rib of the leaves: ſo that in ſtrict propriety the greater number of ferns may be ſaid to be *acaules:* that is, to want the ſtem altogether. In ſome of them, however, the middle rib, or ſtalk proceeding from the root, overtops the leaves, and forms a ſtem upon which the flowers are ſupported. The leaves proceed either ſingly, or in greater number, from the extremities of the branches of the main root. They are winged or hand-ſhaped in all the genera except in adders-tongue, pepper-graſs, and ſome ſpecies of ſpleen-wort. The flowers, whatever be their nature, are, in the greater number of genera, faſtened, and as it were glued, to the back of the leaves; in others, they are ſupported upon a ſtem which riſes above the leaves; but in ſome, are ſupported on a flower-ſtalk, as already mentioned. The ſtamina are placed apart from the ſeed-bud in a genus termed by Mr Adanſon *palma filix*; in the other ferns, where we have been able to diſcover the ſtamina, they are found within the ſame covers with the ſeed-bud. Moſt of the ferns have a heavy diſagreeable ſmell: as to their virtues, they are opening and attenuating.

56. *Muſci*, moſſes. Theſe plants reſemble the pines, firs, and other evergreens of that claſs, in the form and diſpoſition of their leaves, and manner of growth of the female flowers, which are generally formed into a cone. They frequently creep, and extend themſelves like a carpet upon the ground, trees, and ſtones, being generally collected into bunches and tufts: the ſmalleſt are only one-third of an inch in height, and the largeſt do not exceed five or ſix. Few of the moſſes are annual: ſmall as they are, the greater number are perennial and evergreens. Their growth is remarkably ſlow, as may be judged by the time that the antheræ take to ripen. This, reckoning from the firſt appearance of the antheræ to the diſperſion of its powder or male duſt, is generally four or ſix months. Although preſerved dry for ſeveral years, theſe plants have the ſingular property of reſuming their original verdure upon being moiſtened. It would be worth while to determine whether they do not alſo reſume their vegetative quality. The roots of plants of this order are fibrous, ſlender, branched, and ſhort. The ſtems are cylindric and weak, as are alſo the branches; they creep upon the ground, and ſtrike root on every ſide. The leaves are very ſmall and undivided. They differ with reſpect to ſituation; being either alternate, oppoſite, or placed by fours round the ſtalk. They have no perceptible foot-ſtalk nor middle rib, and are ſeated immediately upon the ſtems. The flowers are univerſally male and female: in ſome, the male flowers are produced upon the ſame plants with the female, and ſtand before them; in others, they are produced ſometimes on the ſame, and ſometimes on diſtinct plants. The male flowers conſiſt entirely of antheræ, and their covering; proceed either ſingly, or in cluſters, from the extremity of the branches, or angles of the leaves; and are either ſeated immediately upon the branches, or ſupported by a long foot-ſtalk. The female flowers, which generally reſemble capſules or cones, are all placed immediately upon the ſtem or branches, without any footſtalk; and proceed ſingly either from the wings of the leaves, or ſummit of the branches; when produced upon the ſame plant with the male they are always placed under them. The female cones of the moſſes greatly reſemble thoſe of the pines and evergreen trees of that claſs; the ſcales which form them are true leaves, each containing in its wing or angle a ſingle ſeed. When the ſeeds are ripe, the cones probably open for their diſperſion. When ſhut, they reſemble buds, and have ſometimes been ignorantly miſtaken for ſuch. The calyx, in this order, if it can be called ſuch, is that appearance reſembling a vail or monk's cawl, which in the male flower covers or is ſuſpended over the tops of the ſtamina like an extinguiſher, and is termed by Linnæus *calyptra*. The petals are univerſally wanting. The moſſes in general are almoſt taſteleſs, have few juices, and being once dried do not readily imbibe moiſture from the air. Thoſe which grow in water, being thrown into the fire, grow red, and are reduced to aſhes without receiving or communicating any flame; on which account ſome ſuperſtitious people, the Siberians in particular, place water moſs in their chimnies as a preſervative againſt fire. Moſt of the moſſes are purgative; ſome violently ſo, and even emetic. They are all of wonderful efficacy in preſerving

ſerving dry ſuch bodies as are ſuſceptible of moiſture; and in retaining, for a long time, the humidity of young plants without expoſing them to putrefaction. For this reaſon, ſuch plants as are to be ſent to any conſiderable diſtance, are generally wrapped up in them.

57. *Algæ*, flags; conſiſting of plants whoſe root, leaf, and ſtem, are all one. Under this deſcription are comprehended all the ſea weeds, and ſome other aquatic plants.

58. *Fungi*, muſhrooms. Theſe plants are rarely branched, ſometimes creeping, but moſt commonly erect. Such as are furniſhed with branches have them of a light ſpongy ſubſtance like cork. Muſhrooms differ from the fuci, in that thoſe which, like the fuci, have their ſeeds contained in capſules, are not branched, as that numerous claſs of ſea weeds are. The greateſt part of muſhrooms have no root: ſome, inſtead of roots, have a number of fibres, which, by their inoſculations, frequently form a net with unequal meſhes, ſome of which produce plants ſimilar to their parent vegetable. The ſtamina in theſe plants are ſtill undetermined. The ſeeds are ſpread over the ſurface of the plant, or placed in open holes or cavities, reſembling the open capſules of ſome of the fuci. In muſhrooms which are branched, the ſeeds are frequently viſible by the naked eye, and always to be diſtinctly obſerved by the aſſiſtance of a good microſcope. Theſe plants are very aſtringent, and ſome of them are uſed for ſtopping violent hæmorrhagies. As a vegetable food, they are at beſt ſuſpicious: ſome of them are rank poiſon.

Dubii ordinis. Under this name Linnæus claſſes all the other genera which cannot be reduced to any of the abovementioned orders, and which are near 120 in number.

Alphabetical Explanation of Botanical Terms.

A.

Abrupt (abruptus), when a winged leaf ends without a little leaf.

Acorn, the ſeed of the oak.

Acotyledones, ſeeds without lobes, which produce no ſeminal leaves.

Acute (acutus), tapering to a ſlender, but not thorny termination.

Air-bag (folliculus), a diſtended ſeed-veſſel opening on one ſide.

Alternate (alternus), applied to branches, leaves, or flowers, ſpringing out regularly one above another.

Androgynous, having ſome flowers on the ſame plant, bearing ſtamens, but no piſtils; and other flowers bearing piſtils, but no ſtamens.

Angioſpermia, ſeeds in a capſule.

Angular (angulatus) having corners; oppoſed to cylindrical.

——— capſule, as in flower-de-luce.

Annual (annuus), living only one year.

Anomalous (anomalus), irregular.

Anther (anthera), the top of the ſtamen fixed on the filament, and containing the pollen.

Apex, termination.

Apophyſis, excreſcence.

Approaching, ſee *Converging*.

Arrow-ſhaped (ſagittatus), leaf ſhaped like an arrow head, as ſorrel.

Aſcending, growing firſt horizontally, and then bent upwards.

Attenuate (attenuatus). tapering.

Awl-ſhaped (ſubulatus), ſlender.

Awn (ariſta) or beard, the ſharp ſubſtance growing to the valves of corn or graſs.

Awnleſs (muticus), without awns.

Axillary (axillaris) at the baſe of the leaves or branches.

B.

Bark (cortex), the covering of the ſtems, roots, and branches of vegetables.

Barren (maſculi, abortivi), flowers or florets, which produce no perfect ſeeds; generally wanting piſtils.

Baſe, ſee *Axillary*.

Battledore-ſhaped (ſpatulatum), rounded with a neck.

Beaded (granulatus), conſiſting of many little knobs, connected by ſmall ſtrings.

Beak or *Bill* (roſtrum), a projecting appendage to ſome ſeeds.

Bearded (barbatus), beſet with ſtraight parallel hairs.

Bell-ſhaped (campanulatus), like the bloſſom of the convolvulus.

Bellying (ventricoſus) diſtended.

Beneath (inferus). A bloſſom is beneath, when it includes the germen, and is attached to the part immediately below it. A germen is ſaid to be beneath when it is not included in the corolla or bloſſom.

Berry (bacca), a pulpy ſeed-veſſel without valves.

Biennial, continuing alive for two years.

Bird-footed (pedatus), reſembling the foot of a land fowl.

Bitten, ending in no regular form, not tapering.

Bill (roſtrum), a long ſubſtance attached to a ſeed.

Bladders, air-bags on ſome ſpecies of fucus.

Bladder-ſhaped (inflatus), inflated or diſtended.

Bliſtered, when the ſurface of a leaf riſes high above the veins.

Bloſſom (corolla), part of a flower, conſiſting of one or more leaves called *petals*. It is an expanſion of the inner bark of the plant, and is the ornamented cover of the ſtamens and piſtils.

Blunt (obtuſus), oppoſed to acute.

Boat-ſhaped (navicularis), like a little keel-bottomed boat.

Border (limbus), the upper part of a corolla of one petal.

Bowed (arcuatus), bent.

Branched (ramoſus), having lateral diviſions.

Briſtles (ſetæ), ſtiff cylindrical hairs.

Briſtle-ſhaped (ſetaceus), ſlender, and like a briſtle.

Bud (gemma), a protuberance on the ſtem or branches, containing the rudiments of the leaves or flowers to be expanded the following year.

Bulb (bulbus), a bud placed on the root or ſtem.

Bulging (gibbus), irregularly ſwollen out.

Bunch (racemus), a fruitſtalk with ſhort lateral branches.

Bundle (faſciculus), ſeveral flowers riſing to the ſame point from their reſpective fruitſtalks, as in ſweet-william.

Bundled, applied to leaves, as in the larch.

Butterfly-ſhaped (papilionaceus), as the pea and broom flowers.

C.

Calycled (calyculatus), having a double calyx.

Calyptre, veil.

Calyx, or empalement, a continuation of the outer bark of the plant, forming part of the flower, is called a cup, as in primroſe, involucrum in carrot, catkin in hazel, calyptre in the moſſes, a huſk in oats, a ſheath in the narciſſus, and a curtain in ſome funguſſes.

Capſule, a dry hollow ſeed-veſſel opening in ſome determinate manner.

Catkin (amentum), a compoſition of flowers and chaff on a long thread-ſhaped receptacle; the whole like a cat's tail; *e. g.* the willow.

Cell (loculamentum), vacuity in the capſule to lodge the ſeed.

Central florets (flores floſculoſi); thoſe which occupy the middle part of a compound flower, as the yellow ones in a common daiſy.

Chaff (palea), thin membranaceous ſubſtance ſeparating the florets from each other, and growing on a common receptacle.

Channelled (canaliculatus), having a furrow from the baſe to the end.

Cicatrized, ſcarred.

Ciliate, fringed.

Circumference, the florets fartheſt from the centre of a compound flower, as the white ones in the common daiſy.

Clammy (viſcoſus), adheſive like birdlime.

Claw (unguis), the part of a petal next the baſe, diſtinguiſhed from the limb or upper part.

Cleft, divided half-way down.

Climbing (ſcandens), plants that riſe by the aid of others.

Cloathing (pubes), hairineſs on the ſurface of plants.

Cloven, ſee *Cleft*.

Club-ſhaped (clavatus), thinner at the baſe, and thicker upwards.

Cluſter (thyrſus), flowers collected in ſomewhat of an egg-ſhaped form like the lilac.

Coated (tunicatus) root, compoſed of layers like the onion.

Cobwebbed (arachnoideus), covered with a ſubſtance reſembling a cobweb.

Coloured (coloratus), not green.

Column (columella), the little pillar in the centre of ſome capſules to which the ſeeds are fixed.

Comb (coma), a collection of floral leaves terminating the flowering ſtem, as in the pine-apple.

Comb-like (pectinatum), a ſort of winged leaf, the leafets of which are like the teeth of a comb.

Common calyx, including ſeveral flowers, as in thiſtles.

Compact, growing cloſe together.

Compound flowers (compoſiti flores) conſiſt of many florets or little flowers, on a receptacle or ſeat, as in thiſtles.

Compreſſed (compreſſus), a cylindrical ſubſtance, more or leſs flatted.

Cone (ſtrobilus), a ſeed-veſſel, formed by a catkin, with hardened ſcales, as in the pine and fir.

Cone-ſhaped (cucullatus), applied to leaves rolled up, as the grocers roll up paper to hold ſpices, ſugar, &c.

Confluent (confluentia folia), running into one another at the baſe.

Congregated (glomeratus), ſpikes, &c. crowded together, ſomewhat in a globular form.

Connected (adnatus) leaves, having their upper ſurface at the baſe, growing to the ſtem or branch.

Contiguous (adpreſſus) leaves, &c. cloſe to the ſtem.

Converging (connivens), approaching at the top.

Convex, riſing like the ſurface of a globe.

Convolute, twiſted ſpirally.

Corolla, bloſſom.

Corymb, a collection of flowers ſtanding each on its own fruitſtalk, with fruitſtalks of ſuch a length, that the whole collection forms a flat broad ſurface at the top, as in the pear-tree.

Cotton, *cottony* (tomentum, tomentoſus), downy, covered with a whitiſh ſoft ſubſtance.

Cotyledones, ſeed-lobes.

Creeping (repens) ſtem; creeping along the ground, as ivy.

——— root, as ſpearmint.

Creſcent-ſhaped (lunaris, lunatus), ſhaped like a waxing moon, like the anthers of the ſtrawberry.

Creſted (criſtatus) flowers, tufted.

Crooked (cernuus) fruitſtalk, with the flower facing the earth, and ſo ſtiff, that it cannot be ſtraighted without breaking; as in the crown imperial.

Croſs-pairs (decuſſatus), leaves in pairs, each pair pointing in a direction different from the pair above or below it.

Croſs-ſhaped (cruciatus, cruciformis) flowers, having four petals in form of a croſs; called cruciform plants.

Crowned (coronatus) ſeed, a ſeed to which the calyx adheres, *ex gr.* teazel.

Cruciform, ſee *Croſs-ſhaped*.

Cryptogamia, ſtamens and piſtils indiſtinct.

Cup (perianthium), a calyx contiguous to the other parts of the flower.

—— double (calyculatus), when the baſe of one cup is ſurrounded by another cup.

Curtain (volva), the calyx of agarics and boleti.

Cut-round (circumſciſſus), when a ſeed-veſſel opens in a circle, and not longways.

Cylindrical (teres), round like a walking ſtick.

D.

Dagger-pointed (mucronatus), ending, not gradually, but ſuddenly in a ſharp point.

Deciduous (deciduus) leaves, which fall at the approach of winter.

——— cup or calyx, falling off before the bloſſom.

——— ſeed-veſſel, falling off before it opens.

Declining (declinatus), bent like a bow, with the arch downwards.

Decurrent (decurrens) leaf, without a leaf-ſtalk, but where the leaf runs down the ſtem.

Dented (retuſus), a blunt leaf with a blunt notch at the end.

Depreſſed (depreſſus), when the ſurface of a leaf is ſlightly ſunk.

Diadelphia, the 17th claſs of plants, having the filaments united into two ſets.

Diamond-ſhaped (rhombeus), applied to leaves reſembling a diamond on cards.

Diandria, two ſtamens.

Didynamia, the 14th claſs, having two ſtamens longer.

Digynia, two piſtils.

Dimpled (umbilicatus), having a hollow dot.

Diœcia, diœcious, having the flowers bearing ſtamens and thoſe bearing piſtils on different plants.

Diſk (diſcus) of a leaf is its ſurface; of a compound flower is its central florets; thus, in a daiſy, the minute yellow florets form the diſk, and the larger white ſtrap-ſhaped florets form the ray.

Diſtant (diſtans), far aſunder, as the ſtamens of mint.

Diſtended (ventricoſus), as the cup of the roſe.

Diverging (divergens), ſpreading wide from the ſtem almoſt horizontally, oppoſed to compact.

Divided (partitus) or parted, partite, ſignifies, that a cup, leaf, or petal, is parted more than half way down.

Dodecandria, 12 ſtamens.

Dorſal, fixed to the back.

Dotted (punctatus), marked with little hollow dots.

Double (didymus), applied to two anthers on one filament.

Doubly-compound (decompoſitus) leaves, having the primary leaf-ſtalk divided, ſo that each diviſion forms a compound leaf. They are twinfork (bigeminus), when a forked leaf-ſtalk has ſeveral leafets at the end of each fork; or, doubly-threefold (bi-ternatus), when a leaf-ſtalk, with three diviſions, has three leafets on the end of each diviſion or fork; or, doubly-winged (duplicato-pinnatum, bi-pinnatum), when a leaf-ſtalk has lateral ribs, each of which forms a winged leaf.

Down (pappus), the fine hair or feather-like ſubſtance, crowning the ſeeds of ſome plants, and wafting them abroad.

Downy leaf, ſee *Cottony*.

Drupe, a pulpy ſeed-veſſel, without valves, conſiſting of a nut, ſurrounded by a pulpy ſubſtance, *ex gr.* a cherry.

Duſted (pulveratus), applied to ſome plants which appear covered with a kind of powder.

E.

Ear-ſhaped (auriculatus), ſomewhat reſembling a human ear.

Egg-ſhaped (ovatus), in form of an egg.

Egg-ſpear-ſhaped (ovato-lanceolatum), ſee *Spear-egg-ſhaped*.

Elliptic, oval.

Embracing (amplexicaulis) the ſtem, when the baſe of a leaf nearly ſurrounds the ſtem.

Entire (integer), oppoſed to cleft, gaſhed, &c.

Equal (æqualis), regular.

Erect, upright.

Even (lævis) ſurface; level, regular.

Excreſcence (apophyſis), a ſubſtance growing on ſome of the moſſes from the ſeat of the flower.

Expanding (patens), between upright and horizontal.

Eye (hilium), the ſcar by which a ſeed is fixed to the ſeed-veſſel.

F.

Feathered (plumoſum), the down of ſeeds when it ſends out lateral hairs.

Feeble (debilis), unable to ſtand upright.

Female flowers or florets, ſuch as have one or more piſtils, but no ſtamens.

Ferns, the 1ſt order of the claſs of cryptogamia.

Fertile (fertiles vel feminei) flowers, thoſe that produce ſeed capable of vegetation. Thoſe that have ſtamens only are always barren. Thoſe that have piſtils only, are only barren when placed beyond the reach of the pollen, coming from the anthers of ſtaminiferous flowers.

Fibres (nervi), woody ſtrings running along a leaf.

Fibrous (fibroſus) roots, compoſed of ſmall threads or fibres.

Fiddle-ſhaped (panduriformis), oblong, but narrow in the middle and broader below.

Filament or thread (filamentum), the ſlender part of a ſtamen ſupporting the anther.

Fiſtulous, hollow.

Finger-like (digitatus) leaves, expanded like a man's hand, in pairs, threes and fives.

Flat-topped (faſtigiatus), riſing to the ſame height ſo as to form a flat ſurface.

Fleſhy ſeed-veſſel, *ex gr.* an apple.

Floral leaves (bracteæ) are generally on the fruitſtalk, ſo that they are ſometimes miſtaken for the calyx; but the calyx withers when the fruit is ripe, whereas the floral leaves endure as long as the other leaves of the plant.

Floret (floſculus), one of the ſmall flowers forming a compound or incorporated flower.

Flower (flos), a temporary part of a plant ſubſervient to the formation of the ſeed. It conſiſts of eight parts, a calyx, corolla or bloſſom, ſtamens, piſtils, ſeed-veſſel, ſeeds, receptacle, and a nectary. Wanting any of theſe parts, a flower is incomplete.

Forked (furcatus, dichotomus) divided.

Fringed (aliatus), as the bloſſom of the buck-bean.

Fruit (fructus), a part of a flower conſiſting of the ſeed-veſſel, ſeeds, and receptacle.

Fruitſtalk (pedunculus), a part of a branch or ſtem bearing flowers, but not leaves.

Fungus, the laſt order of the claſs of cryptogamia.

Funnel-ſhaped (infundibuliformis), when a one-petaled bloſſom is tubular at the baſe, and conical at the top.

Furrowed (ſulcatus), marked with lines running lengthwiſe.

G.

Gaping (ringens, perſonatus) bloſſom, ſo called from its reſemblance to a gaping mouth.

Gaſhed (lobatus), divided nearly half-way down into lobes, convex at the edges, and diſtant from each other.

Gelatinous, jelly-like.

Gem, bud.

General involucrum, a calyx at the baſe of a general umbel, as in carrot.

Germ, germen, ſeed-bud.

Gibbous, bulged or bulging.

Gills (lamellæ), thin plates on the under ſide of the pileus

pileus or hat of an agaric; remarkable in the common muſhroom.
Glaſs-ſhaped (cyathiformis), tubular, but widening towards the mouth.
Glaucous (glaucus), hoary, as the back of a cabbage-leaf.
Globular (globoſus), like a round ball.
Glume (gluma), huſk.
Gnawed (roſum), when an indented leaf ſeems as if bitten at the edges.
Granulated, reſembling beads.
Gymnoſpermia, naked ſeeds.
Gynandria, ſtamens on the piſtils.

H.

Hair-like (capillaris), ſlender, undivided, and cylindrical.
Hairs (pili), by ſome thought ſecretory ducts.
Hand-ſhaped (palmatus), like the human hand with the fingers expanded.
Hat (pileus), the upper broad part of funguſſes.
Hatched-ſhaped (dolabriforme) leaf, like an axe of unequal thickneſs.
Headed (capitulus) ſtalk, ſupporting one compact knob of flowers at its extremity.
Heads (capitatus) of flowers, growing in compact knobs, as in peppermint.
Heart (corculum), that part of a ſeed which is the future plant in miniature.
Helmet (galea), the upper part of a gaping bloſſom.
Hemiſpherical, like a half globe.
Herbaceous ſtem, ſucculent, oppoſed to woody.
Hermaphrodite flowers or florets, ſuch as contain both a ſtamen or ſtamens, and a piſtil or piſtils, as the greater part of flowers.
Hexagonal, or ſix-ſided.
Hexagynia, having ſix piſtils.
Hexandria, ſix-ſtamened.
Hoary (incanus), covered with a ſilvery-looking ſubſtance.
Honey-combed (favoſum), a receptacle with cells open at the top, and having a ſeed in each.
Huſk (gluma), the calyx of a graſs plant.
Hybrid (hybrida), a plant produced by the pollen of one plant fertilizing the germen of a plant of a different ſpecies. A mule.

J.

Jagged (laciniatus) leaves, irregularly divided and ſubdivided into lobes.
Icoſandria, 20-ſtamened.
Imperfect flowers, wanting anther or piſtil, or both.
Incomplete flowers want the cup, the corolla, or ſome other important part. See FLOWER. The tulip wants a cup, and the nettle has no bloſſom or corolla.
Incorporated (aggregatus), when little flowers or florets form a compound flower, as a daiſy.
Incumbent, anthers fixed by the ſide, or ſtamens leaning or reſting againſt.
Indented leaf, having the edges deeply ſcolloped, and the lobes far aſunder.
Inflated, as if blown up like a bladder.
Inferior, ſee *Beneath*.
Interrupted, broken in its regular form, as a ſpike by leaves intervening.
Inverſely heart-ſhaped (obcordatus), with the point of the heart next the ſtem.
Involucellum, a partial involucrum.
Involucrum or fence, the calyx of an umbel placed at a diſtance from the flowers.
Jointed (articulatus), *ex gr.* a wheat ſtraw.

K.

Keel, the loweſt petal in a butterfly-ſhaped corolla.
Keeled (carinatus), bent.
Knob, ſee *Heads*.

L.

Lacteſcent, having a milky juice.
Laminated, when the flat ſurfaces of leaves lie cloſe on each other.
Lateral branches, growing from the ſides of the ſtem, oppoſed to terminating.
Leaf, the part of a plant correſponding to the lungs, and alſo to the organs of motion of animals.
Leafet, or little leaf, one of the ſingle leaves of a compound leaf.
Leaf-ſtalk (petiolus), the footſtalk of a leaf.
Leather-like (coriaceus), tough like leather.
Legume (legumen) or ſhell, a ſeed-veſſel of two valves with the ſeeds fixed to one ſeam, as in the pea.
Level, when ſeveral branches or fruitſtalks grow to equal heights.
Lid (operculum), a cover to the capſules of ſeveral moſſes.
Ligulate, ſtrap-ſhaped.
Limb, the upper ſpreading part of a petal.
Limber (flaccidus) bending with its own weight.
Lip, the upper or under diviſion of a gaping corolla.
Lobes, the diviſions of a gaſhed leaf.
Lopped (truncatus), looking as if cut off by ſciſſars.

M.

Male flowers, which have ſtamens, but no piſtils.
Matted (cæſpitoſus), thickly interwoven.
Membranous, membranaceous, thin, ſkinny, and ſemi-tranſparent.
Monadelphia, united filaments.
Monandria, one ſtamen.
Monœcia, one houſe, or plants having the ſtamens and piſtils in different flowers, but on the ſame plant.
Monogynia, one piſtil in each flower.
Monopetalous, one-petaled.
Mouth (faux), the upper or opening part of the tube in a one-petaled corolla.
Mules, ſee *Hybrid*.

N.

Naked, without leaves or hairs.
Nectary, or honey-cup, the part of the flower which ſecretes the honey.
Nut, a ſeed covered by a hard woody ſhell.

O.

Oblong-egg-ſhaped, oblong at the baſe, but egg-ſhaped towards the end.
Octandria, eight-ſtamined.
Octagynia, eight piſtils.

P.

Paleaceous, chaffy.
Panicle, an irregular aſſemblage of flowers.
Papilionaceous flowers, butterfly-ſhaped, as the pea.
Paraſitical plants, which grow not on the earth, but on other plants.
Pedicle, a little fruitſtalk.
Pentagon, five-cornered.
Pentagynia, five piſtils.

Pentandria, five-ſtamined.
Perennial, continuing more than two years.
Petals (petala), the leaves which conſtitute the corolla or bloſſom.
Pillar (ſtipes), the pedicle of the down of ſome ſeeds, as in dandelion.
Pimpled (papilloſus), beſet with little hard protuberances.
Piſtil, a part of a flower conſiſting of the germen, the ſtyle, and the ſummit.
Pitcher-ſhaped (urceolatus), bellying like a jug.
Pith, a ſoft ſubſtance filling the cavity of ſome plants.
Plaited, folded.
Pod (filiqua), a ſeed-veſſel of two valves, within which the ſeeds are alternately fixed to each ſeam.
Pollen (farina), a fine powder in the anthers of flowers.
Polyadelphia, ſtamens in three or more ſets.
Polyandria, many ſtamens.
Polygamia, ſee Introduction to the 23d claſs.
Pores, little holes.
Pouch, a ſhort pod.
Priſm-ſhaped, different from cylindrical, in having the circumference angular.
Proliferous, when one flower, &c. ſprings out of another.
Pubeſcent, clothed with ſoft wool or hair.

R.

Radiate, compound flowers in which the florets of the centre differ from thoſe of the circumference. See *Diſk*.
Rays (radii), outer florets of a radiate compound flower. See *Diſk*.
Receptacle, the ſeat or baſe of a flower.
Reflected, bent back.
Remote whirls, having a conſiderable length of ſtem between each.
Rhomboidal, nearly diamond-ſhaped.
Rigid, inflexible.
Root-leaves (radicalia), thoſe which proceed immediately from the root.
Ruffle or ring, the part of the curtain of an agaric which adheres to the ſtem after the outer part is gone.
Runner (flagellum), a barren twig lying on the ground.

S.

Salver-ſhaped (hypocrateriformis), when a one-petaled corolla has its lower part tubular, and its higher part flat and expanded.
Scaly (ſquamoſus), like the ſkin of a fiſh.
Scurfy (ſquarroſus), applied to the rough cup of ſome compound flowers.
Seed, that which contains the rudiments of the new plant.
Seed-lobes (cotyledones), the periſhable part of a ſeed which affords food to the reſt in germination.
Seminal leaves, thoſe which riſe from the ſeed-lobes.
Serrated, like the teeth of a ſaw.
Sheath (ſpatha), a kind of calyx like that of the crocus.
Simple, undivided.
Sitting leaves or flowers, without leaf or flower-ſtalks.
Solitary, only one in a place.
Spear-egg-ſhaped, like a ſpear at the baſe, and an egg at the extremity.
Spike (ſpica), a collection of flowers placed alternately on each ſide of a common fruitſtalk without little fruitſtalks.
Stamen, conſiſts of a filament and anther.
Staminiferous, bearing ſtamens.
Streaked, marked with depreſſed lines.
Syngeneſia, united anthers.

T.

Target-ſhaped leaf, having the ſtalk fixed, not in the edge, but the centre.
Tetragynia, four piſtils.
Tetradynamia, four ſtamens longer.
Tiled, one leaf or ſcale partly covering another.
Tooth-ſerrated, when the edge of a leaf is marked with little ſerrated teeth.
Triandria, three ſtamens.
Trigynia, three piſtils.
Tubercled, having ſolid warts; applied to certain lichens.
Tuberous root, having many roundiſh knobs in a bundle.
Tubular, hollow like a tube.

U.

Umbel (umbella), an aſſemblage of flowers in which a number of ſlender fruitſtalks, proceeding from the ſame centre, riſe to nearly the ſame height, ſo as to form a regular ſurface at the top, as in hemlock or carrot.
Unequal florets (radiati), when the florets of an umbel are larger in the circumference than in the centre.
Valve, the pieces of a capſule are called valves.
Vaulted (fornicatus), like the roof of the mouth.
Veil (calyptra), the calyx of moſſes.

W.

Wheel-ſhaped, a corolla of one petal, with a flat border and a ſhort tube.
Whirls of branches, leaves or flowers; *ex gr.* the branches of the fir.
Wings, the lateral petals of a butterfly-ſhaped bloſſom.
Winged leaf-ſtalk, with a thin membrane on each ſide.
——— leaf, when an undivided leaf-ſtalk has many little leaves growing from each ſide.
Wing cleft, a leaf deeply cut.
Woody, oppoſed to herbaceous.
Wool, curly haired cloathing on ſome plants.

Z.

Zigzag, having many contrary bendings.

Amomum Zerumbet.
Ginger. page 76.

flower.

Boerhaavia Scandens.
p. 77.

Salicornia herbacea.
Jointed Glaſswort. p. 77.

Diandria.

Calceolaria Nana.
p. 89.

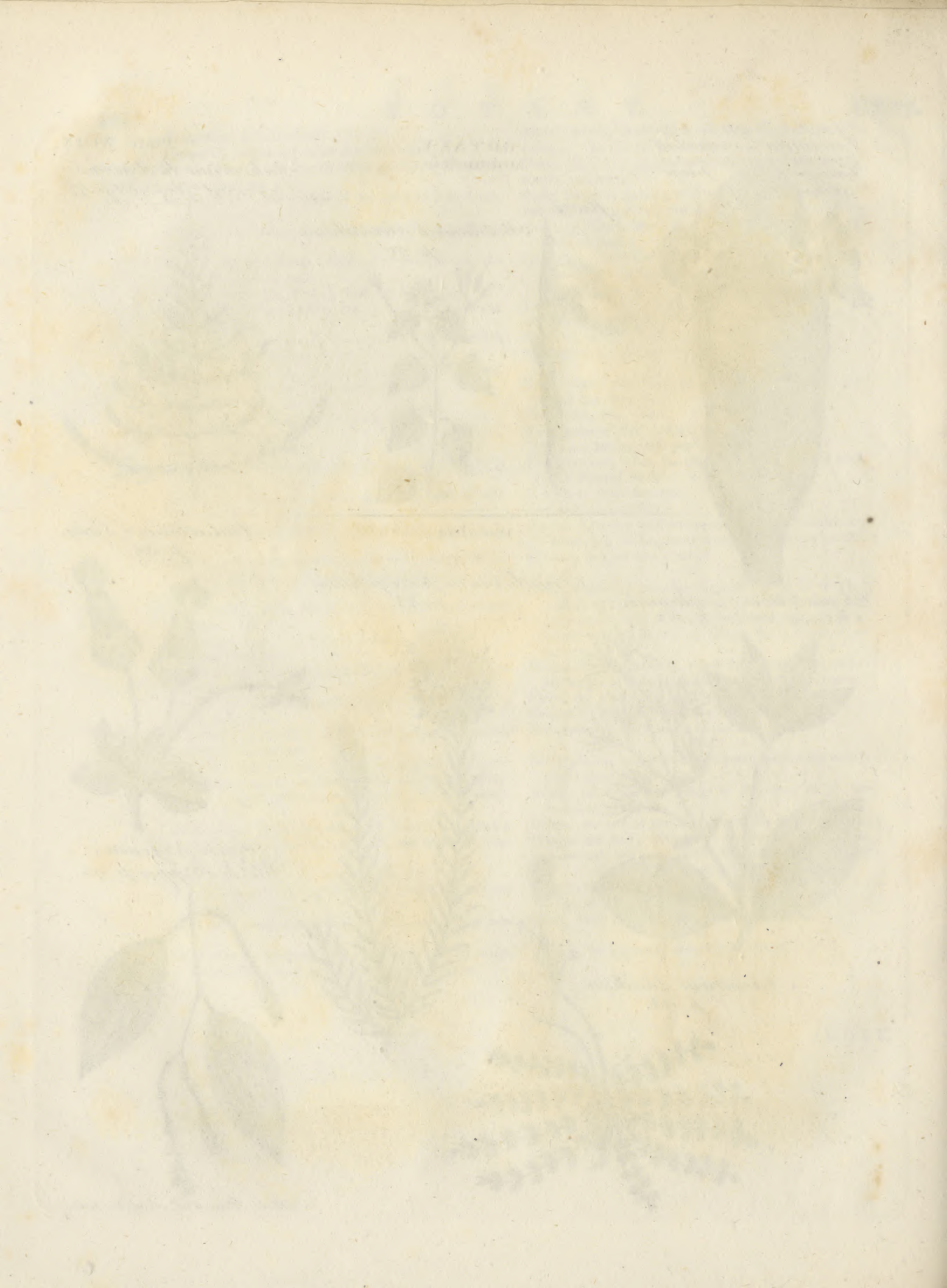
Eranthemum parvifolium.
p. 83.

Chionanthus Zeylanica.
Fringe tree. p. 83.

Piper Nigrum.
Black Pepper p. 93.

Ancistrum Lucidum.
p. 93.

A. Bell Prin. Mad. Sculptor fecit.



Cyperus Papyrus. p. 101.

Witsenia Maura. p. 100.

Mapania Sylvatica. p. 101.

J. Bell Printer at the Sculptors fecit.

A. Bell Prin. Wal. Sculptor fecit.

Protea Argentea. p. 113.

Samara Laeta. p. 116.

Dorstenia Contrayerva. p. 116.

Banksia Serrata. p. 113.

A. Bell Print. Wal. Sculptor. fecit.


Cinchona Officinalis Jesuits Bark. p. 133.
Coris Monspeliensis. p. 137.
Diapensia Lapponica. p. 130.
J. Abbott Prin. Wal. Sculptor fecit.

Oryza Sativa.
Rice plant. p. 160.

Tacca pinnatifida.
p. 159.

Trillium Sessile.
Three leaved Night Shade. p. 161.

A. Bell Prin. Wal. Sculptor fecit

Trientalis Europæa.
Chickweed winter green. p. 162.

Disandra prostrata.
p. 162.

Petiveria alliacea.
Guinea Hennweed. p. 162.

Saururus Cernuus.
Lizards tail. p. 162.

Septas Capensis. p. 162.

A. Bell Prin. Wal. Sculptor fecit.

Fuchsia Coccinea.
p. 167.

Buginvillæa Spectabilis.
p. 167.

Michauxia Campanuloides.
p. 167.

Chlora Perfoliata.
Yellow Centaury. p. 167.

A. Bell. Prin. Wal. Sculptor fecit.

Cassyta Filiformis. p. 175.

Anacardium Occidentale.
Cashew nut tree. p. 175.

Butomus Umbellatus.
Flowering rush. p. 176.

Abell Prin. Wal. Sculptor. fecit.

Hæmatoxylon Campechianum.
Logwood tree. p. 183.

Dionæa Muscipula.
Venus' Fly trap. p. 183.

Cherleria Sedoides.
p. 186.

Deutzia Scabra.
p. 186.

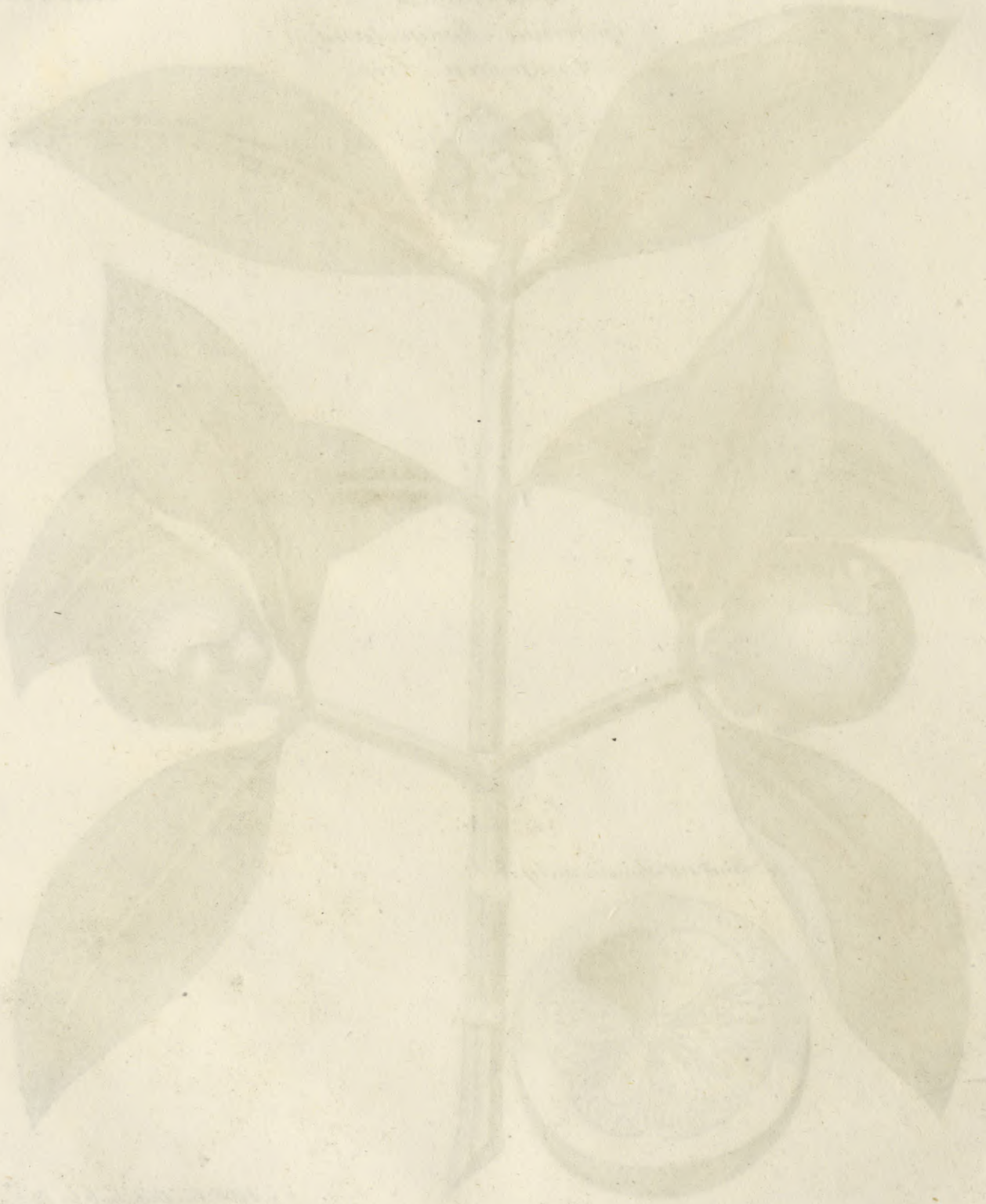
Oxalis Acetosella.
Woodsorrel. p. 187.

AlBell Prin. Wal. Sculptor. fecit.


Canella Alba.
White Cinnamon. p. 190.
Halesia. Snowdrop Tree. p. 190.
Asarum Europæum. p. 190.
A. Bell Prin. Mal. Sculptor fecit.

Garcinia Mangostana.
Mangosteen Tree.

A Bell Prin Wal. Sculptor fecit.



Myrtus Pimento.
Jamaica Pepper Tree. p. 194.

Fruit.

Dryas Octopetala. p. 199.

Tormentilla Erecta.
Upright Tormentil. p. 199.

A Bell Prin. Mal. Sculptor fecit.

Thea Bohea. Tea tree. p. 207.

Wintera Aromatica.
Winter's Bark. p. 208.

Abbott Prim. Wal. Sculptor fecit.

Ajuga Reptans.
Creeping Bugle. p. 215.

Perilla Ocymoides. p. 217.

Lamium Album.
White Dead Nettle. p. 217.

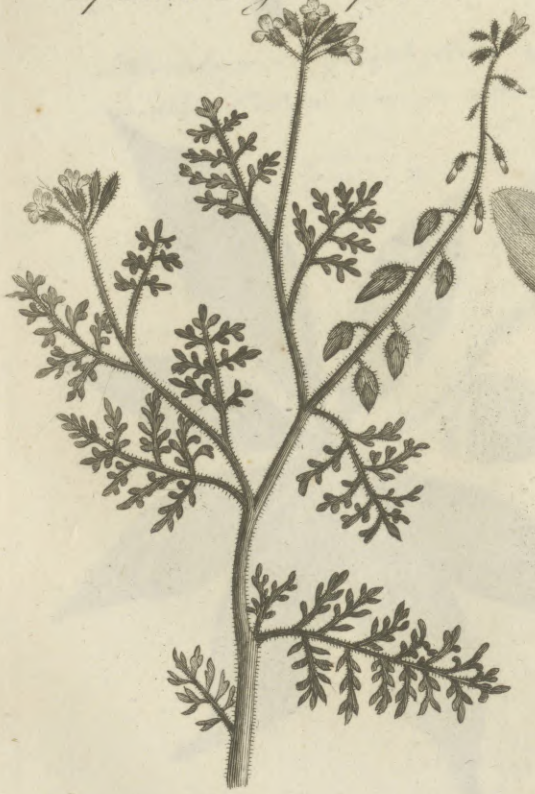
Glechoma Hederacea.
Ground Ivy. p. 217.

A Bell Prin. W. & P. Sculptor fecit.

Myagrum Perfoliatum.
Gold of Pleasure. p. 225.

Kakile Maritima.
Sea Rocket. p. 225.

Vella Annua.
Spanish Cress. p. 225.



Anastatica Hierochunta.
Rose of Jericho. p. 225.

A. Bell Prin. Mar. Sculptor fecit.

Ferraria Pavonia. p. 231.

Aitonia Capensis. p. 232.

Bombax Heptaphyllum.
Silk Cotton tree. p. 233.

Adansonia Digitata.
Sour Gourd. p. 233.

Abbott Drin. Wall. Sculptor. fecit.


Monnieria Trifolia. p. 237.
Geoffroya Spinosa. Base Cabbage tree. p. 240.
Arachis Hypogæa. Ground Nut. p. 238.
Bipserula Pelecina. Base Hatchet Vetch. p. 240.
A.Bell Prin. Mal. Sculptor fecit.

Polyadelphia.

Citrus Medica. Forbidden fruit tree. p. 242.

Monsonia Speciosa. p. 242.

Theobroma Cacao. Cacao or Chocolate nut tree. p. 242.

A Bell Brin Wal Sculptor fecit

Barnadesia Spinosa. p. 250.

Ageratum Ciliare.
Base Hemp-agrimony. p. 251.

Gorteria Spinosa.
p. 253.

A. Bell Prin. Wal. Sculptor fecit.

Passiflora. Passion flower. p. 260.

flower.

fruit.

Kleinhovia Hospita. p. 260.

A Bell Prin. Wal. Sculptor. fecit.

Artocarpus Incisa. Bread fruit Tree. p. 266.

Phyllachne Uliginosa. p. 267.

Tripsacum Hermaphroditum. p. 267.

A. Bell Prin. Wal. Sculptor, fecit.

Dioecia.

Carica Papaya, Papaw tree. Male. p. 274.

Batis Maritima. p. 276.

Viscum Album. White Miſseltoe. p. 276.

A Bell Prin. Walls Sculptor fecit.

Carica Papaya. Papaw Tree Female. p. 274.

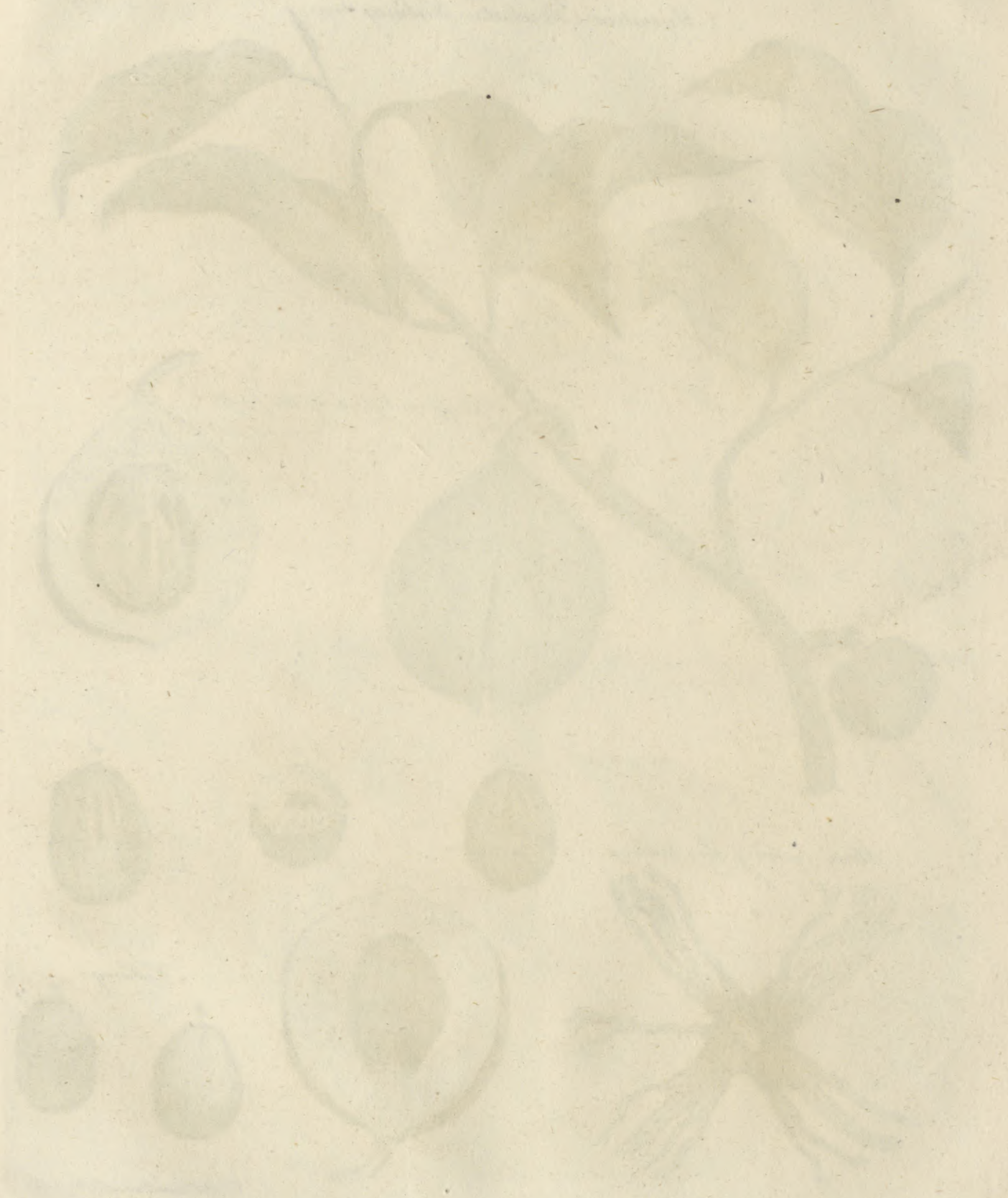
Antidesma Alexiteria. Chinese Laurel. p. 277.

Hydrocharis Morsus ranæ. Frog-bit. p. 277.

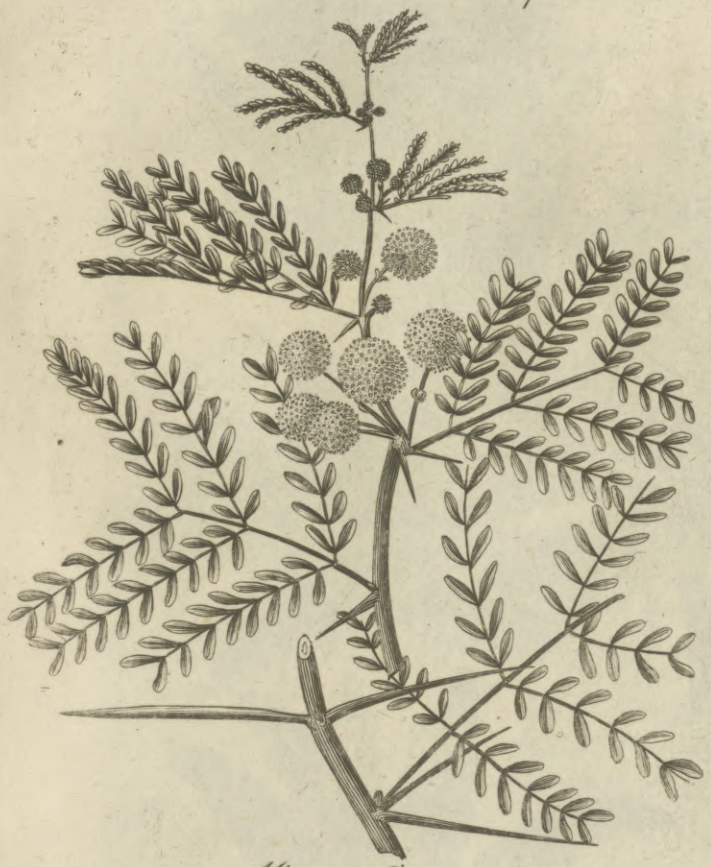
A. Bell Prin. Wal. Sculptor. fecit.

Myristica Moschata. Nutmeg tree.

A. Bell Prin. Wal. Sculptor fecit.



Mimosa nilotica. p. 282.



Mimosa Catechu. p. 282.

Mimosa Cinerea. p. 282.

Mimosa Scandens. p. 282.

A. Bell Prin. Mal. Sculpt.

Arctopus Echinatus. p. 282.

Musa Paradisiaca
Plantain Tree. p. 281.

Musa Sapientum.
Banana Tree. p. 281.

A. B. del. Prin. Wal. Sculptor fecit.

Algæ.

Mnium.

Byssus.

Hypnum.

Sphagnum.

Conferva.

Fontinalis.

A. Bell Prin. Mahl. sculptor. fecit.

Palmæ. *p. 288.*

COCOS NUCIFERA. *The Cocoa Nut Tree.*

INDEX.

Bonetia,

Botany-Bay || Bothnia.

BOTANY-BAY, ſo called from the great number of new plants which were diſcovered by the naturaliſts who firſt viſited it. See *New* HOLLAND.

BOTANOMANCY, (from βοτανη, *herb*, and μαντια, *divination*), an ancient ſpecies of divination, by means of plants; eſpecially ſage and fig leaves. The manner of performing it was thus: the perſons who conſulted wrote their own names and their queſtions on leaves, which they expoſed to the wind; and as many of the letters as remained in their own places were taken up, and being joined together, contained an anſwer to the queſtion.

BOTARGO, a kind of ſauſage, made with the eggs and blood of the mullet, a large fiſh common in the Mediterranean. The beſt kind comes from Tunis in Barbary: It muſt be choſen dry and reddiſh. The people of Provence uſe a great deal of it, the common way of eating it being with olive oil and lemon juice. There is alſo a great conſumption of it throughout the Levant.

BOTE, (Sax.), ſignifies a recompenſe, ſatisfaction, or amends: hence comes *manbote*, compenſation or amends for a man ſlain, &c. In King Ina's laws is declared what rate was ordained for expiation of this offence, according to the quality of the perſon ſlain. From hence likewiſe we have our common phraſe, *to-boot*, i. e. *compenſationis gratia*. There are *houſe-bote*, *plough-bote*, &c. privileges to tenants in cutting of wood, &c.

BOTELESS, (*ſine remedio*). In the charter of Hen. I. to Tho. archbiſhop of York, it is ſaid, "that no judgment or ſum of money, ſhall acquit him that commits ſacrilege; but he is in Engliſh called *boteleſs*, viz. without emendation." We retain the word ſtill in common ſpeech: as, It is *bootleſs* to attempt ſuch a thing; that is, It is in vain to attempt it.

BOTH, JOHN and ANDREW, Flemiſh painters, and pupils of Bloemart. The union of theſe brothers was very ſingular; they were inſeparable in their ſtudies, travels, and paintings. John painted the landſcape part of their pictures in the manner of Lorrain, and Andrew the figures and animals in the ſtyle of Bamboche. They both died in 1650. John's taſte in landſcape is elegant; his ideas are grand; his compoſition beautiful; and his execution rich and maſterly in the higheſt degree. His light is not always well diſtributed; but his figures are excellent. It is to be regretted that we have not more of his works; for they are certainly, upon the whole, among the beſt landſcapes we have.

BOTHNIA, a province of Sweden, at the end of the gulf of the ſame name. It is divided into two parts called *caſt* and *weſt Bothnia*, the former of which belongs to Finland. Weſt Bothnia is full of mountains; the earth is ſandy, and yet a ſcarcity of proviſions is ſeldom known. Cattle and game are ſo common, ſalmon and a ſort of herrings ſo plenty, and the trade of ſkins is ſo gainful, that the inhabitants can command what they want from their neighbours. There are only two towns worth mentioning, viz. Tornea and Uma. The inhabitants of this province are Proteſtants; and are a civil well-behaved people.

Botrys || Botticelli.

BOTRYS, BOTRUS, or *Boſtra*, in *Ancient Geography*, a town of Phoenicia, on the Mediterranean, built by Saturn, (a proof at leaſt of antiquity); twelve miles to the north of Byblus, and twenty to the ſouth of Tripolis. Now almoſt in ruins, and called *Boteron*, or *Boturn*, (Poſtellus). E. Long. 37. 30. N. Lat. 34. 6.

BOTT, among bone-lace weavers, a kind of round cuſhion of light matter placed on the knee, whereon they work or weave their lace with bobbins, &c.

BOTT, in *Zoology*. See BOTTS.

BOTTICELLI, SANDRO, or ALESANDRO, born at Florence in 1437, learned the rudiments of painting under Filippo Lippi. He executed ſeveral pictures for Pope Sixtus IV. and others for the city of Florence: for theſe he received large ſums of money, all of which he expended, and died at laſt in great diſtreſs, aged 78. He was not only a painter but a man of letters. Baldini, according to the general report, communicated to him the ſecret of engraving, then newly diſcovered by Finiguerra their townſman. The famous edition of Dante's Poem of Hell, printed at Florence by Nicholo Lorenzo della Magna, A. D. 1481, and to which, according to ſome authors, Botticelli undertook to write notes, was evidently intended to have been ornamented with prints, one for each canto; and theſe prints (as many of them as were finiſhed) were deſigned, if not engraved, by Botticelli. It is remarkable, that the two firſt plates only were printed upon the leaves of the book, and for want of a blank ſpace at the head of the firſt canto, the plate belonging to it is placed at the bottom of the page. Blank ſpaces are left for all the reſt; that as many of them as were finiſhed might be paſted on. Mr Wilbraham poſſeſſes the fineſt copy of this book extant in any private library; and the number of prints in it amounts to nineteen. The two firſt, as uſual, are printed on the leaves; and the other ſeventeen, which follow regularly, are paſted on the blank ſpaces; and theſe apparently were all that Botticelli ever executed. About the

Bottle, Bottling.

the year 1460, it is ſaid that he engraved a ſet of plates, repreſenting the *Prophets and Sibyls*. Baſan tells us that he marked theſe plates with a *monogram* compoſed of an A and a B joined together.

BOTTLE, a ſmall veſſel proper to contain liquors, made of leather, glaſs, or ſtone. The word is formed from *butellus*, or *botellus*, uſed in barbarous Latin writers, for a leſſer veſſel of wine; being a diminutive of *bota*, which denoted a butt or caſk of that liquor.

The ancient Jewiſh bottles were cags made of goats or other wild beaſts ſkins, with the hair on the inſide, well ſewed and pitched together; an aperture in one of the animal's paws ſerving for the mouth of the veſſel.

Glaſs-bottles are better for cyder than thoſe of ſtone. Foul glaſs-bottles are cured by rolling ſand or ſmall ſhot in them; muſty bottles, by boiling them. See Glass.

Bottles are chiefly made of thick coarſe glaſs: though there are likewiſe bottles of boiled leather made and ſold by the caſe-makers. Fine glaſs-bottles covered with ſtraw or wicker, are called *flaſks*, or *bettees*. The quality of the glaſs has been ſometimes found to affect the liquor in the bottle.

Dr Percival cautions againſt the practice of cleaning of wine bottles with leaden ſhot. It frequently happens (he thinks), through inattention, that ſome of the little pellets are left behind; and when wine or beer is again poured into the bottles, this mineral poiſon will ſlowly diſſolve, and impregnate thoſe vinous liquors with its deleterious qualities. The ſweetneſs which is ſometimes perceived in red port wine may ariſe from this cauſe, when ſuch an adulteration is neither deſigned nor ſuſpected.—Potaſh is recommended for cleanſing bottles: a ſmall quantity in the water will clean two groſs.

BOTTLING, the operation of putting up liquors in bottles corked, to keep, ripen, and improve. The writers on good huſbandry give divers rules concerning the bottling of beer, cyder, and the like. The virtues of Spaw, Pyrmount, Scarborough, and other waters, depend on their being well bottled and corked, otherwiſe they loſe both their taſte and ſmell. To preſerve them, it is neceſſary the bottles be filled up to the mouth, that all the air may be excluded, which is the great enemy of bottled liquors. The cork is alſo further ſecured by a cement. Some improve their bottled beer, by putting cryſtals of tartar, and wine or malt ſpirits, and others, by putting ſugar boiled up with the eſſence of ſome herb, and cloves, into each bottle.

Cyder requires ſpecial precautions in the bottling; being more apt to fly, and burſt the bottle, than other liquors. The beſt way to ſecure them, is to have the liquor thoroughly fine before it be bottled. For want of this, ſome leave the bottles open a while, or open them after two or three days bottling to give them vent. If one bottle break, through fermentation, it is beſt to give them all vent, and cork them up again. Mean cyder is apter to break the bottles than rich. Some ſoak the corks in ſcalding water, to render them more pliant and ſerviceable. Another particular to be obſerved is, to lay the bottles ſo as that the liquor may always keep the cork wet and ſwelled. Something alſo depends on the place where the bottles are ſet, which ought to be ſuch as expoſes them as little as poſſible to the alterations and impreſſions of the air: the ground is better for this purpoſe than a frame; ſand better than the bare ground; and a running water, or a ſpring often changed, beſt of all.

Bottom || Bottony.

To haſten the ripening of bottled liquors, they are ſometimes ſet in a warm place, or even expoſed to the ſun, when a few days will bring them to maturity.

BOTTOM, in a general ſenſe, denotes the loweſt part of a thing, in contradiſtinction to the top or uppermoſt part.

Bottom, in *Navigation*, is uſed to denote as well the channel of rivers and harbours, as the body or hull of a ſhip. Thus, in the former ſenſe, we ſay, a *gravelly bottom*, *clayey bottom*, *ſandy bottom*, &c. and in the latter ſenſe, a *Britiſh bottom*, a *Dutch bottom*, &c. By ſtatute, certain commodities imported in foreign bottoms pay a duty called *petty cuſtoms*, over and above what they are liable to if imported in Britiſh bottoms.

BOTTOMRY, in *Commerce*, (a practice which originally aroſe from permitting the maſter of a ſhip in a foreign country to hypothecate the ſhip in order to raiſe money to refit), is in the nature of a mortgage of a ſhip; when the owner takes up money to enable him to carry on his voyage, and pledges the keel or bottom of the ſhip (*pars pro toto*) as a ſecurity for the repayment. In which caſe it is underſtood, that if the ſhip be loſt, the lender loſes alſo his whole money; but if it return in ſafety, then he ſhall receive back his principal, and alſo the premium or intereſt agreed upon, however it may exceed the legal rate of intereſt. And this is allowed to be a valid contract in all trading nations, for the benefit of commerce, and by reaſon of the extraordinary hazard run by the lender. And in this caſe, the ſhip and tackle, if brought home, are anſwerable (as well as the perſon of the borrower) for the money lent. But if the loan is not upon the veſſel, but upon the goods and merchandiſe, which muſt neceſſarily be ſold or exchanged in the courſe of the voyage, then only the borrower, perſonally, is bound to anſwer the contract; who therefore, in this caſe, is ſaid to take up the money at *reſpondentia*. Theſe terms are alſo applied to contracts for the repayment of money borrowed, not on the ſhip and goods only, but on the mere hazard of the voyage itſelf; when a man lends a merchant 1000l. to be employed in a beneficial trade, with condition to be repaid with extraordinary intereſt, in caſe ſuch a voyage be ſafely performed; which kind or agreement, is ſometimes called *fœnus nauticum*, and ſometimes *uſura maritima*. But as this gave an opening for uſurious and gaming contracts, eſpecially upon long voyages, it was enacted by the ſtatute 19 Geo. II. c. 37. that all monies lent on bottomry, or at *reſpondentia*, on veſſels bound to or from the Eaſt Indies, ſhall be expreſsly lent only upon the ſhip, or upon the merchandiſe; that the lender ſhall have the benefit of ſalvage; and that if the borrower has not on board effects to the value of the ſum borrowed, he ſhall be reſponſible to the lender for ſo much of the principal as hath not been laid out, with legal intereſt and all other charges, though the ſhip and merchandiſe be totally loſt.

BOTTONY. A croſs bottony, in *Heraldry*, terminates

Bottrigaro, Botts.

nates at each end in three buds, knots, or buttons, reſembling, in ſome meaſure, the three-leaved graſs; on which account Segoing, in his *Treſor Heraldique*, terms it *croix treffiee*. It is the badge of the order of St Maurice. See HERALDRY *Plates*.

BOTTRIGARO, HERCOLE, a perſon eminently ſkilled in the ſcience of muſic, though not a muſician by profeſſion. He was a man of rank in Bologna; and appears, from ſeveral letters to him that have been printed, to have had the title of *Count*. He publiſhed ſeveral controverſial pieces on the ſubject of muſic. It ſeems that he entertained ſtrong prejudices in favour of the ancient muſic; and that he attempted, as Vincentine and others had done, to introduce the chromatic genus into practice, but with no better ſucceſs than had attended the endeavours of others. He corrected Gogavino's Latin verſion of Ptolemy in numberleſs inſtances; and that to ſo good a purpoſe, that Dr Wallis has in general conformed to it in that tranſlation of the ſame author which he gave to the world many years after. He alſo tranſlated into Italian *Boetius de Muſica*, and as much of Plutarch and Macrobius as relates to muſic: beſides this, he made annotations upon Ariſtoxenus, Franchinus, Spataro, Vicentino, Zarlino, and Galiſlei; and, in ſhort, on almoſt every muſical treatiſe he could lay his hands on, as appears by the copies which were once his own, and are now repoſited in many libraries in Italy. Of Bottrigaro's works it is ſaid, that they contain greater proofs of his learning and ſkill in muſic, than of his abilities as a writer, his ſtyle being remarkably inelegant: nevertheleſs, he affected the character of a poet; and there is extant a collection of poems by him, in 8vo, printed in 1557. Walther † repreſents him as an able mathematician, and a collector of rarities; and ſays that he was poſſeſſed of a cabinet, which the emperor Ferdinand II. had a great deſire to purchaſe. He died in 1609.

† *Muſical Lexicon.*

BOTTS, in *Zoology*, a ſpecies of worms which can be produced and nouriſhed only in the inteſtines of a horſe. It is there alone they can enjoy the proper temperature of heat, and receive the nouriſhment neceſſary for them. See OESTRUS, ENTOMOLOGY *Index*.

Beſides the long worms which have been obſerved in the bodies of horſes, there are alſo ſhort ones.—By theſe are to be underſtood what we call *botts*.

All authors, both ancient and modern, who have treated of the diſeaſes of horſes, have taken notice of theſe worms; but M. Valliſnieri is the firſt who has traced them to the laſt ſtage of their transformation, and has ſeen them change into a hairy kind of fly like the drone.

The flies from which theſe botts are produced inhabit the country, and do not come near houſes, at leaſt not near thoſe of great towns; and therefore horſes are never liable to have the worms (*i. e.* botts) in their bodies, if they have been kept in the houſe, eſpecially in a town, during the ſummer and autumn.

It is in the former of theſe ſeaſons, and perhaps too in the beginning of the latter, that the females of theſe flies apply themſelves to the anus of horſes, and endeavour to gain admittance, in order there to depoſite their eggs, or perhaps their worms.

The preciſe inſtant of their entrance will ſcarce admit of an eye-witneſs, but by the mereſt chance; yet M. Valliſnieri ſays, that Dr Gaſpari had attained this very uncommon ſight. The Doctor (he tells us) was one day looking at his mares in the field; and from being very quiet, he obſerved, that on a ſudden they became very reſtleſs, and ran about in great agitation, prancing, plunging, and kicking, with violent motions of their tails. He concluded, that theſe extraordinary effects were produced by ſome fly buzzing about them, and endeavouring to ſettle upon the anus of one of them; but the fly not being able to ſucceed, he obſerved it to go off with leſs noiſe than before, towards a mare that was feeding at a diſtance from the reſt; and now the fly taking a more effectual method to obtain its deſign, paſſed under the tail of the mare, and ſo made its way to the anus. Here at firſt it occaſioned only an itching, by which the inteſtine was protruded with an increaſing aperture of the anus; the fly taking the advantage of this, penetrated further, and ſecured itſelf in the fold of the inteſtine:—this effected, it was in a ſituation proper for laying its eggs. Soon after this, the mare became very violent, running about, prancing, and kicking, and throwing herſelf on the ground; in ſhort, was not quiet, nor returned to feeding, till after a quarter of an hour. Botts.

The fly then, we ſee, can find means of depoſiting its eggs, or perhaps its worm (i. e. botts), in the fundament of the horſe; which once effected, it has done all that is neceſſary for them. If theſe bott-worms are not hatched when firſt depoſited in the horſe, but are then only eggs, it will not be long before it happens, from the nutritive heat they there receive.

Theſe bott-worms ſoon make their way into the inteſtines of the horſe: they occupy ſuch parts of this region as are to them moſt convenient; and ſometimes (as we ſhall ſee preſently) they penetrate even to the ſtomach. All the hazard they appear to be expoſed to, is that of being carried away from the places they have fixed on by the excrement, which may ſeem likely to drive all before it. But nature has provided for all things; and when we ſhall have further deſcribed theſe bott-worms, it will ſeem that they are able to maintain their ſituation, and to remain in the body of the horſe, as long as they pleaſe.

There is a time when theſe bott-worms are of themſelves deſirous to leave this their habitation, it being no longer convenient for them after the purpoſes of their growth are anſwered. Their transformation to a fly muſt be performed out of the horſe's body: and accordingly, when the time of their transformation draws near, they approach towards the anus of the horſe; and then leave him of their own accord, or with the excrement, with which they then ſuffer themſelves to be carried along.

According to M. de Reaumur's obſervations, the bott-worms have two unequal claws, by which they are enabled to remain in the inteſtines of the horſe in oppoſition to all efforts of the excrement to force them out.—Theſe claws are a ſort of anchor, differently diſpoſed from thoſe of common anchors, but contrived to produce the ſame effect. Beſides theſe two claws, nature has given them a very great number of triangular ſpines or briſtles, very ſufficient to arm them againſt the coats of the inteſtines, and to reſiſt the force employed to drive them towards the anus, provided the head be directed towards the ſtomach of the horſe.

It will be aſked, no doubt, if theſe bott-worms are not

Botwar || Bova.

not dangerous to horſes?—The mares which afforded M. de Reaumur, for ſeveral years, thoſe on which he made his obſervations, did not appear to be leſs in health than thoſe which had none; but it may ſometimes happen, that they are in ſo great a quantity in the body of the horſe as to prove fatal to him. M. Valliſnieri ſuppoſes theſe bott-worms to have been the cauſe of an epidemical diſeaſe that deſtroyed a great many horſes about Verona and Mantua in the year 1713. —The obſervations communicated to him by Dr Gaſpari ſufficiently confirm his ſuppoſition. This gentleman, upon diſſecting ſome horſes that died of this diſtemper, found in their ſtomachs a ſurpriſing quantity of ſhort worms; of which to give us ſome idea, he compares them to the kernels of a pomegranate opened: each of theſe, by gnawing on the coat of the ſtomach, had made to itſelf a kind of cellule therein, each of which would eaſily contain a grain of Indian wheat. It is eaſy to imagine by this means the ſtomach muſt be reduced to a wretched condition; the outer membranes were inflamed, and the inner ones ulcerated and corrupted; a very ſmall quantity of theſe worms were found in the ſmall inteſtines, and only a few in the larger, to which laſt they were found affixed, but had not corroded them. It is only perhaps when theſe bott-worms are in great numbers, and thereby incommode each other in the inteſtines of the horſe, that they make their way towards the ſtomach; and indeed a very few flies muſt be enough to overſtock the inſide of a horſe, provided they ſhould depoſite all their eggs, and ſuch ſhould all be animated, M. Valliſnieri having counted 700 and odd in the body of one ſingle fly.

When one of theſe botts has left the anus of the horſe, it falls on the ground; and immediately ſeeks out for ſome place of ſafety, where it may retire, to prepare for the laſt ſtage of its transformation, by which it is to become a fly. And now by degrees the ſkin hardens and thickens; and at length forms a ſolid ſhell or cod, the form of which ſcarce differs from that of the worm. It is firſt of a pale red colour, which changes into cheſnut; and at length, by the addition of gradual and ſucceſſive ſhades of brown, the ſhell is rendered black. The worm or bott, before it paſſes into a nymph, is of the form of an oblong ball; it remains in this form much longer than worms of the fleſh-fly kind. M. de Reaumur met with worms that retained this figure five or ſix days: as yet, one can perceive no traces of the legs, wings, and head of the nymph. Hence he firſt learned, that thoſe bott-worms do not become nymphs immediately upon their firſt change; but that, in order to become flies, they muſt undergo one change more than caterpillars ordinarily do to become butterflies.—For the cure of horſes troubled with botts, ſee FARRIERY *Index*.

BOTWAR, a town of Germany, in the circle of Suabia, and ſubject to the duke of Wirtemberg. E. Long. 9. 15. N. Lat. 49. 0.

BOTZENBURG, a town of Germany, in the duchy of Mecklenburg. It had a caſtle, which was deſtroyed by the Danes in 1202. It is ſeated on the Elbe, and the veſſels that paſs by are obliged to pay a conſiderable toll. E. Long. 10. 48. N. Lat. 53. 34.

BOVA, an epiſcopal town of Italy, in the kingdom of Naples, ſeated near the Apennine mountains. E. Long. 16. 15. N. Lat. 37. 15.

Bouchain || Bouflers.

BOUCHAIN, a fortified town of the French Netherlands, in the province of Hainault. It is divided into two parts by the river Scheld. It was taken by the French in 1676; and by the allies under the duke of Marlborough in 1711, which was the laſt military achievement of that great general; but the following year it was retaken by the French. E. Long. 3. 15. N. Lat. 50. 17.

BOUCHE OF COURT, the privilege of having meat and drink at court ſcot-free. The word is alſo written *bowge*, *bouge*, and *budge*; it is mere French, where it ſignifies *mouth*.—The French ſtill uſe the phraſe, *Avoir bouche à la cour*; that is, *to have table or diet at court*. This privilege is ſometimes only extended to bread, beer, and wine: it was a cuſtom anciently in uſe, as well in the houſes of noblemen as in the king's court. Thomas earl of Lancaſter retained Sir John de Ewre, to ſerve him with ten men at arms in time of war, allowing them *bouge of court*, with livery of hay and oats, horſe-ſhoes and nails. Sir Hugh Merrill had the ſame privilege for life, on condition of ſerving King Edward II.

BOUCHET, JOHN, a French poet and hiſtorian, flouriſhed in the 16th century. The moſt conſiderable of his writings are the Annals of Aquitaine, and his *Chapelet des Princes*.

BOUDRY, a ſmall town of Swiſſerland, in the province of Neufchatel, and capital of a chatelainry of the ſame name. E. Long. 7. 5. N. Lat. 47. 11.

BOVEY COAL, an inflammable foſſil found in England, France, Italy, Swiſſerland, Germany, Ireland, &c. Its colour is brown or browniſh black, and of a laminar ſtructure. It is compoſed of wood, penetrated by petrol or bitumen; and frequently contains pyrites, alum, and vitriol.

BOUFLERS, LEWIS FRANCIS, DUKE OF, a peer and marſhal of France, and a general of diſtinguiſhed reputation, was the ſon of Francis count of Bouflers. He was born in the year 1644, and entering early into the army, was raiſed in 1669 to the rank of colonel of dragoons, and in the conqueſt of Lorraine, ſerved under Marſhal Crequi. In the war againſt Holland he ſerved under the celebrated Turenne, and frequently diſtinguiſhed himſelf for his ſkill and bravery; and when that general was killed, in 1675, he commanded the rear-guard during the retreat of the French army. After performing various military ſervices in Germany, in Flanders, and on the frontiers of Spain, he gradually roſe in rank as well as in reputation. In 1690, he was created general of the army of the Moſelle. In the following year, he acted as lieutenant-general, under the king in perſon; and while he inveſted Mons was wounded in an attack on that place. He conducted the bombardment of Liege, although it was defended by a ſuperior enemy, and he forced the allied generals to abandon Luxemburgh. He was entruſted with the command of the covering army, againſt King William, at the ſiege of Namur; and for this and many other important ſervices, he was raiſed in 1693 to the high rank of marſhal of France. In 1694, he was appointed governor of French Flanders, and of the town of Liſle. By a ſkilful manœuvre he threw himſelf into Namur, in 1695, and held out for ſixty-three days, againſt the combined armies of the allies under King William. Having agreed to a capitulation, he was arreſted priſoner of

war,

Bougeant || Bougie.

war, because the French had not performed the stipulated terms on which the garrison had surrendered; and when he remonstrated that the garrison should have been retained rather than himself, he received a fine compliment, by being answered, that he was estimated at 10,000 men. In the conferences which were held with the earl of Portland, and which terminated in the peace of Ryswick, he had a principal share.

During the following war, when Lisle was again threatened, in 1708, with a siege by the duke of Marlborough and Prince Eugene, Boufflers was appointed to the command, and made a very obstinate resistance of four months. His magnanimity was not less remarkable than his military conduct; for when a partisan represented to him that it would not be difficult to kill Prince Eugene, he was told by the marshal, that he might expect a great reward for taking him prisoner, but the severest punishment if any thing were attempted against his life. He was rewarded and honoured by the king for his defence of Lisle, as if he had been victorious. When the affairs of France were threatened with the most urgent danger, though a senior officer to Villars, he made an offer to serve under that general, and was with him at the battle of Malplaquet. Here he again displayed his military skill, by conducting the retreat, so that he lost neither cannon nor prisoners. He died at Fountainbleau in the year 1711, at the age of 68, and left the character of a true patriot, as well as of a great commander. Madame de Maintenon, said of him, "that his heart was the last part that died." His conduct was uninfluenced by private interest, and superior to court intrigue. When he was ordered to take upon him the defence of Lisle, and permitted to have the choice of his lieutenants, he waited not to arrange or regulate his private affairs, or even to take leave of his family, but flew to the place, and carried with him only two officers, one taken from the Bastile, and another who had been in disgrace; preferring merit obscured in the shades of retirement, to the gaudy flutterer in the sunshine of court favour.

BOUGEANT, William Hyacinth, a famous Jesuit, first taught humanity at Caen and Nevers, and afterwards settled at the college of Louis the Great, where he employed himself in writing several works; the principal of which were, 1. A collection of physical observations, extracted from the best authors. 2. A history of the wars and negotiations which preceded the treaty of Westphalia. 3. The female doctor, a philosophical amusement on the language of beasts, &c. He died in 1743.

BOUGH, denotes much the same with branch.—Green boughs anciently made part of the decoration of altars and temples, especially on festival occasions. Oaken boughs were offered to Jupiter; those of laurel, to Apollo; of olive, to Minerva; myrtle, to Venus; ivy, to Bacchus; pine, to Pan; and cypress to Pluto. Some make them the primitive food of mankind before acorns were invented.

BOUGIE, in the French language, signifies a wax candle, and is applied to a machine which (as the wax candle formerly was) is introduced into the urethra for removing obstructions there. Monf. Daran, a French surgeon, lately boasted of his introducing them as an improvement in his art, and acquired considerable profit by making and selling them. Scultetus, about the middle of the 17th century, used bougies in diseases of the urethra, and Monf. Daran probably took the hint from him. Different compositions have been used, and generally mercury was a part of them. Riverius made a plaster as follows: ℞ ol. oliv. ℔ iv. ceræ citrin. ℔ ii. minii & ceruss. āā ℔ iſs tereb. venet. & rez. alb. āā ʒ iii m. Whether the bougies are made up of this or any other composition, they must be of different sizes, from the bigness of a knitting needle to that of a goose quill. They are made of linen rags, spread with a proper matter, and then rolled up as follows. Having spread any quantity of the linen rag with the composition that is chosen for the purpose, cut it into slips from six to ten inches long, and from half an inch to an inch broad: then dexterously roll them on a glazed tile into the form of a wax candle: and as the end of the bougie that is to be entered first into the urethra should be somewhat smaller than the rest, it would be as well to cut the slips a little tapering. It should also be observed, that when the bougies are rolled up, that side must be outward on which the plaster is spread. Bouhorns. Motherby's Med. Dict.

Monf. Daran, and some others, attributed the action of their bougies to the composition they made use of in forming them. Mr Sharp apprehended, that as much of their efficacy was owing to the compression they made on the affected part, as to any other principle; and Mr Aiken very justly says, As it is evident that bougies of very different compositions succeed equally well in curing the same disorders in the urethra, it is plain that they do not act by means of any peculiar qualities in their composition, but by means of some property common to them all. This must be their mechanical form and texture, therefore their mode of action must be simple compression. The efficacy of mere compression in many cases of constriction is well known, from the use of sponge tents for widening parts that are straitened by cicatrices; and admitting obstructions in the urethra to be from a constriction formed by cicatrized ulcers, or a projection of the spongy substance of the urethra into the canal, we may easily conceive, that a gentle continued elastic compression will in time overcome the disease. We may also readily account for the inferior efficacy of metallic and whalebone bougies, from their not having the property of swelling with moisture, and therefore not making so equal a compression. As to bougies procuring a discharge of matter, there is no doubt but the mechanical stimulus of a foreign body in such a tender part, though free from disease, must produce it in some degree; and that this will be varied according to the chemically irritating quality of the composition, and the irritable state of the urethra: but it seems an absurdity to apply a topic, made uniform throughout, to the whole length of a canal, with a view of producing extraordinary effects upon a particular part of it, by means of some powerful quality in the ingredients. As to that part of the bougie which was in contact with the diseased part, being particularly covered with matter; this circumstance is probably owing to the greater irritation of that part of the urethra where the disorder is, than any other.

BOUHOURS, Dominic, a celebrated French critic,

Bouillon. tic, was born at Paris in 1628; and has been by ſome conſidered as a proper perſon to ſucceed Malherbe, who died about that time. He was entered into the ſociety of Jeſuits at the age of 16; and was appointed to read lectures upon polite literature in the college of Clermont at Paris, where he had ſtudied: but he was ſo inceſſantly attacked with the headach, that he could not purſue the deſtined taſk. He afterwards undertook the education of two ſons of the duke of Longueville, which he diſcharged with great applauſe. The duke had ſuch a regard for Bouhours, that he would needs die in his arms; and the "Account of the pious and Chriſtian death" of this great perſonage was the firſt work which Bouhours gave the public. He was ſent to Dunkirk to the Popiſh refugees from England; and in the midſt of his miſſionary occupations, found means to compoſe and publiſh books. Among theſe were, *Entretiens d'Ariſte et d'Eugene*, or "Dialogues between Ariſtus and Eugenius;" a work of a critical nature, and concerning the French language. His book was printed no leſs than five times at Paris, twice at Grenoble, at Lyons, at Bruſſels, at Amſterdam, at Leyden, &c. and embroiled him in quarrels with a great number of cenſors, with Menage in particular, who, however, lived in friendſhip with our author before and after. The fame of this piece, and the pleaſure he took in reading it, recommended Bouhours ſo effectually to the celebrated miniſter Colbert, that he truſted him with the education of his ſon the marquis of Segnelai. He wrote afterwards ſeveral other works; the chief of which are, 1. Remarks and doubts upon the French language. 2. Dialogues upon the art of thinking well in works of genius. 3. The life of St Ignatius. 4. The art of pleaſing in converſation. 5. The life of St Francis Xavier, apoſtle of the Indies and of Japan. This laſt work was tranſlated from the French into Engliſh by Mr Dryden, and publiſhed at London in the year 1668, with a dedication prefixed to James II.'s queen.

BOUILLON, a town of France, in the duchy of the ſame name, and in the county of Luxemburg, with a fortified caſtle, which is ſeated on a rock that is almoſt inacceſſible. The French took it in 1676; upon which it was given to the duke of Bouillon. This duchy is a ſovereignty, independent of France; and in 1792, the king of Great Britain granted to Philip d'Auvergne, captain in the royal navy, his licenſe to accept the ſucceſſion to the ſaid duchy, in the caſe of the death of the hereditary prince, only ſon of the reigning duke, without iſſue male, purſuant to a declaration of his ſerene highneſs, in 1791, "at the deſire, and with the expreſs and formal conſent of the nation." Accordingly, Captain d'Auvergne has ſince aſſumed the title of prince of Bouillon. In May 1794 this town was taken by ſtorm, by General Beaulieu, after defeating a conſiderable body of republicans, and given up to pillage; 1200 French were killed, and 300 taken priſoners. It is ſeated near the river Semois, 12 miles north of Sedan. E. Long. 5. 20. N. Lat. 49. 45.

Bouillon, in the manege, a lump or excreſcence of fleſh that grows either upon or juſt by the fruſh,—inſomuch that the fruſh ſhoots out, juſt like a lump of fleſh, and makes the horſe halt; and this is called the *fleſh blowing upon the fruſh*. Manege horſes, that never wet their feet, are ſubject to theſe excreſcences, which make them very lame. See Frush.

Bovina || Boulanger.

BOVINA affectio, a diſtemper of black cattle, cauſed by a worm lodging between the ſkin and the fleſh, and perforating the ſame. This diſtemper is not mentioned by the ancient Greeks, and is but little known in Europe.

BOVINES, a ſmall town of the Auſtrian Netherlands, in the province of Namur, ſeated on the river Maeſe or Meuſe, in E. Long. 4. 50. N. Lat. 49. 45.

BOVINO, an epiſcopal town of Italy, in the Capitanata, ſeated at the foot of the Apennine mountains, in E. Long. 16. 15. N. Lat. 41. 17.

BOVIUM, (Itinerary); a town of the Silures, in Britain, fifteen miles to the ſouth of Iſca Silurum, or Caer-leon, in Monmouthſhire: Now called *Cowbridge*; according to Baudrand, *Bangor* in Carnarvonſhire.

BOULAINVILLIERS, Henry de, Lord of St Saiſe, and an eminent French writer, was deſcended from a very ancient and noble family, and born at St Saiſe in 1658. His education was among the fathers of the oratory; where he diſcovered from his infancy thoſe uncommon abilities for which he was afterwards diſtinguiſhed. He applied himſelf principally to the ſtudy of hiſtory; and his performances in this way are numerous, and conſiderable. He was the author of a hiſtory of the Arabians; fourteen letters upon the ancient parliaments of France; a hiſtory of France to the reign of Charles VIII.; the ſtate of France, with hiſtorical memoirs concerning the ancient government of that monarchy, to the time of Hugh Capet, "written (ſays M. Monteſquieu) with a ſimplicity and honeſt freedom worthy of that ancient family from which their author was deſcended. M. Boulainvilliers died at Paris in 1722; and after his death was publiſhed his Life of Mahomet.

BOULANGER, Nicholas Anthony, a very ſingular Frenchman, was born at Paris in 1722, and died there in 1759, aged only 37. During his education, he is ſaid to have come out of the college of Beauvais almoſt as ignorant as he entered into it; but ſtruggling hard againſt his unaptneſs to learn, he at length overcame it. At ſeventeen, he began to ſtudy mathematics and architecture; and in three or four years made ſuch a progreſs, as to be uſeful to the baron of Thiers, whom he accompanied to the army in quality of engineer. Afterwards he had the ſuperviſion of the highways and bridges; and he executed ſeveral public works in Champagne, Burgundy, and Lorrain. The author of his life, in the *Dictionnaire des Hommes celebres*, writes, that in this province a terrible ſpirit diſcovered itſelf in him, which he himſelf did not ſuſpect before; and this was, it ſeems, the ſpirit of "thinking philoſophically." In cutting through mountains, directing and changing the courſes of rivers, and in breaking up and turning over the ſtrata of the earth, he ſaw a multitude of different ſubſtances, which (he thought) evinced the great antiquity of it, and a long ſeries of revolutions which it muſt have undergone. From the revolutions in the globe, he paſſed to the changes that muſt have happened in the manners of men, in ſocieties, in governments, in religion; and he formed many conjectures upon all theſe. To be farther ſatisfied, he wanted to know what, in the hiſtory of ages, had been ſaid upon theſe particulars; and

Boulanger || Boulette.

that he might be informed from the fountain head, he learned firſt Latin and then Greek. Not yet content, he plunged into Hebrew, Syriac, Chaldaic, and Arabic; and acquired ſo immenſe an erudition, that, if he had lived, he would have been one of the moſt learned men in Europe: but death, as we have obſerved, prematurely took him off. His works are, 1. *Traité du Deſpotiſme Oriental*, 2 vols 12mo; a very bold work; but not ſo bold and licentious as, 2. *L'Antiquité devoille*, 3 vols 12mo. This was poſthumous. 3. He furniſhed to the *Encyclopedié* the articles *Deluge*, *Corveé*, and *Societé*. 4. He left behind him in MS. a Dictionary, which may be regarded as a concordance in ancient and modern language. As a man, he is ſaid to have been of a ſweet, calm, and engaging temper; which, however, it is very difficult to reconcile with the dark, impetuous, ardent ſpirit, that appears to have actuated him as a writer.

Struts's Dict.

BOULANGER, *John*, an engraver, who flouriſhed towards the end of the laſt century, was a native of France. His firſt manner of engraving appears to have been copied, in ſome degree, from that of Francis de Poilly; but ſoon after he adopted one of his own, which, though not original, he however greatly improved: He finiſhed the faces, hands, and all the naked parts of his figures, very neatly with dots inſtead of ſtrokes, or ſtrokes and dots. The effect is ſingular enough, and by no means unpleaſing: only, in ſome few inſtances, he has oppoſed the coarſe graving of his draperies, and back-ground, ſo violently to the neater work of the fleſh, that the outline of the latter is thereby rendered hard, and the general appearance of it flat and chalky. This ſtyle of engraving has been carried to its greateſt perfection in the preſent day, particularly in England. He did not draw the naked parts of his figures correctly, or with fine taſte. His draperies are apt to be heavy, and the folds not well marked. However, his beſt prints poſſeſs much merit, and are deſervedly held in great eſteem.

BOULAY, CÆSAR EGASSE DU, in Latin *Bulæus*, was born at St Ellier, a village of Maine in France; and became profeſſor of humanity at the college of Navarre, regiſter, rector, and hiſtoriographer of the univerſity of Paris. He died in 1678, after having publiſhed ſeveral works. The principal of them are, *A Hiſtory of the Univerſity of Paris*, in Latin, 6 vols folio; and the *Treaſure of Roman Antiquities*, in 1 vol. folio.

BOULCOLACA, among the modern Greeks, denotes the ſpectre of ſome wicked perſon who died excommunicated by the patriarch, reanimated by the devil, and cauſing great diſturbance among the people; of which many ſtrange ſtories are told. The word is Greek, and is ſometimes written βυρκολακος, *bourkolakos*; and ſuppoſed to be derived from βυρκος, or βυρκα, "mud," and λακκος, a "ditch," on account of the filthineſs of the ſight.

BOULDER-WALL, a kind of wall built of round flints or pebbles, laid in ſtrong mortar, and uſed where the ſea has a beach caſt up, or where there are plenty of flints.

BOULETTE, in the manege. A horſe is called *boulette*, when the fetlock, or paſtern-joint, bends forward, and out of its natural ſituation, whether through violent riding, or by reaſon of being too ſhort-jointed, in which caſe the leaſt fatigue will bring it.

Boullogne || Boulognois.

BOULLOGNE, LEWIS, painter to the French king, and profeſſor of the academy of painting, diſtinguiſhed himſelf by his art; and died at Paris in 1674, aged 65. There are three of his pictures in the church of Notre Dame.—He left two ſons who were admired for their ſkill in painting. The elder, who is well known under the name of *Bon Boullonne*, was firſt inſtructed by his father; after which we went to perfect himſelf in Italy, and for that purpoſe the king allowed him a penſion: at his return, he was made profeſſor of the academy of painting. Louis XIV. employed him in adorning ſeveral of his palaces; and there are a great number of his pictures at Paris. His talents for copying the pictures of the great Italian maſters were ſo very extraordinary, that he frequently deceived the greateſt judges. He died in 1717.—*Lewis Boullonne* his brother, after being alſo inſtructed by his father, gained the prize of painting at 18 years of age; upon which he obtained the king's penſion. He ſet out for Italy at his brother's return, and acquired great ſkill in deſigning and colouring. At his return to Paris he was much employed; and at length became director of the academy of painting, knight of the order of St Michael, and firſt painter to the king. Louis XIV. allowed him ſeveral penſions, and raiſed him and his poſterity to the rank of nobility. He embelliſhed the church of the Invalids, the chapel of Verſailles, &c.

Pilkington.

BOULLONNE, *Bon de*, a painter of ſome eminence, was born at Paris in 1649. From his father Louis de Boullogne he learned the firſt principles of the art: but went to Rome in order to perfect himſelf from the works of the beſt maſters. He abode in Italy five years. He excelled in hiſtory and portrait. His talents for copying the pictures of the great Italian painters were ſo very extraordinary, that he frequently deceived the greateſt judges. He died at Paris in 1717, aged 68.

BOULLOGNE, *Louis de*, born at Paris in 1654, was the younger brother of the preceding; and like him learned from his father the firſt principles of painting, and afterwards went to Rome to complete his ſtudies. His works, on his return, were ſo much eſteemed, that Louis XIV. honoured him with the order of St Michael, and, after the death of Antony Coypell, appointed him his principal painter. He chiefly excelled in hiſtorical and allegorical ſubjects. He died at Paris in 1734, aged 80 years.

BOULOGNE, a large ſea-port town of Picardy in France, and capital of the Boulognois, now called the department of the Straits of Calais, with a harbour, and formerly a biſhop's ſee. It is divided into two towns; the higher, and the lower. The former is ſtrong both by nature and art; and the latter is only ſurrounded with a ſingle wall. The harbour has a mole for the ſafety of ſhipping, which at the ſame time prevents it from being choked up. The lower town is inhabited by merchants, and has three large ſtreets, one of which leads to the high town, and the other two run in a line on the ſide of the river. It is ſituated at the mouth of the river Lianne, and 14 miles ſouth of Calais. E. Long. 1. 42. N. Lat. 50. 42.

BOULOGNOIS, a territory of France, in the north part of Picardy, about 30 miles in length and 20 in breadth. The chief town is Boulogne, and the chief trade

Boulter.

trade is in pit-coal and butter. It now forms the department of the Straits of Calais.

BOULTER, Dr Hugh, was born in or near London, of reputable and wealthy parents. He was educated at Merchant-taylors ſchool; and, before the Revolution, was from thence admitted a commoner of Chriſt-church in Oxford. Some time after, he was choſen a demy of Magdalen college, at the ſame election with Mr Addiſon and Dr Wilcox. From the merit and learning of the perſons elected, this was commonly called by Dr Hough, preſident of the college, the *golden election*. He afterwards became fellow of the ſame college; in which ſtation he continued in the univerſity till he was invited to London by Sir Charles Hodges, principal ſecretary of ſtate, in the year 1700, who made him his chaplain, and recommended him to Dr Teniſon archbiſhop of Canterbury; but his firſt preferments were owing to the earl of Sunderland, by whoſe intereſt and influence he was promoted to the parſonage of St Olave in Southwark, and the archdeaconry of Surry. Here he continued diſcharging very faithfully and diligently every part of his paſtoral office, till he was recommended to attend George I. as his chaplain when he went to Hanover in 1719. He had the honour to teach Prince Frederic the Engliſh language; and by his conduct he ſo won the king's favour, that he promoted him to the deanery of Chriſt-church, and the biſhopric of Briſtol, in the ſame year. As he was viſiting his dioceſe five years afterwards, he received a letter from the ſecretary of ſtate, acquainting him that his majeſty had nominated him to the archbiſhopric of Armagh and primacy of Ireland. This honour he would gladly have declined; and deſired the ſecretary to uſe his good offices with his majeſty to excuſe him from accepting it. Ireland happened to be at this juncture in a great flame, occaſioned by Wood's ruinous project; and the miniſtry thought that the biſhop would greatly contribute to quench it by his judgment, moderation, and addreſs. The king therefore laid his abſolute commands upon him: to which he ſubmitted, but with ſome reluctance. As ſoon as he had taken poſſeſſion of the primacy, he began to conſider that country, in which his lot was caſt for life, as his own; and to promote its true intereſt with the greateſt zeal and aſſiduity. Accordingly, in innumerable inſtances, he exerted himſelf in the nobleſt acts of beneficence and public ſpirit. In ſeaſons of the greateſt ſcarcity, he was more than once inſtrumental in preventing a famine which threatened that nation. On one of theſe occaſions he diſtributed vaſt quantities of corn throughout the kingdom, for which the houſe of commons paſſed a vote of public thanks; and at another time 2500 perſons were fed at the poor-houſe in Dublin, every morning, and as many every evening, for a conſiderable time together, moſtly at the primate's expence. When ſchemes were propoſed for the advantage of the country, he encouraged and promoted them not only with his counſel but his purſe. He had great compaſſion for the poor clergy of his dioceſe, who were diſabled from giving their children a proper education; and he maintained ſeveral of the children of ſuch in the univerſity. He erected four houſes at Drogheda for the reception of clergymen's widows, and purchaſed an eſtate for the endowment of them. His charities for augmenting ſmall livings and buying glebes amounted to upwards of 30,000l. beſides what he deviſed by will for the like purpoſes in England. In ſhort, the inſtances he gave of his generoſity and benevolence of heart, his virtue, his piety, and his wiſdom, are almoſt innumerable, and the hiſtory of his life is his nobleſt panegyric. This excellent prelate died at London, on the 2d of June 1742, and was interred in Weſtminſter-abbey, where a beautiful monument of finely poliſhed marble is erected to his memory.

Boultine ‖ Bounty.

BOULTINE, a term which workmen uſe for a moulding, the convexity of which is juſt one-fourth of a circle; being the member juſt below the plinth in the Tuſcan and Doric capital.

BOULUKE, in the military orders of the Turks, a body of the janizaries, with an officer in the place of a colonel at their head, ſent upon ſome particular enterpriſe; they are ſelected out of the body for this, and as ſoon as the buſineſs is over, are received again into their former companies.

BOUM, in *Ancient Geography*, a town in Ethiopia beyond Egypt, on the weſt ſide of the Nile.

Boum solis stabula, in *Ancient Geography*, the territory of Mylæ, ſo called: A peninſula on the eaſt coaſt of Sicily, to the north of Syracuſe; remarkable for its fertility and rich paſtures (Theophraſtus): and hence aroſe the fable of the oxen of the ſun feeding there (Scholiaſt on Apollonius). Pliny and Seneca ſay, that ſomething like dung is thrown out on the coaſt of Mylæ and Meſſana, which gave riſe to the fable of the oxen of the ſun being ſtalled there; and at this day the inhabitants affirm the ſame thing (Cluverius).

BOUNCE, in *Ichthyology*, the Engliſh name of a ſpecies of ſqualus. See Squalus.

BOUND, in *Dancing*, a ſpring from one foot to the other; by which it differs from a hop, where the ſpring is from one foot to the ſame. It alſo differs from a half coupee, as in the latter the body always bears on the floor, either on one foot or the other; whereas, in the bound, it is thrown quite from the floor.

Bound-Bailiffs, are ſheriffs officers for executing of proceſs. The ſheriffs being anſwerable for their miſdemeanors, the bailiffs are uſually bound in a bond for the due execution of their office; and thence are called *bound-bailiffs*, which the common people have corrupted into a much more homely appellation.

BOUNDS of lands. See Abuttals.

BOUNTY, in *Commerce*, a premium paid by government to the exporters of certain Britiſh commodities, as ſail-cloth, gold and ſilver lace, ſilk-ſtockings, fiſh, corn, &c. The happy influence which bounties have on trade and manufactures is well known: nor can there be a more convincing proof of the good intentions of the government under which we live, than the great care that is taken to give all poſſible encouragement to thoſe who ſhall eſtabliſh or improve any hazardous branch of trade.

All undertakings, in reſpect either to mercantile enterpriſes, or in the eſtabliſhment of manufactures, are weak and feeble in their beginnings; and if unſucceſsful, either ſink entirely, or at leaſt are ſeldom revived in the ſame age. Accidents of this nature are not only deſtructive to private perſons, but exceedingly detrimental to the public intereſt. On this principle, more *Campbell's Political Survey of Britain.*

Bounty. especially since trade, for which Providence designed us, hath been attended to, such attempts have been thought deserving, and have been favoured with, public support. This in former times usually flowed from the crown, in the form of letters-patent, charters, or other grants of privileges, which, however requisite they might be, were notwithstanding very frequently objects of censure. If such as obtained them failed in their endeavours, they were reputed *projectors;* if, on the other hand, they succeeded, they were considered as *monopolizers*. Corporations, which imply the uniting certain individuals into a body, that they may thereby become more useful to the community, are created by the crown. Many of these were formed for promoting trade; and, according to the old system of our government, were necessary and useful. On the same principle, privileges were granted to private persons, on a suggestion, that what was immediately of use to them would terminate in public utility. These also did good in bringing in many arts and manufactures; though, in some cases, tending to private interest more than public emolument, they were liable to legal correction. In later times, and in concerns of moment, a much better method has been adopted, as often as it hath been found practicable, by rejecting private or particular interest, and proposing the designed advantages to such as should perform the stipulations on which they are granted. These bounties, as they are paid by the public, so they are solely calculated for the benefit of the public. They are sometimes given to encourage industry and application in raising a necessary commodity; which was intended by the bounty on exporting corn. The intention of this bounty was to encourage agriculture; and the consequence hath been, that we now grow more than twice as much as we did at the establishment of the bounty; we even consume twice as much bread as we then grew; yet in A. D. 1697, we exported a fifteenth part of what we grew, of late years a twenty-ninth part only. The bounty on this twenty-ninth part amounted to somewhat more than 50,000l. and the produce to more than 400,000l. It is evident that all this is so much clear gain to the nation. But this is far from being all that we have annually gained. For if our cultivation is double, as indeed it is, then the rent of lands, the subsistence of working hands, the profits of the tradesmen supplying them with utensils, clothes, the value of horses employed, &c. must all be taken into the account. Besides this, we must add the freight (amounting to half the bounty), to make the idea of the advantages complete.

Sometimes bounties are given with a view to promote manufactures, as in the case of those made of silk. Many laws are to be found in our statute books in favour of the silk manufacture, made with great wisdom and propriety, for the encouragement and support of many thousands of industrious persons employed therein. By statute 8 Geo. I. cap. 15. § 1. a bounty was given on the due exportation of ribbons and stuffs of silk only, of three shillings upon a pound weight; silk, and ribbons of silk, mixed with gold and silver, four shillings a-pound; on silk gloves, silk stockings, silk fringes, silk laces, and sewing silk, one shilling and threepence a-pound; on stuffs of silk and grogram yarn, eightpence a-pound; on silks mixed with inkle or cotton, one shilling; on stuffs of silk mixed with worsted, sixpence a-pound, for three years; and, from experience of their utility, these were continued by subsequent statutes. Bounty.

Sometimes bounties are given to support a new manufacture against foreigners already in possession of it, as in making linen and sail-cloth. The promoting of the manufacture of British sail-cloth was undoubtedly a very important national object, as the consumption was very large, and of consequence the purchase of it from foreigners a heavy expence on the public. Many methods were therefore devised, and countenanced by law, both here and in Ireland, for introducing and encouraging our own in preference to that of strangers, more especially in the royal navy. By stat. 12 *Annæ*, cap. 16. § 2. a bounty was given of one penny per ell on all that was exported for a term, and continued by subsequent statutes. By 4 Geo. II. cap. 27. § 4. an additional bounty of another penny an ell is granted. These bounties were to be paid out of an additional duty on imported sail-cloth. By the same statute every ship built in Britain, or in the plantations, is, under the penalty of 50l. to be furnished with a complete suit of sails of British manufacture. The amount of these bounties mark the progress of the manufacture, which is also assisted by the fund on which the payment is assigned.

The assistances, however, are never bestowed but on mature deliberation, in virtue of strong proofs, and with a moral certainty of a national benefit. The great intention of bounties is to place the British trader on such ground as to render his commerce beneficial to his country. In order to this, some profit must accrue to himself, otherwise he would not embark therein; but this, whatever it be, must prove inconsiderable in comparison of what results to the public. For if, by the help of such a bounty, one or many traders export to the value of 1000, 10,000, or 100,000 pounds worth of commodities or manufactures, whatever his or their profit or loss (for the latter, through avidity and overloading the market, sometimes happens) may be, the nation gains the 100l. 10,000l. or 100,000l.; which was the object of the legislature in granting the bounty. Upon this consideration, that the entire produce of what is exported accrues to the nation, the legislature, when an alteration of circumstances required it, have made no scruple of augmenting a bounty; as in the case of refined sugar exported, from three to nine shillings per hundred weight. In like manner, the original bounty of one pound per ton in favour of vessels employed in the whale-fishing hath been doubled, and many new regulations made, in order to render this fishery more advantageous to the public. As a bounty is given on malt when allowed to be exported, so an equivalent of 30 shillings per ton hath been granted on all British made malt-spirits when exported, which is a common benefit to land, manufactures, and commerce.

It is indeed true, that on whatever account, or to whatever amount, this reward is given, the public seem to pay, and private persons seem to receive. But these private persons receive it as the hire from the public for performing a service which otherwise they would not perform, the benefit of which accrues to the public, and who can therefore very well afford to pay that reward in reality, which, as we have stated it, she only

Bounty. ly ſeems to do. For, looking a little cloſer, we cannot help obſerving, that the bounty is paid to individuals, who, as ſuch, make a part of the public. But the commodities or manufactures exported are ſold to foreigners, and the whole produce of them, be it what it will, comes into the purſe of the public. By attending to this ſelf-evident doctrine, every reaſonable and public-ſpirited man will be eaſily reconciled to bounties; and the three following conſiderations will be ſufficient to obviate the moſt common objections that have been made to the practice of giving them. 1. That no bounty can be deſired but on the plea of national utility, which always deſerves notice, and cannot be miſtaken. It muſt likewiſe be alleged and proved, that this is the only means whereby the national benefit can be attained. 2. The ſums iſſued on this account not only ſhow the clear expence of the bounty, but alſo indicate the profit gained by the public; for as the one cannot exiſt without the other, that amount muſt be the inconteſtable index of both. 3. It muſt be remembered (and of this too ſome inſtances might be given), that if bounties ſhould be improperly beſtowed, they will of courſe prove ineffectual, and after a few fruitleſs trials will remain unclaimed, and conſequently produce no expence. There is indeed another objection which hath been made againſt the giving of bounties. This is grounded on the frauds to which they are ſuppoſed to be liable; and particularly the relanding of the goods on which the bounty hath been paid, and thereby deceiving and cheating the public. But whoever peruſes the laws made on this head, and attentively conſiders the numerous precautions taken to fix every circumſtance relative to the obtaining the bounty, the checks on the ſhipping of goods, the ſecurities taken for their due exportation, the certificates required to aſcertain their being actually delivered and ſold in a foreign market, muſt be convinced, that to diſcharge all thoſe ſecurities, in caſe of an intended fraud, is a thing very difficult, if not impoſſible.

To theſe remarks we may add, that bounties are uſually granted only for a limited time, and then expire; are always liable to be ſuſpended; and of courſe can never be the cauſe of any great national loſs. There is no doubt that, excluſive of frauds, the immoderate thirſt of gain may tempt intereſted men to aim at converting what was calculated for public benefit to its detriment, for their own private advantage. Thus, on a proſpect of ſhort crops in other countries, men may take meaſures within the letter, but directly againſt the ſpirit, of the law, to ſend ſo much of our corn abroad as to endanger a famine at home. For this the wiſdom of parliament provides, not barely by ſuſpending the bounty, but by prohibiting exportation and opening the ports for foreign ſupplies. We cannot with any ſhadow of juſtice aſcribe ſcarcity to the bounty on the exportation. If this was the caſe, ſuſpenſions would be frequent, whereas there have been but five in a courſe of 70 years. If the bounty had any ſhare, the larger the exportation, the greater would be tho ſcarcity. In A. D. 1750 we exported more than one fifth of our growth of wheat, which was notwithſtanding but at four ſhillings per buſhel; whereas a century before, A. D. 1650, when we had neither bounty nor exportation, wheat was at nine ſhillings and ſixpence per buſhel. The cauſes of ſcarcity are unkindly ſeaſons; which though human policy cannot prevent, yet their ſad effects have been evidently leſſened by our increaſed growth, ſince the taking place of bounty and exportation. Bounty, Bourbon.

Queen Anne's BOUNTY, for augmenting poor livings under 50l. per annum, conſiſts of the produce of the firſt fruits and tenths, after the charges and penſions payable out of the ſame are defrayed. A corporation for management of the ſame was ſettled, &c. in 1704. See AUGMENTATION.

BOURBON, or MASCARENHAS, *Iſle of*, an iſland in the Indian ocean, lying on the eaſt of Madagaſcar, in E. Long. 58. 30. S. Lat. 21. 23. This iſland has no port, and is in ſome places inacceſſible. Its length and breadth have not been well determined; but the circumference, according to the account of a perſon who reſided there ſome time, is about 57 leagues. It is for the moſt part mountainous, but in ſome places there are very beautiful and fertile plains. In the ſouth part of the iſland there is a burning mountain, which has thrown out vaſt quantities of bitumen, ſulphur, and other combuſtible materials; neither does it ceaſe throwing them out ſtill, ſo that the country about it is uſeleſs, and is called by the inhabitants *pays brulé*, that is, burnt land. The ſhore is high and rocky all round; but though on this account it hath no ports, there are ſeveral good roads, particularly one on the weſt, and another on the north-eaſt. As to its form, this iſland is irregular, ſo that it is difficult to judge from the maps whether it is round or long. The air is equally pleaſant and wholeſome, inſomuch that the people live to a great age without feeling either infirmities or diſeaſes. This is occaſioned by the hurricanes, of which they have one or two every year. Theſe purge and cleanſe the air ſo as to render it highly ſalubrious; the certainty of which is thus diſtinguiſhed, that when they fail of making their annual viſits, as ſometimes they do, diſeaſes and death find an entrance into the iſland, which otherwiſe would ſoon be overſtocked with inhabitants. The climate is hot, but not to ſuch a degree as might be expected from its ſituation, the breezes from the mountains being conſtant and very refreſhing. The tops of theſe mountains are in winter covered with ſnow; which, melting in the ſummer, furniſhes abundance of rivers and rivulets, with which the country is plentifully watered: ſo that the ſoil, though not very deep, is wonderfully fruitful, producing Turkey corn and rice twice a-year, and the latter in great abundance. Moſt ſorts of cattle are found here, good in their kind, and are very cheap; wild goats and wild hogs are found in the woods and on the tops of the mountains; here alſo are vaſt quantities of wild fowl of different kinds, fiſh, and land tortoiſes, affording at once the moſt delicate and wholeſome food. As to fruits, they have bananas, oranges, citrons, tamarinds, and other kinds; neither does it want valuable commodities, particularly ebony, cotton, white pepper, gum benzoin, aloes, and tobacco; all excellent in their kind, when compared with thoſe of other countries. This iſland is alſo happy in its deficiencies; for no animals that are venomous are to be found therein, and only two ſorts that are diſagreeable to the ſight, viz. ſpiders of the ſize of a pigeon's egg, which weave nets of a ſurpriſing ſtrength, reckoned by ſome capable of being treated ſo as to become as valuable

Bourbon. luable as ſilk; and bats of a moſt enormous ſize, which are not only ſkinned and eaten, but eſteemed alſo the greateſt delicacy that they have.

The iſland of Bourbon was diſcovered by the Portugueſe in 1545, as appears by a date inſcribed by them upon a pillar when they firſt landed; but when the French ſettled in Madagaſcar, this iſland was totally deſolate. Three Frenchmen being baniſhed thither, and left there for three years, made ſuch a report of it at their return as ſurpriſed their countrymen. They lived moſt of that time upon pork; and though they were in a manner naked, yet they affirmed that they never had the leaſt pain or ſickneſs whatever. This tempted one Anthony Taureau to go over thither in 1654, accompanied by ſeven French and ſix negroes, who carried with them the cattle from which the iſland has been ſtocked ever ſince. The firſt thing they did was to erect the arms of France, by order of M. Falcourt who was governor of Madagaſcar, and to beſtow upon the iſland a new name. Then they ſet up huts, and laid out gardens, in which they cultivated melons, different ſorts of roots, and tobacco; but juſt as the laſt became ripe, the whole plantation was deſtroyed by a hurricane. The French, however, went to work again; and by having ſome acquaintance with the climate, ſucceeded better, and added aloes to the reſt of their plantations; but receiving no ſuccour from Madagaſcar, and being tired of living by themſelves in the iſle of Bourbon, they very readily embraced the offer of an Engliſh captain, and in the year 1658 embarked for Madras. When the laſt great blow was given to the French at Madagaſcar by the natives, who ſurpriſed and cut them off in one night, there eſcaped as many men as, with their wives, who were natives, filled two canoes; and theſe being driven by the wind on the iſle of Bourbon, were the next ſet of people who inhabited it. This laſt colony, for want of an opportunity to remove, were conſtrained to cultivate this new country of theirs, and to remain in it. It was not long before a further ſtock of inhabitants arrived. A pirate that had been committing depredations in the Indies, returning to Europe, ran aſhore and was ſplit to pieces upon the rocks, ſo that the crew were forced to join themſelves to the former inhabitants; and as they had on board their veſſel a great many Indian women whom they had made priſoners, they lived with them, and in proceſs of time had a numerous poſterity. As Eaſt India ſhips touched frequently here, when too late to double the Cape, many of the ſailors, for the ſake of the women, deſerted at the time of their departure, and ſtaying behind became planters in the iſle of Bourbon. As the place grew more populous, the people naturally became more civilized, and deſirous of living in a more commodious manner; which induced them to build ſmall veſſels, that in theſe they might ſometimes make a trip to Madagaſcar, in order to purchaſe ſlaves, whom they employed in their plantations to cultivate aloes, tobacco, and other things, with which they drove a ſmall trade, when ſhips of any nation anchored in their roads for the ſake of refreſhments. In this ſituation they were, when the French Eaſt India company put in their claim; and aſſuming the property of the iſland, ſent thither five or ſix families and a governor. At firſt the inhabitants expected to reap ſome benefit from their new maſters; but finding very little, and thinking the governor took too much upon him, they revolted at the inſtigation of a prieſt, ſeized their governor and put him into a dungeon, where he died of hunger and grief. For this ſome of the ringleaders were puniſhed, a kind of fort was erected, ſome guns placed on it, and the French flag kept flying; but in other reſpects, ſo little care was taken, that, till within theſe 40 years, the iſland was in no ſtate of defence. Bourbon.

The number of inhabitants in the year 1717 was computed at 2000; viz. 900 free, and 1100 ſlaves. Amongſt theſe people the uſual diſtinction of whites and blacks entirely fails: for even the free are of different colours; and a French writer aſſures us, that he ſaw in a church one family, conſiſting of five generations, of all complexions. The eldeſt was a female, 108 years of age, of a brown black, like the Indians of Madagaſcar; her daughter, a mulatto; her grand-daughter, a meſtizo; her great-grand-daughter, of a duſky yellow; her daughter again, of an olive colour; and the daughter of this laſt, as fair as any Engliſh girl of the ſame age. Theſe people are, generally ſpeaking, of a gentle quiet diſpoſition, very induſtrious, and ſubmiſſive enough to authority, provided it is exerciſed with a tolerable degree of equity and decency; for otherwiſe the whole of them are apt to riſe in rebellion at once; and the ſlaves have ſo little reaſon to complain of their maſters, that they are always on the ſame ſide. The iſland is divided into four quarters. The firſt is that of St Paul, which is the largeſt and beſt peopled: their houſes are built at the foot of a ſteep mountain, on both ſides of a freſh water lake. As for the plantations, they are on the top of a mountain, which they aſcend by a very rough and troubleſome paſſage. On the ſummit there is a ſpacious plain, a great part of which is divided into plantations of rice, tobacco, corn, ſugar, and fruits. The quarter of St Dennis lies ſeven leagues from that of St Paul, towards the eaſt, and there the governor reſides. It is not ſo well peopled as the former; but the country is more pleaſant, and the ſituation better. At two leagues diſtance, proceeding along the ſea-coaſt, is the quarter of St Mary's, which is but thinly peopled. The laſt and moſt fertile quarter is that of St Suſannah, which is at the diſtance of four leagues from St Dennis. The road between theſe two quarters is tolerable, though part of it has been cut with much difficulty through a wood; but the paſſage from St Dennis to St Paul is only by ſea.

When the preſent company of India became, by their perpetual eſtabliſhment, poſſeſſed of the iſland of Bourbon, they began to improve it exceedingly; raiſing new forts and batteries, ſo as to render it in a manner inacceſſible; and importing coffee-trees from Arabia; which have ſucceeded ſo well, that it is believed they produce an eighth, according to ſome a ſixth, part as much coffee as is raiſed in the kingdom of Yemen in Arabia, and it is likewiſe held next in goodneſs to that.

—In 1763, the population amounted to 4627 white people, and 15,149 blacks; the cattle conſiſted of 8702 beeves, 4084 ſheep, 7405 goats, and 7619 hogs. Upon an extent of 125,909 acres of cultivated land, they gathered as much caſſava as would feed their ſlaves, 1,135,000 pounds weight of corn, 844,100 pounds of rice,

Bourbon || Bourbourg.

rice, 2,879,100 pounds of maize, and 2,535,100 pounds of coffee; which laſt the company bought up at about 3d. per pound.

In 1748, Admiral Boſcawen appeared before this iſland with a Britiſh fleet; but found it ſo well fortified both by nature and art, that he was obliged, after ſome cannonading to very little purpoſe, to purſue his voyage.

Bourbon, *Nicholas*, a famous Latin poet in the 16th century, was a native of Vandeure near Langres, and the ſon of a wealthy man who was maſter of ſeveral forges. Margaret de Valois appointed him preceptor to her daughter Jane d'Albert of Navarre, the mother of King Henry IV. At length he retired to Conde, where he had a benefice, and died about the year 1550. He wrote eight books of Epigrams; and a poem on the forge, which he has entitled *Ferraria*. He had great knowledge of antiquity and of the Greek language. Eraſmus praiſes his Epigrams.

Bourbon, *Nicholas*, a celebrated Greek and Latin poet, was nephew of the preceding. He taught rhetoric in ſeveral colleges of Paris; and the cardinal de Perron cauſed him to be nominated profeſſor of eloquence in the Royal College: he was alſo canon of Langres, and one of the 40 of the French academy. At length he retired to the fathers of the oratory, where he died in 1644, aged 70. He is eſteemed one of the greateſt Latin poets France has produced. His poems were printed at Paris in 1630.

Bourbon-Lancy, a town of France, in the department of Saone and Loire. It is remarkable for its caſtle and baths; and there is a large marble pavement, called the *great bath*, which is a work of the Romans. It is ſeated near the river Loire, in E. Long. 3. 46. N. Lat. 46. 37.

Bourbon L'Archambaud, a town of France, in the department of Allier, remarkable for its baths, which are exceedingly hot. E. Long. 3. 28. N. Lat. 46. 35.

Family of Bourbon, the late royal family of France. Henry IV. in 1589, though of the 10th generation, was the neareſt heir, and ſucceeded Henry III. (the laſt of the Valois race), whoſe brother Francis II. married Mary queen of Scots, and both died without iſſue. Louis XVI. was the 5th king of this family in ſucceſſion. This family alſo mounted the throne of Spain in 1700, by Philip V. grandſon to Louis XIV. which was the occaſion of the long and bloody war that ended in the peace of Utrecht. A branch of the Spaniſh family likewiſe mounted the throne of the two Sicilies in 1734. Theſe three branches, entered into a treaty offenſive and defenſive in 1761, which goes by the name of the *family-compact*.

BOURBONNE-LE-BAINS, a town of France, in Champagne, and in the Baſſigni, famous for its hot baths. E. Long. 5. 45. N. Lat. 47. 54.

BOURBONNOIS, a province of France, with the title of a duchy; bounded on the north, by Nivernois and Berry; on the weſt, by Berry and a ſmall part of Upper Marche; on the ſouth, by Auvergne; and on the eaſt, by Burgundy and Forez. It abounds in corn, fruits, paſtures, wood, game, and wine. Its principal town is Moulins; and the rivers are the Loire, the Allier, and the Chur.

BOURBOURG, a town in French Flanders, whoſe fortifications are demoliſhed. It is ſeated on a canal that goes to Dunkirk, in E. Long. 2. 15. N. Lat. 50. 55.

Bourchier || Bourdeaux.

BOURCHIER, John, lord Bemars, grandſon and heir of a lord of the ſame name, who was deſcended from Thomas of Woodſtock, duke of Glouceſter, and had been knight of the garter, and conſtable of Windſor-caſtle. Under Edward IV. our lord John was created a knight of the Bath, at the marriage of the duke of York ſecond ſon of Edward IV. and was firſt known by quelling an inſurrection in Cornwall and Devonſhire, raiſed by Michael Joſeph a blackſmith, in 1495, which recommended him to the favour of Henry VII. He was a captain of the pioneers at the ſiege of Therounne, under Henry VIII. by whom he was made chancellor of the exchequer for life, lieutenant of Calais and the Marches, appointed to conduct the lady Mary the king's ſiſter into France on her marriage with Louis XII. and had the extraordinary happineſs of continuing in favour with Henry VIII. for the ſpace of 18 years. He died at Calais in 1532, aged 63. He tranſlated, by King Henry's command, Froiſſart's Chronicle; which was printed in 1523, by Richard Pinſon, the ſcholar of Caxton, and the fifth on the liſt of Engliſh printers. His other works were a whimſical medley of tranſlations from French, Spaniſh, and Italian novels, which ſeem to have been the mode then, as they were afterwards in the reign of Charles II. Theſe were, The life of Sir Arthur, an Armorican knight; The famous exploits of Sir Hugh Bourdeaux; Marcus Aurelius; and, The caſtle of love. He compoſed alſo a book of the duties of the inhabitants of Calais; and a comedy entitled *Ite in Vineam*, which is mentioned in none of our catalogues of Engliſh plays. Anthony Wood ſays it was uſually acted at Calais after veſpers.

BOURDALOUE, Lewis, a celebrated preacher among the Jeſuits, and one of the greateſt orators France has produced, was born at Bourges on the 20th of Auguſt 1632. After having preached at Provence, he in 1699 went to Paris; and there met with ſuch applauſe, that the king reſolved to hear him; on which he was ſent for to court, and frequently preached before Louis XIV. He aſſiſted the ſick, viſited the priſoners and hoſpitals, and was very liberal in giving alms. He died at Paris on the 13th of May 1704. The beſt edition of his ſermons is in octavo.

BOURDEAUX, an ancient, large, handſome, and rich town of France, in the department of Gironde, is the capital of Guienne, and an archbiſhop's ſee; has an univerſity and an academy of arts and ſciences. It is built in the form of a bow, of which the river Garonne is the ſtring. This river is bordered by a large quay, and the water riſes four yards at full tide, for which reaſon the largeſt veſſels can come up to it very readily. The caſtle called the *Trumpet* is ſeated at the entrance of the quay, and the river runs round its walls. Moſt of the great ſtreets lead to the quay. The town has 12 gates; and near another caſtle are fine walks under ſeveral rows of trees. The ancient city of Bourdeaux, though conſiderable in point of ſize, was ill built, badly paved, dangerous, without policy or any of thoſe municipal regulations indiſpenſably requiſite to render a city ſplendid or elegant. It has entirely changed its appearance within theſe laſt thirty years. The public edifices are very noble, and all the ſtreets newly built are regular and handſome. The quays are four

Bourbon. four miles in length, and the river itſelf is conſiderably broader than the Thames at London bridge. On the oppoſite ſide, a range of hills covered with woods, vineyards, churches, and villas, extends beyond the view. Almoſt in the centre of the town is a fine equeſtrian ſtatue in bronze erected to Louis XV. in 1743, with the following inſcription:

Ludovico quindecimo
Sæpe victori, ſemper pacificatori;
Suos omnes, quam latè regnum patet,
Paterno pectore gerenti;
Suorum in animis penitus habitanti.

The beauty of the river Garonne, and the fertility of the adjoining country, were probably the cauſes which induced the Romans to lay the foundations of this city. The ruins of a very large amphitheatre yet remain, conſtructed under the emperor Gallienus; it is of brick, as are moſt of the edifices of that period, when the empire was verging to its fall, and the arts began rapidly to decline. During the irruptions of the barbarous nations, and particularly in thoſe which the Normans repeatedly made, Bourdeaux was ravaged, burnt, and almoſt entirely deſtroyed. It only began to recover again under Henry II. of England, who having united it to the crown by his marriage with Eleanor of Aquitaine, rebuilt it, and made it a principal object of his policy to reſtore the city again to the luſtre from which it had fallen. The Black Prince received all Guienne, Gaſcony, and many inferior provinces, in full ſovereignty from his father Edward III. He brought his royal captive, John king of France, to this city, after the battle of Poictiers in 1356; and held his court and reſidence here during eleven years. His exalted character, his uninterrupted ſeries of good fortune, his victories, his modeſty, his affability, and his munificence, drew ſtrangers to Bourdeaux from every part of Europe; but all this ſplendour ſoon diſappeared. He lived to experience the ingratitude of Peter the Cruel, to whom he had reſtored the kingdom of Caſtile; he became a prey to diſtempers in the vigour of life; he ſaw his dominions reunited again in many of their branches to the crown of France, by Charles V; he loſt his eldeſt ſon Edward, a prince of the higheſt expectations; and at length, overcome with ſorrow at this laſt affliction, he quitted Bourdeaux, and re-embarked for England, there to expire a memorable example of the haſty revolution of human greatneſs! In 1453, Charles VII. king of France, re-entered the city, and ſubjected the whole province of Guienne, which had been near three centuries under the Engliſh government. Conſcious of the importance of ſuch a conqueſt, he ordered the Chateau Trompette to be built to defend the paſſage of the river; and Louis the XIV. afterwards employed the celebrated Vauban to erect a new fortreſs in the modern ſtyle of military architecture, on the ſame ſpot.—Madame de Maintenon, whom fortune ſeemed to have choſen as the object of her extremeſt rigour and extremeſt bounty, was removed from the priſons of Niort in Poictou, where ſhe was born, with her father the Baron d'Aubigne, to this caſtle, where ſhe uſed to play with the daughter of the turnkey, in the greateſt indigence. Bourdeaux preſents few remains of antiquity. The cathedral appears to be very old, and has ſuffered conſiderably from the effects of time. The unfortunate duke of Guienne, brother to Louis the XI. who was poiſoned in 1473, lies buried before the high altar. The adjacent country, more particularly the *Pays de Medoc*, which produces the fineſt clarets, is exceedingly pleaſant, and at the ſeaſon of the vintage forms one of the moſt delicious landſcapes in the world. W. Long. 0. 39. N. Lat. 44. 50.

Bourdelot ‖ Bourges.

BOURDELOT, JOHN, a learned French critic, who lived at the cloſe of the 16th and beginning of the 17th centuries. He diſtinguiſhed himſelf by writing notes on Lucian, Petronius, and Heliodorus; by an Univerſal Hiſtory; Commentaries on Juvenal; a Treatiſe on the Etymology of French words; and by ſome other works which were never publiſhed.—There was alſo an Abbé Bourdelot, his ſiſter's ſon, who changed his name from Peter Michon to oblige his uncle. He was a celebrated phyſician at Paris, who gained great reputation by a Treatiſe on the Viper, and other works. He died in 1685.

BOURDINES, a town of the Auſtrian Netherlands, in the province of Namur. E. Long. 5. 0. N. Lat. 50. 35.

BOURDON, SEBASTIAN, a famous painter, born at Montpelier, in 1619. He ſtudied ſeven years at Rome; and acquired ſuch a reputation, that at his return to France he had the honour of being the firſt who was made rector of the academy of painting at Paris. He ſucceeded better in his landſcapes than in his hiſtory-painting. His pieces are ſeldom finiſhed; and thoſe that are ſo, are not always the fineſt. He once laid a wager with a friend, that he ſhould paint 12 heads after the life, and as big as the life, in one day. He won it: and theſe are ſaid not to be the worſt things he ever did. His moſt conſiderable pieces are, The gallery of M. de Bretonvilliers, in the aiſle of Notre Dame; and, The ſeven works of mercy, which he etched by himſelf. But the moſt eſteemed of all his performances is, The martyrdom of St Peter, drawn for the church of Notre Dame; It is kept as one of the choiceſt rarities of that cathedral. Bourdon was a Calviniſt; much valued and reſpected, however, in a Popiſh country, becauſe his life and manners were good. We have alſo by this maſter a great number of etchings; which are executed in a bold maſterly ſtyle, and much more finiſhed than thoſe we generally meet with from the point of the painter. They are juſtly held in the higheſt eſtimation by the generality of the collectors. He died in 1673, aged 54.

BOURDONNE'E, in *Heraldry*, the ſame with POMEE.

BOURG, the capital of the iſland of Cayenne, a French colony on the coaſt of Guiana, in South America; in W. Long. 52. 0. N. Lat. 5. 0.

Bourg-en-Breſſe, a town in France, and capital of Breſſe, in the province of Burgundy. It is ſeated on the river Reſouſſe, almoſt in the centre of Breſſe, in E. Long. 4. 19. N. Lat. 46. 13.

Bourg-ſur-Mer, a ſea-port town of France in Guienne, and in the Bourdelois, with a tolerable good harbour: ſeated at the confluence of the rivers Dordogne and Garonne, in W. Long. 3. 35. N. Lat. 45. 0.

BOURGES, an ancient town of France, in the department of Cher, and formerly an archbiſhop's ſee, with a famous univerſity. The archbiſhop aſſumes the title

Bouget. title of *Patriarch of the Aquitains*, and enjoys the rights of primacy with regard to Albi. It is ſeated between two ſmall rivers, the Every and the Orron, upon a hill that has a gentle deſcent down to theſe rivers, by which it is almoſt ſurrounded, for there is but one avenue to it by land, which is that of Port Bourbonnoux. It ſtands upon a great deal of ground; but one part of it is without houſes; and the reſt is but thinly peopled with gentlemen, ſtudents, and eccleſiaſtics, the whole number of ſouls amounting only to about 1800. They have no manner of trade but for their own neceſſaries. It is divided into the old and new town. The walls of the old are almoſt entire, and the new town is almoſt as large as the old. There are ſeveral churches, convents, and nunneries. The pariſh-church, dedicated to St Stephen, is a fine old Gothic ſtructure: it is ſeated in the higheſt part of the city, and on each ſide of the front are two handſome high towers. The new one, which is built in the room of one which fell down, is almoſt 200 feet high. Bourbon ſquare is the largeſt in the city, where there was formerly an amphitheatre, and now a market. There is a fine walk from St Michael's gate into the fields, and three alleys, formed by four ranks of trees, the middlemoſt of which is ſpacious; beſides which, there is a very long mall. The univerſity is famous for the ſtudy of the law. This city ſtands almoſt in the centre of France. E. Long. 2. 30. N. Lat. 47. 10.

BOUGET, Dom John, an ingenious French antiquary, was born at the village of Beaumains near Falaiſe, in the dioceſe of Seez, in 1724. He was educated at the grammar-ſchool at Caen, whence he was removed to that univerſity, and purſued his ſtudies with great diligence and ſucceſs till 1745, when he became a Benedictine monk of the abbey of St Martin de Seez. Some time after this, he was appointed prior clauſtral of the ſaid abbey, and continued ſix years in that office, when he was nominated prior of Tiron en Perche: whence being tranſlated to the abbey of St Stephen at Caen, in the capacity of ſub-prior, he managed the temporalties of that religious houſe during two years, as he did their ſpiritualties for one year longer; after which, according to the cuſtom of the houſe, he reſigned his office. His ſuperiors, ſenſible of his merit and learning, removed him thence to the abbey of Bec, where he reſided till 1764. He was elected an honorary member of the Society of Antiquaries of London, Jan. 10. 1765; in which year he returned to the abbey of St Stephen at Caen, where he continued to the time of his death. Theſe honourable offices, to which he was promoted on account of his great abilities, enabled him not only to purſue his favourite ſtudy of the hiſtory and antiquities of ſome of the principal Benedictine abbeys in Normandy, but likewiſe gave him acceſs to all their charters, deeds, regiſter-books, &c. &c. Theſe he examined with great care, and left behind him in MS. large and accurate accounts of the abbeys of St Peter de Jumieges, St Stephen, and the Holy Trinity at Caen (founded by William the Conqueror and his queen Matilda), and a very particular hiſtory of the abbey of Bec. Theſe were all written in French. The "Hiſtory of the Royal Abbey of Bec" (which he preſented to Dr Ducarel in 1764) is only an abſtract of his larger work. This ancient abbey (which hath produced ſeveral archbiſhops of Canterbury and other illuſtrious prelates of this kingdom) is frequently mentioned by our old hiſtorians. The death of our worthy Benedictine (which happened on new-year's day 1776) was occaſioned by his unfortunate neglect of a hurt he got in his leg by falling down two or three ſteps in going from the hall to the cloiſter of the abbey of St Stephen at Caen, being deceived by the ambiguous light of a glimmering lamp that was placed in the paſſage. He lived univerſally eſteemed, and died ſincerely regretted by all thoſe who were acquainted with him; and was buried in the church of the ſaid abbey, Jan. 3. 1776. Bourget ‖ Bourguignons.

BOURGET, a town of Savoy, ſubject to the king of Sardinia, ſeated at the ſouthern extremity of a lake of the ſame name. E. Long. 5. 55. N. Lat. 45. 45.

BOURGOGNE, or Burgundy, as it is called; a conſiderable province of France with the title of a duchy. It is 130 miles in length, and 75 in breath. It is bounded on the eaſt, by the Franche Compte; on the weſt, by Bourbonnois and Nivernois; on the ſouth, by Lyonnois; and on the north by Champagne. It is very fertile in corn and fruit, and produces excellent wine. It is watered by the rivers Seine, Dehune, Brebince, Armançon, Ouche, Souzon, Tille, and Saone. There are four mineral ſprings at Apoigny, Primeau, Bourbon-Lancy, and St Reine. The firſt are obſcure, and the two laſt in high reputation. In the canton of Breſſe, there are two ſubterranean lakes which often overflow in times of the greateſt drought, and lay a large tract of ground under water: one of them has no apparent ſpring or opening; and yet in a dry ſeaſon, it throws out water enough to overflow the meadow-land near it. The grottoes or caves of Arcy are ſeated about 18 miles from Auxerre, and over them is ſoil about 10 feet deep. The entrance into theſe cavities is 200 paces long, but narrow. There are arches which form ſeveral vaults, from whence drops clear water, which turns into a brilliant hard ſtone. Twenty paces from the entrance is a lake, which ſeems to be formed by that part of the water that will not petrify. The higheſt of theſe vaults is not above eight feet. About 80 paces from the entrance there is a kind of hall, with a coffee-coloured ceiling, wherein there are a thouſand odd figures, which have a very agreeable effect. Dijon is the capital town.

BOURGUIGNONS, or Burgundians, one of the northern nations who overran the Roman empire, and ſettled in Gaul. They were of a great ſtature, and very warlike; for which reaſon the emperor Valentinian the Great engaged them in his ſervice againſt the Germans. They lived in tents which were cloſe to each other, that they might the more readily unite in arms on any unforeſeen attack. Theſe conjunctions of tents, they called *burgs*; and they were to them what towns are to us. Sidonius Apollinaris tells us, that they wore long hair, took great pleaſure in ſinging, and were fond of praiſe for their vocal talents. He adds, that they ate great quantities; and anointed their hair with butter, deeming that unction very ornamental. Their crown was at firſt elective, aud the authority of their kings expired with their ſucceſs. They were not only accountable for their own miſconduct, but likewiſe for the calamities of nature, and the caprice of fortune. They

Bourignon || Bourne.

were depoſed if they had loſt a battle; if they ſucceeded ill in any enterpriſe; or if, in ſhort, any great event had not correſponded with the hopes of the public. They were not more favourably treated in caſe of a bad harveſt or vintage, or if any epidemical diſtemper had ravaged the ſtate. At firſt they were governed by many kings, and *henden* was the title of the royal dignity. But in latter times they were ſubject to one ſovereign; and they grew humane and civilized, eſpecially when Chriſtianity was propagated in their country. Before that epocha, their religion was much the ſame with that of the other northern nations. The had many prieſts, the chief of whom was diſtinguiſhed by the name of *ſiniſtrus*. He was perpetual, and they paid him great reſpect and veneration.

BOURIGNON, Antonietta, a famous enthuſiaſtic preacher and pretended propheteſs, was born at Liſle in 1616. At her birth ſhe was ſo deformed, that it was debated ſome days in the family whether it was not proper to ſtifle her as a monſter: but her deformity diminiſhing, ſhe was ſpared; and afterwards attained ſuch a degree of beauty, that ſhe had her admirers. From her childhood to her old age ſhe had an extraordinary turn of mind. She ſet up for a reformer, and publiſhed a great number of books filled with very ſingular notions; the moſt remarkable of which are entitled *The light of the World*, and *the teſtimony of Truth*. She was an enemy to reaſon and common ſenſe, which ſhe maintained ought to give place to the illumination of divine faith; and aſſerted, that whenever any one was born again by embracing her doctrine, ſhe felt the pains and throws of a woman in labour. Of her pretended viſions and revelations we ſhall give one inſtance as a ſample. In one of her ecſtacies ſhe ſaw Adam in the ſame form in which he appeared before his fall, and the manner in which he was capable of procreating other men, ſince he himſelf poſſeſſed in himſelf the principles of both ſexes *. Nay ſhe pretended it was told her that he had carried this procreating faculty ſo far as to produce the human nature of Jeſus Chriſt. "The firſt man (ſays ſhe), whom Adam brought forth without any concurrent aſſiſtance in his glorified ſtate, was choſen by God to be the throne of the Divinity; the organ and inſtrument by which God would communicate himſelf externally to men: This is Chriſt the firſt born united to human nature, both God and man." Beſides theſe and ſuch like extravagancies, ſhe had other forbidding qualities: her temper was moroſe and peeviſh, and was ſhe extremely avaricious and greedy of amaſſing riches. She dreſſed like a hermit, and travelled to France, Holland, England, and Scotland. In the laſt ſhe made a ſtrong party, and ſome thouſand ſectariſts, known by the name of *Bourignoniſts*. She died at Franeker in the province of Friſe, October 30th 1680. Her works have been printed in 18 vols octavo.

* See the article *Adam*.

BOURN, a town of Lincolnſhire, in England, ſeated in E. Long. 1. 17. N. Lat. 52. 40. It is a pretty large place, has a good market for corn and proviſions, and is noted for the coronation of King Edmund.

BOURNE, or Burn, an appellation anciently given to all little brooks or rivulets, and ſtill uſed in the ſame ſenſe in Scotland and in the north of England.

BOURO, an iſland in the Eaſt Indian ocean, between the Moluccas and Celebes. It is well cultivated; and is now ſubject to the Dutch, who have built a fortreſs here. Some mountains in it are exceeding high, and the ſea on one ſide is uncommonly deep. It produces nutmegs and cloves, as well as cocoa and banana trees; beſides many vegetables introduced by the Dutch. It is about 50 miles in circumference. E. Long. 129. S. Lat. 4. 30.

Bouro || Bow.

BOUTANT, or Arch-Boutant, in architecture, an arch, or part of an arch, abutting againſt the reins of a vault to prevent its giving way.

A Pillar Boutant, is a large chain or pile of ſtone, made to ſupport a wall, terrace, or vault.

BOUTE', in the manege. A horſe is called *bouté* when his legs are in a ſtraight line from the knee to the coronet: ſhort-jointed horſes are apt to be bouté, and on the other hand long-jointed horſes are not.

BOUTS RIMES, a popular term in the French poetry; ſignifying certain rhymes, diſpoſed in order, and given to a poet together with a ſubject, to be filled up with verſes ending in the ſame words, and the ſame order. The invention of the bouts-rimes is owing to one Du Lot, a poet, in the year 1649. In fixing the bouts, it is uſual to chooſe ſuch as ſeem the remoteſt, and have the leaſt connection.

Some good authors fancy that theſe rhymes are of all others the eaſieſt, that they aſſiſt the invention, and furniſh the moſt new thoughts of all others. Sarraſin has a poem on the defeat of the bouts-rimes. The academy of Lanterniſts at Thouloufe have contributed towards keeping in countenance the bouts-rimes, by propoſing each year a ſet of fourteen, to be filled up on the glories of the grand monarque; the victorious ſonnet to be rewarded with a fine medal.—An inſtance hereof may be given in the following one, filled up by P. Commire.

Tout eſt grand dans le roi, l'aſpect ſeul de ſon buſte
Rend nos fiers ennemis plus froids que des glaçons.
Et Guillaume n'attend que le tems des moiſſons,
Pour ſe voir ſuccomber ſous un bras ſi robuſte.
Qu'on ne nous vante plus les miracles d' Auguſte;
Louis de bien regner lui feroit des leçons:
Horace en vain l'egale aux dieux dans ſes chanſons:
Moins que mon heros il etoit ſage et juſte, &c.

BOUTON, an iſland in the Eaſt Indian ocean, about 12 miles diſtant from the ſouth-eaſt part of the iſland of Macaſſar, or Celebes. The inhabitants are ſmall but well ſhaped, and of a dark olive complexion. The principal town is Callaſujung, which is about a mile from the ſea, on the top of a ſmall hill, and round it a ſtone wall. The houſes are not built upon the ground, but on poſts. The religion of the inhabitants is Mahometaniſm. E. long. 122. 30. S. Lat. 4. 30.

BOUVILLON, a city of Luxemburg in the Auſtrian Netherlands, ſituated in E. Long. 5. 0. N. Lat. 49. 55.

BOW, (*arcus*), a weapon of offence made of wood, horn, or other elaſtic matter, which, after being ſtrongly bent, by means of a ſtring faſtened to its two ends, in returning to its natural ſtate throws out an arrow with great force. It is alſo called the *long-bow*, by way of diſtinction from the croſs-bow or arbaleſt.

The bow is the moſt ancient, and the moſt univerſal of

Bow. of all weapons. It has been found to obtain among the moſt barbarous and remote people, and who had the leaſt communication with the reſt of mankind.

The uſe of the bow and arrow was firſt aboliſhed in France under Louis XI. in 1481, and in their place were introduced the Swiſs arms, that is, the halberd, pike, and broad-ſword. The long-bow was formerly in great vogue in England; moſt of our victories in France were acquired by it; and many laws were made to regulate and encourage its uſe. The parliament under Henry VIII. complain "of the diſuſe of the long-bow, heretofore the ſafeguard and defence of this kingdom, and the dread and terror of its enemies." 33 Hen. VIII. cap. 6.

The art of uſing bows is called *archery*, and thoſe practiſed therein, *archers*, or *bowmen*. See ARCHERY.

The ſtrength of a bow may be calculated on this principle, that its ſpring, i. e. the power whereby it reſtores itſelf on its natural poſition, is always proportionate to the diſtance or ſpace it is removed therefrom.

The moſt barbarous nations often excel in the fabric of the particular things which they have the greateſt neceſſity for in the common offices of life. The Laplanders, who ſupport themſelves almoſt entirely by hunting, have an art of making bows, which we, in theſe improved parts of the world, have never arrived at. Their bow is made of two pieces of tough and ſtrong wood, ſhaved down to the ſame ſize, and flatted on each ſide; the two flat ſides of the pieces are brought cloſely and evenly together, and then joined by means of a glue made of the ſkins of perch, which they have in great plenty, and of which they make a glue ſuperior in ſtrength to any which we have. The two pieces, when once united in this manner, will never ſeparate, and the bow is of much more force to expel the arrow, than it could poſſibly have been under the ſame dimenſions if made of only one piece.

Among the ancients, the bow-ſtring, called τειχωσις, was made of horſes hair, and hence alſo called ἱππεια; though Homer's bow-ſtrings are frequently made of hides cut into ſmall thongs: whence τοξα βοεια. The uppermoſt part of the bow, to which the ſtring was faſtened, was called κορωνη, being commonly made of gold, and the laſt thing towards finiſhing the bow. The Grecian bows were frequently beautified with gold or ſilver; whence we have mention of *aurei arcus*; and Apollo is called Αργυροτοξος. But the matter of which they were ordinarily compoſed, ſeems to have been wood: though they were anciently, Scythian-like, made of horn, as appears from that of Pandarus in Homer, Iliad. δ. v. 105.

The invention of the bow is uſually aſcribed to Apollo, and was communicated to the primitive inhabitants of Crete, who are ſaid to have been the firſt of mortals who underſtood the uſe of bows and arrows. And hence, even in later ages, the Cretan bows were famous, and preferred by the Greeks to all others. Some, however, rather chooſe to honour Perſes, the ſon of Perſeus, with the invention of the bow; while others aſcribe it to Scythes, ſon of Jupiter, and progenitor to the Scythians, who were excellent at this art, and by many reputed the firſt maſters of it. From them it was derived to the Grecians, ſome of whoſe ancient nobility were inſtructed by the Scythians in the uſe of the bow, which in thoſe days paſſed for a moſt princely education. It was firſt introduced into the Roman army in the ſecond Punic war. Bow.

The Indians ſtill retain the bow. In the repoſitory of the Royal Society we ſee a Weſt Indian bow two yards long.

The Scythian bow was famous for its incurvation, which diſtinguiſhed it from the bows of Greece and other nations; being ſo great as to form an half moon or ſemicircle: whence the ſhepherd in Athenæus, being to deſcribe the letters in Theſeus's name, and expreſſing each of them by ſome appoſite reſemblance, compares the third to the Scythian bow; meaning not the more modern character Σ, but the ancient C, which is ſemicircular, and bears the third place in ΘΗCΕVC.

Croſs-Bow, is alſo called *arbaleſt* or *arbalet*; which word is derived from *arbaliſta*, e. i. *arcubaliſta*, "a bow with a ſling." The arbalet conſiſts of a ſteel-bow, ſet in a ſhaft of wood, furniſhed with a ſtring and a trigger; and is bent with a piece of iron fitted for that purpoſe. It ſerves to throw bullets, large arrows, darts, &c. The ancients had large machines for throwing many arrows at once, called *arbalets* or *baliſtæ*.

Bow, is alſo an inſtrument uſed at ſea, for taking the ſun's altitude; conſiſting of a large arch of 90° graduated, a ſhank or ſtaff, a ſide vane, a ſight vane, and an horizon vane. It is now out of uſe.

Bow, among builders, a beam of wood or braſs, with three long ſcrews that direct a lathe of wood or ſteel to any arch; chiefly uſed in drawing draughts of ſhips and projections of the ſphere, or wherever it is requiſite to draw large arches.

Bow, in *Muſic*, a ſmall machine, which, being drawn over the ſtrings of a muſical inſtrument, makes it reſound. It is compoſed of a ſmall ſtick, to which are faſtened 80 or 100 horſe hairs, and a ſcrew which ſerves to give theſe hairs a proper tenſion. In order that the bow may touch the ſtrings briſkly, it is uſual to rub the hairs with roſin. The ancients do not appear to have been acquainted with bows of hair: in lieu hereof they touched their inſtruments with a plectrum; over which our bows have great advantage, for giving long and ſhort ſounds, and other modifications which a plectrum cannot produce.

Bow, among artificers, an inſtrument ſo called from its figure; in uſe among gunſmiths, lockſmiths, watch-makers, &c. for making a drill go. Among turners it is the name of that pole fixed to the ceiling, to which they faſten the cord that whirls round the piece to be turned.

Bow, a town of Devonſhire in England, 188 miles weſt from London, and a little to the weſt of Crediton, has a weekly market, and two fairs in the year. The court of the duchy of Lancaſter is commonly kept here.

Bows of a Saddle, are two pieces of wood laid archwiſe to receive the upper part of a horſe's back, to give the ſaddle its due form, and to keep it tight.

The fore-bow which ſuſtains the pommel, is compoſed of the withers, the breaſts, the points or toes, and the corking.

The hind-bow bears the torſequin or quilted roll. The bows are covered with ſinews, that is, with bulls pizzles beaten, and ſo run all over the bows to make them ſtronger. Then they are ſtrengthened with bands

Bow. of iron to keep them tight: and on the lower ſide are nailed on the ſaddle-ſtraps, with which they make faſt the girths.

Bow, *Epaule*, in *Ship-building*, the rounding part of a ſhip's ſide forward, beginning at the place where the planks arch inwards; and terminated where they cloſe, at the ſtem or prow. It is proved by a variety of experiments, that a ſhip with a narrow bow is much better calculated for ſailing ſwiftly, than one with a broad bow; but is not ſo well fitted for a high ſea, into which ſhe always *pitches* or plunges her fore-part very deep, for want of ſufficient breadth to repel the volume of water which ſhe ſo eaſily divides in her fall. The former of theſe is called by ſeamen a *lean*, and the other a *bluff*, bow. "The bow which meets with the leaſt reſiſtance in a direct courſe, not only meets with the leaſt reſiſtance in oblique courſes, but alſo has the additional property of driving the leaſt to leeward; which is a double advantage gained by forming the bow ſo as to give it that figure which will be leaſt reſiſted in moving through any medium. *."

* *Bouguer's Traité de Navire.*

On the Bow, in *Navigation*, an arch of the horizon comprehended between ſome diſtant object and that point of the compaſs which is right a-head, or to which the ſhip's ſtern is directed. This phraſe is equally applicable when the object is beheld from the ſhip, or diſcovered by trigonometrical calculation: As, We ſaw a fleet at day-break bearing three points *on the ſtarboard-bow*: that is, three points from that part of the horizon which is right a-head, towards the right-hand. See the article BEARING.

Bow-dye, a kind of ſcarlet red, ſuperior to madder; but inferior to the true ſcarlet grain for fixedneſs and duration. It was brought into England, and firſt practiſed at the village of Bow, near London, by Kephler, a Dutchman, in the year 1643.

Bow-grace, in the ſea language, a frame or compoſition of old ropes or junks of cables, uſed to be laid out at the bows, ſtems, and ſides of ſhips, to preſerve them from great flakes of ice, chiefly when they ſail in high north or ſouth latitudes.

Bow-net, or *Bow-wheel*, an engine for catching fiſh, chiefly lobſters and craw-fiſh, made of two round wicker baſkets, pointed at the end, one of which is thruſt into the other; at the mouth is a little rim, four or five inches broad, ſomewhat bent inwards. It is alſo uſed for catching ſparrows.

Bow-legged, or *Bandy-legged*. Some children are bow-legged from their birth; others become ſo from ſetting them on their feet too early. The tibia of ſome is crooked; the knees of others are diſtorted; from a fault in the ankle, the feet of ſome are turned inwards. Theſe are called *vari*; and in others, who are called *valgi*, they are turned outwards. The beſt method of preventing theſe diſorders in weakly children is to exerciſe them duly, but not violently, by dancing or toſſing them about in one's arms; and not ſetting them much upon their feet, at leaſt not without properly ſupporting them: if the diſorder attends at the birth, or increaſes after it is begun, apply emollients, then apply boots of ſtrong leather, wood, &c. ſo as gradually to diſpoſe the crooked legs to a proper form; or other inſtruments may be uſed inſtead of boots, which, when not too coſtly, are uſually to be preferred. Slighter inſtances of theſe diſorders yield to careful nurſing, without inſtruments.

Bow ‖ Bowling.

Bow-Line, or *Bowling*, a rope faſtened near the middle of the leech, or perpendicular edge of the ſquare ſails, by three or four ſubordinate parts called *bridles*. It is only uſed when the wind is ſo unfavourable that the ſails muſt be all braced ſideways, or cloſe hauled to the wind: in this ſituation the bow-lines are employed to keep the weather or windward edges of the principal ſails tight, forward, and ſteady, without which they would always be ſhivering, and rendered incapable of ſervice. To *check* the bow-line is to ſlacken it, when the wind becomes large.

Bow-Pieces, are the pieces of ordnance at the bow of a ſhip.

Rain-Bow. See *RAIN-Bow*.

Bow-Bearer, an inferior officer of the foreſt, who is ſworn to make inquiſition of all treſpaſſes againſt vert or veniſon, and to attach offenders.

BOWELS, in *Anatomy*, the ſame with inteſtines. See ANATOMY *Index*.

BOWER, in *Gardening*, a place under covert of trees, differing only from an arbour, as being round or ſquare, and made with a kind of dome or ceiling at top; whereas the arbour is always built long and arched.

BOWER, in the ſea-language, the name of an anchor carried at the bow of a ſhip. There are generally two bowers, called *firſt* and *ſecond*, *great* and *little*, or *beſt* and *ſmall* bower. See ANCHOR.

BOWESS, or BOWET, in *Falconry*; a young hawk, when ſhe draws any thing out of her neſt, and covets to clamber on the boughs.

BOWL, denotes either a ball of wood, for the uſe of bowling: or a veſſel of capacity, wherein to hold liquors.

BOWLDER-STONES, ſmall ſtones of a roundiſh figure, and no determinate ſize, found on the ſea-ſhore, and on banks or rather channels of rivers.

BOWLING, the art of playing at bowls.—This game is practiſed either in open places, as bares and bowling-greens, or in cloſe-bowling-alleys.

The ſkill of bowling depends much on a knowledge of the ground, and the right choice of a bowl ſuitable to it: for cloſe alleys, the flat bowl; for green ſwards plain and level, the bowl as round as a ball is preferred.

The terms uſed in bowling are, to *bowl wide*, which is when the bias does not hold, or is not ſtrong enough; *narrow*, when it is too ſtrong, or holds too much; *finely bowled*, is when the ground is well choſen, and the bowl paſſes near the block, even though it goes much beyond it: *bowling through*, or a *yard over*, is done in order to move the block; an *over-bowl*, that which goes beyond it; a *bowl laid at hand*, is that put down within the gameſter's reach, to be in the way of the next bowler, and hinder his having the advantage of the beſt ground; *bowling at length*, neither bowling through nor ſhort; a *dead length*, a juſt or exact one; *throwing* or *flinging*, is diſcharging a bowl with a ſtrength purpoſely too great for a length, in order to carry off either the block or ſome near bowl; *bowl-room*, or *miſſing-wood*, is when a bowl has free paſſage, without ſtriking on any other; *get off*, is when a bowl being

Bowling-Green || Bowyer.

being narrow, is wanted to be wider; *bowl beſt at block*, that neareſt the block: *drawing a caſt or bowl*, is to win it by bowling nearer, without ſtirring either the bowl or block; a bowl is ſaid to *rub*, when it meets with ſome obſtacle in the ground, which retards its motion, and weakens its force; *it is gone*, when far beyond the block. *Block* ſignifies a little bowl laid for a mark, alſo called a *jack*. *Mark*, is a proper bowling diſtance, not under ſo many yards; and being at leaſt a yard and a half from the edge of the green. *Ground*, a bag or handkerchief laid down to mark where a bowl is to go. *Lead*, the advantage of throwing the block, and bowling firſt. *Caſt*, is one beſt bowl at an end. *End*, a hit, or when all the bowls are out. The *game*, or *ub*, is five caſts or beſt bowls.

Bowling-Green, in *Gardening*, a kind of parterre in a grove, laid with fine turf, requiring to be frequently mowed, laid out in compartments of divers figures, with dwarf-trees and other decorations. Bowling-greens are of Engliſh origin, but have been adopted by the French and Italians, who have them only for ornament; being unacquainted with or not fancying the exerciſe, on account of which they were firſt made in England.

Bowling-Bridles, are the ropes by which the bowline is faſtened to the leech of the ſail.

BOWSE, in the ſea-language, ſignifies as much as to *hale* or *pull*. Thus *bowſing upon a tack*, is hauling upon a tack. *Bowſe away*, that is, Pull away all together.

BOWSPRIT, or Boltsprit, a kind of maſt, reſting ſlopewiſe on the head of the main ſtern, and having its lower end faſtened to the partners of the fore-maſt, and farther ſupported by the fore ſtay. It carries the ſprit-ſail, ſprit-top-ſail, and jack-ſtaff; and its length is uſually the ſame with that of the fore-maſt.

BOWYER, William, the moſt learned printer of his age, was born at White Friars in London. December 17. 1699. His father, whoſe name alſo was William, had been eminent in the ſame profeſſion; and his maternal grandfather (Icabod Dawks) was employed in printing the celebrated Polyglott bible of Biſhop Walton. At a proper age, he was placed for grammatical education under the care of Mr Ambroſe Bonwicke, a nonjuring clergyman of known piety and learning, who then lived at Headly, near Leatherhead in Surry. Here Mr Bowyer made great advances in literature, and a firm attachment commenced betwixt him and his maſter. On the 30th of January 1713, the whole property of the elder Mr Bowyer was deſtroyed by fire; on which occaſion Mr Bonwicke generouſly undertook the education of his pupil for one year. In 1716, young Mr Bowyer was admitted a ſizar at St John's college, Cambridge, where Dr Robert Jenkin was at that time maſter. He continued at the college of Cambridge under the tuition of the reverend Dr John Newcombe till June 1722, during which period he probably took his degree of bachelor of arts; and it appears that he was deſirous of obtaining a fellowſhip, though it is not certain that he ever ſtood a candidate for that honour. Soon after this he had an opportunity of repaying the kindneſs which Mr Bonwicke had ſhown him, by officiating ſome time after his death in the capacity of a ſchoolmaſter for the benefit of his family.

Bowyer.

Mr Bowyer now entered into the printing-buſineſs along with his father. One of the firſt books which received the benefit of his correction was the complete edition of Selden in three volumes folio by Dr David Wilkins. This edition was begun in 1722, and finiſhed in 1726; and Mr Bowyer's great attention to it appeared in his drawing up an epitome of Selden *de Synedriis*, as he read the proof-ſheets. In 1727, he drew up an excellent ſketch of William Baxter's Gloſſary of the Roman Antiquities. This was called "A view of a book entitled *Reliquiæ Baxterianæ*. In a letter to a friend." A ſingle ſheet 8vo. By this firſt public proof of Mr Bowyer's abilities, Dr Wotton and Mr Clarke were highly pleaſed; but as it was never publiſhed, and very few copies printed, it is very ſeldom found with the gloſſary. In 1727 Mr Bowyer loſt his mother; on which occaſion he received a letter of conſolation from Mr Chiſhull the learned editor of the *Antiquitates Aſiaticæ*. In October 1728 he married Miſs Ann Prudom, his mother's niece, a very accompliſhed lady, by whom he had two ſons, William and Thomas; the former of whom died an infant, and the latter ſurvived his father. In 1729 Mr Bowyer publiſhed a curious treatiſe, entitled, "A Pattern for young Students in the Univerſity; ſet forth in the Life of Ambroſe Bonwicke, ſome time ſcholar of St John's College, Cambridge:" but though this treatiſe was generally aſcribed to Mr Bowyer, it was in reality the production of Mr Ambroſe Bonwicke the elder. About this time it appears, that Mr Bowyer had written a pamphlet againſt the Separatiſts, though neither the title nor the occaſion of it are now remembered. The ſame year, through the friendſhip of the Right Hon. Arthur Onſlow, he was appointed printer of the votes of the houſe of commons; which office he held, under three ſucceſſive ſpeakers, for near fifty years. In 1731 Mr Bowyer publiſhed, and, it is believed, *tranſlated* Voltaire's Life of Charles XII. This year alſo his wife died; on which occaſion his friends Mr Clarke and Mr Chiſhull wrote him very affectionate and Chriſtian letters. He remained a widower till 1747, when he married a very benevolent and worthy woman, Mrs Elizabeth Bill, by whom he had no children. In 1733 he publiſhed a piece in two ſheets 4to, entitled, "The Beau and the Academic;" being a tranſlation from a Latin poem recited that year at the Sheldonian theatre; and in 1736 he was admitted into the Society of Antiquarians, where he became an active and uſeful member. In 1737 Mr Bowyer loſt his father; and on this occaſion Mr Clarke again addreſſed to him a letter of conſolation. In 1742 our author publiſhed a tranſlation of Trapp's Latin Lectures on Poetry, in which he was aſſiſted by Mr Clarke, though the latter had a contemptible opinion of the performance.

In 1749, Mr Bowyer, along with Dr Burton, was virulently attacked by Dr King in a piece entitled *Elogium famæ inſerviens Jacci Etonenſis ſive Gigantis*: or, "The praiſes of Jack Eaton, commonly called *Jack the Giant*."—This abuſe was probably occaſioned by Mr Bowyer's having hinted in converſation ſome doubts concerning the Doctor's ſkill in Latin. Our author drew up ſome ſtrictures in his own defence, which he intended to inſert at the concluſion of a preface to Monteſquieu's Reflections; but by Dr Clarke's advice they

Bowyer. they were omitted. In 1750, a prefatory critical diſſertation and ſome notes were annexed by our author to Kuſter's Treatiſe *De uſu verborum mediorum;* a new edition of which, with farther improvements, appeared in 1773. He wrote likewiſe about the ſame time a Latin preface to Leedes's *Veteres poetæ citati*, &c.—Being ſoon after employed to print an edition of Col. Bladen's tranſlation of Cæſar's Commentaries, that work received conſiderable improvements from Mr Bowyer's hands, with the addition of ſuch notes in it as are ſigned TYPOGR. In the ſubſequent editions of this work, though printed by another perſon during our author's lifetime, the ſame ſignature, though contrary to decorum, and even to juſtice, was ſtill retained. In 1751, he wrote a long preface to Monteſquieu's "Reflections on the riſe and fall of the Roman Empire;" tranſlated the dialogue between Sylla and Socrates; made ſeveral corrections to the work from the Baron's "Spirit of Laws;" and improved it with his own notes. A new edition, with many new notes, was printed in 1759. In 1751 he alſo publiſhed the firſt tranſlation that ever was made of Rouſſeau's paradoxical oration, which gained the prize at the academy of Dijon in 1750; and which firſt announced that ſingular genius to the attention and admiration of Europe. On the publication of the third edition of Lord Orrery's "Remarks on the Life and Writings of Dr Swift," in 1752, Mr Bowyer wrote and printed, but never publiſhed, "Two Letters from Dr Bentley in the Shades below, to Lord Orrery in a Land of thick darkneſs." The notes ſigned B, in the ninth quarto volume of Swift's works, are extracted from theſe Letters. In 1753, he endeavoured to allay the ferment occaſioned by the Jew bill; with which view he publiſhed, in quarto, "Remarks on the ſpeech made in common-council, on the bill for permitting perſons profeſſing the Jewiſh religion to be naturalized, ſo far as prophecies are ſuppoſed to be affected by it." This little tract was written with ſpirit, and well received by thoſe who were ſuperior to narrow prejudices. Its deſign was to ſhow, that whatever political reaſons might be alleged againſt the bill, Chriſtianity was in no danger of being prejudiced by the intended protection promiſed to the Jews. The ſame year ſome of Mr Bowyer's notes were annexed to Biſhop Claton's tranſlation of "A Journal from Grand Cairo to Mount Sinai and back again."—In 1754, Mr Bowyer, with a view of leſſening his fatigue, entered into partnerſhip with a relation; but ſome diſagreement ariſing, the connection was diſſolved in three years. On the death of Mr Richardſon in 1761, Mr Bowyer ſucceeded him as printer to the Royal Society, through the favour of the late Earl of Macclesfield; and, under the friendſhip of five ſucceſſive preſidents, enjoyed that office till his death.

In 1763, Mr Bowyer publiſhed an excellent edition of the Greek Teſtament, in two vols 12mo. It appeared under the following title: *Novum Teſtamentum Græcum; ad fidem Græcorum ſolum Codicum MSS. nunc primum impreſſum, adſtipulante Joanne Jacobo Wetſtenio, juxta Sectiones Jo. Alberti Bengelii diviſum; et nova interpretatione ſæpius illuſtratum. Acceſſere in altero volumine, Emendationes conjecturales virorum doctorum undecunque collectæ.* This ſold with great rapidity: the Conjectural Emendations were well received by the learned, and are thought to be a valuable work. Bowyer. The preſident and fellows of Havard college in Cambridge expreſſed their approbation of this edition in very high terms. In a letter to Mr Bowyer, written in the year 1767, "This work (ſay they), though ſmall in bulk, we eſteem as a rich treaſure of ſacred learning, and of more value than many large volumes of the commentators." A ſecond edition of the Conjectures on the New Teſtament, with very conſiderable enlargements, was ſeparately publiſhed, in one vol. 8vo, in 1772. Biſhop Warburton having cenſured a paſſage in the former edition, Mr Bowyer ſent him a copy of this book, with a conciliatory letter. Dr Warburton's Divine Legation had received very conſiderable advantage from Mr Bowyer's corrections; and this even in an edition which was neceſſarily given to another preſs. In 1761 he was employed to print his Lordſhip's Doctrine of Grace. A ſecond edition being ſoon wanted, and Mr Bowyer not having been intruſted with the care of it, he prepared a ſeries of letters to the biſhop in his own defence; of which, together with a few he had formerly received from that great writer, he afterwards printed *twelve copies*, of which *ten* have ſince been deſtroyed. However, there is the beſt authority for aſſerting, that notwithſtanding any little altercations which happened, Dr Warburton always retained a ſincere regard for our author. In 1765, at the requeſt of Thomas Hollis, Eſq. Mr Bowyer wrote a ſhort Latin preface to Dr Wallis's *Grammatica Linguæ Anglicanæ*. He wrote alſo a large Engliſh preface for the ſame work, which, however, ſtill remains unprinted. In 1766 he entered into partnerſhip with Mr Nichols, who had been trained by him to the profeſſion, and had for ſeveral years aſſiſted him in the management of his buſineſs. The ſame year, Mr Bowyer wrote an excellent Latin preface to *Joannis Harduini, Jeſuitæ, ad Cenſuram Scriptorum veterum Prolegomena. Juxta Autographum.* In 1767 he was appointed to print the journals of the houſe of lords and the rolls of parliament. This year he printed Mr Clarke's excellent and learned work on "The Connection of the Roman, Saxon, and Engliſh Coins;" and wrote ſome notes upon it, which are interſperſed throughout the volume with thoſe of the author. Part of the Diſſertation on the Roman ſeſterce was likewiſe Mr Bowyer's production; and the index, which is an uncommonly good one, was drawn up by him entirely.

In January 1771 Mr Bowyer loſt his ſecond wife, and again received a letter of conſolation from his old friend Mr Clarke, who had ſent him one almoſt forty years before on a ſimilar occaſion. In the Philoſophical Tranſactions for this year was printed a very ingenious "Inquiry into the Value of the ancient Greek and Roman Money," by the late Matthew Raper, Eſq. But his opinions not coinciding with thoſe of Mr Bowyer, he printed a ſmall pamphet, entitled, "Remarks, occaſioned by a late Diſſertation on the Greek and Roman money." In 1773 three little tracts were publiſhed by him, under the title of "Select Diſcourſes. 1. Of the correſpondence of the Hebrew months with the Julian, from the Latin of Profeſſor Michaelis. 2. Of the Sabbatical years, from the ſame. 3. Of the years of jubilee, from an anonymous writer in Maſſon's Hiſtoire Critique de la Republique

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Bowyers, Box.

des Lettres." In 1774 he corrected a new edition of Schrevelius's Greek Lexicon; to which he has added a number of words, diſtinguiſhed by an aſteriſk, which he himſelf had collected in the courſe of his ſtudies. Conſiderable additions, ſtill in manuſcript, were made by him to the lexicons of Hederic and Buxtorf, the Latin ones of Faber and Littleton, and the Engliſh Dictionary of Bailey; and he left behind him many other proofs of his critical ſkill in the learned languages. In 1774 was publiſhed, "The Origin of printing, in two eſſays. 1. The ſubſtance of Dr Middleton's Diſſertation on the Origin of Printing in England. 2. Mr Meerman's Account of the Invention of the Art at Haarlem, and its progreſs to Mentz, with occaſional Remarks, and an Appendix." The original idea of this valuable tract was Mr Bowyer's, but it was completed by Mr Nichols.

Although our author, during the laſt ten years of his life, had been afflicted with the palſy and ſtone, he not only preſerved a remarkable cheerfulneſs of temper, but was enabled to ſupport the labour of almoſt inceſſant reading; and he regularly corrected the learned works, eſpecially the Greek books, which came from his preſs. This he continued to do till within a few weeks of his death, which happened in November 1777, when he had nearly completed his 78th year. For more than half a century Mr Bowyer was unrivalled as a learned printer; and many of the moſt maſterly productions of this kingdom have come from his preſs. To his literary and profeſſional abilities he added an excellent moral character; and he was particularly diſtinguiſhed by his inflexible probity, and an uncommon alacrity in relieving the neceſſitous.

BOWYERS, artificers whoſe buſineſs is to make bows: in which ſenſe, bowyers ſtand diſtinguiſhed from fletchers, who made arrows.

The bowyers company in London was incorporated in 1620: and conſiſts of a maſter, two wardens, twelve aſſiſtants, and 30 on the livery. See ARCHERY.

BOX, in its moſt common acceptation, denotes a ſmall cheſt or coffer for holding things.

Dice-Box, a narrow deep cornet, channelled within, wherein the dice are ſhaken and thrown. This anſwers to what the Romans called *fritillus;* whence, *crepitantes fritilli;* and, in Seneca, *reſonante fritillo*. The ſame author uſes alſo *concutere fritillum*, figuratively, for playing.—Beſides the fritillus, the Romans, for greater ſecurity, had another kind of dice-box called *pyrgus*, πυργος, and ſometimes *turricula*. It was placed immoveable in the middle of the table, being perforated or open at both ends, and likewiſe channelled within; over the top was placed a kind of funnel, into which the dice were caſt out upon the fritillus; whence deſcending, they fell through the bottom on the table; by which all practiſing on them with the fingers was effectually prevented. For want of ſome contrivance of this kind, our ſharpers have opportunities of playing divers tricks with the box, as palming, topping, ſlabbing, &c.

Box, is alſo uſed for an uncertain quantity or meaſure: thus a box of quickſilver contains from one to two hundred weight; a box of prunellas only 14 pounds; a box of rings for keys, two groſs, &c.

Box-Tree. See BUXUS, BOTANY *Index*.

African-Box. See MYRSINE, BOTANY *Index*.

BOXERS, a kind of *athletæ*, who combat or contend for victory with their fiſts. Boxers amount to the ſame with what among the Romans were called *pugiles*. The ancient boxers battled with great force and fury, inſomuch as to daſh out each others teeth, break bones, and often kill each other. The ſtrange diſfigurements theſe boxers underwent were ſuch that they frequently could not be known, and rendered them the ſubject of many railleries. In the Greek anthology there are four epigrams of the poet Lucilius, and one of Lucian, wherein their diſfigurements are pleaſantly enough expoſed. See BOXING.

Boxers || Boxing.

BOXHORNIUS, MARC ZUERIUS, a learned critic born at Bergen-op-Zoom in 1612, was profeſſor of eloquence at Leyden, and at length of politics and hiſtory in the room of Heinſius. He publiſhed, 1. *Theatrum urbium Hollandiæ*. 2. *Scriptores hiſtoriæ Auguſtæ, cum notis*. 3. *Poetæ ſatyrici minores, cum comment*. 4. Notes on Juſtin, Tacitus; and a great number of other works. He died in 1653, aged 41.

BOXING, the exerciſe of fighting with the fiſts, either naked or with a ſtone or leaden ball graſped in them: in which ſenſe, boxing coincides with the *pugillatus* of the Romans, and what on our amphitheatres is ſometimes called trial of manhood. When the champions had σφαιραι, or balls, whether of lead or ſtone, it was properly denominated σφαιρομαχια. The ancient boxing differed from the *pugna cæſtuum*, in which the combatants had leathern thongs on their hands, and balls to offend their antagoniſts; though this diſtinction is frequently overlooked, and fighting with the *cæſtus* ranked as a part of the buſineſs of *pugiles*. We may diſtinguiſh three ſpecies of boxing; viz. where both the head and hands were naked; where the hands were armed and the head naked; and where the head was covered with a kind of cap, called *amphotides*, and the hands alſo furniſhed with the *cæſtus*.

Boxing is an ancient exerciſe, having been in uſe in the heroic ages. Thoſe who prepared themſelves for it, uſed all the means that could be contrived to render themſelves fat and fleſhy, that they might be better able to endure blows: whence corpulent men or women were uſually called *pugiles*, according to Terence: *Siqua eſt habitior paulo, pugilem eſſe aiunt*.

In modern times this art has been in a manner appropriated by the Engliſh. About half a century ago it formed as regular an exhibition as we now ſee at any of the places of public amuſement, the theatres alone excepted. It was encouraged by the firſt ranks of the nobility, patronized by the firſt ſubject in the realm, and tolerated by the magiſtrates. Before the eſtabliſhment of Broughton's amphitheatre, a booth was erected at Tottenham Court, in which the proprietor, Mr George Taylor, invited the profeſſors of the art to diſplay their ſkill, and the public to be preſent at its exhibition. The bruiſers then had the reward due to their proweſs, in a diviſion of the entrance-money, which ſometimes was 100l. or 150l. The general mode of ſharing was for two thirds to go to the winning champion, while the remaining third was the right of the loſer; though ſometimes by an expreſs agreement of the parties, the conqueror and the vanquiſhed ſhared alike. The nobility and gentry having complained of the inconveniences ſuſtained at Taylor's Booth, prevailed on Mr Broughton, who was

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Boxing || Boyd.

then rising into note as the first bruiser in London, to build a place better adapted for such exhibitions. This was accordingly done in 1742, principally by subscription, behind Oxford-road. The building was called Broughton's New Amphitheatre; and, besides the stage for the combatants, had seats corresponding to the boxes, pit, and galleries, much in the same manner with those at Astley's. After a course of years, however, these exhibitions became gradually less patronized and frequented, owing probably to the refinement of our manners. Some time ago, indeed, they seemed to be revived, and very considerably engaged the attention of the public; but a fatal issue which attended one of them, brought the practice again into disrepute. One of the combatants was killed on the spot. His royal highness the Prince of Wales was present, and declared that he would have some settlement made on the nearest relation of the deceased, but that, on account of the dreadful example he had then witnessed, he would never more either see or patronize another stage-fight.

Boxing, among sailors, is used to denote the rehearsing the several points of the compass in their proper order.

Boxing is also used for the tapping of a tree to make it yield its juice. The boxing of maple is performed by making a hole with an axe or chissel into the side of the tree about a foot from the ground; out of it flows a liquor of which sugar is made.

BOXTEHUDE, a town of Germany, in the circle of Lower Saxony, subject to the Danes. It is seated on the rivulet Esse, which falls into the Elbe, in E. Long. 9. 35. N. Lat. 53. 40.

BOXTEL, a town in Dutch Brabant, with sluices seated on the river Bommel. E. Long. 5. 15. N. Lat. 51. 30.

BOYAR, a term used for a grandee of Russia and Transylvania. Becman says, that the boyars are the upper nobility; and adds, that the Czar of Muscovy, in his diplomas, names the boyars before the waywodes. See Waywode.

BOYAU, in *Fortification*, a ditch covered with a parapet, which serves as a communication between two trenches. It runs parallel to the works of the body of the place; and serves as a line of contravallation, not only to hinder the sallies of the besieged, but also to secure the miners. But when it is a particular cut that runs from the trenches to cover some spot of ground, it is drawn so as not to be enfiladed or scoured by the shot from the town.

BOYD, Mark Alexander, an extraordinary genius, was son of Robert Boyd, who was eldest son of Adam Boyd of Pinkhill, brother to Lord Boyd. He was born in Galloway on the 13th of January 1562, and came into the world with teeth. He learned the rudiments of the Latin and Greek languages at Glasgow under two grammarians; but was of so high and untractable a spirit, that they despaired of ever making him a scholar. Having quarrelled with his masters, he beat them both, burnt his books, and forswore learning. While he was yet a youth, he followed the court, and did his utmost to push his interest there; but the fervour of his temper soon precipitated him into quarrels, from which he came off with honour and safety, though frequently at the hazard of his life. He, with the approbation of his friends, went to serve in the French army, and carried his little patrimony with him, which he soon dissipated at play. He was shortly after roused by that emulation which is natural to great minds, and applied himself to letters with unremitted ardour, till he became one of the most consummate scholars of his age. He is said to have translated Cæsar's Commentaries into Greek in the style of Herodotus, and to have written many Latin poems which were little inferior to the first productions of the Augustan age. He also left several manuscripts on philological, political, and historical subjects, in Latin and French, which languages were as familiar to him as his native tongue. He could with facility dictate to three amanuenses at the same time, in different languages, and on different subjects. He was also one of the best Scotish poets of the age. To all this we must add, that his personal beauty and accomplishments were equal to his mental superiority. He died at Pinkhill in Scotland, in 1601. The following works, which are all that have been printed, were published in the *Deliciæ Poetarum Scotorum;* Amstel. 1637, 12mo. 1. *Epigrammata*, lib. ii. 2. *Heroidum Epistolæ* XIV. lib. ii. 3. *Hymni* XIV.

Boyer.

BOYER, Abel, a well-known glossographer and historiographer, born at Castres in France, in 1664. Upon the revocation of the edict of Nantz, he went first to Geneva, then to Franeker, where he finished his studies; and came finally to England, where he applied himself so assiduously to the study of the English language, and made so great a proficiency therein, that he became an author of considerable note in it, being employed in the writing of several periodical and polical works. He was for many years concerned in a newspaper called the *Post-boy*, of which he had the principal management. He likewise published a monthly work entitled the *Political State of Great Britain.* He wrote a life of Queen Anne in folio, which is esteemed a very good chronicle of that period of the English history. But what has rendered him the most known, and has most firmly established his reputation, are the excellent Dictionary and Grammar of the French language, which he compiled, and which are still reckoned the best in their kind. He also wrote, or rather translated from the French of M. de Racine, the tragedy of Iphigenia, which he published under the title of *The Victim.* It was performed with success at the theatre of Drury-lane, and is far from being a bad play. Nor can there perhaps be a stronger instance of the abilities of its author, than success in such an attempt; since writing with any degree of correctness or elegance, even in prose, in a foreign language, is an excellence not very frequently attained; but to proceed so far in the perfection of it as to be even tolerable in poetry, and more especially in that of the drama, in which the diction and manner of expression require a peculiar dignity and force, and in a language so difficult to attain the perfect command of as the English, is what has been very seldom accomplished. He died in 1729.

Boyer, in *Navigation*, a kind of Flemish sloop, or small vessel of burden, having a boltsprit, a castle at each end, and a tall mast; chiefly fit for the navigation of rivers, and in many of its parts resembling a smack.

BOYES,

Boyes, Boyle.

BOYES, idolatrous prieſts among the ſavages of Florida. Every prieſt attends a particular idol, and the natives addreſs themſelves to the prieſt of that idol to which they intend to pay their devotion. The idol is invoked in hymns, and his uſual offering is the ſmoke of tobacco.

BOYLE, Richard, one of the greateſt ſtateſmen of the 17th century, and generally ſtyled the *Great earl of Corke*, was the youngeſt ſon of Mr Roger Boyle, and was born at Canterbury, on the 3d of October, 1566. He ſtudied at Bennet college, Cambridge, and afterwards became a ſtudent in the Middle Temple. Having loſt his father and mother, and being unable to ſupport himſelf in the proſecution of his ſtudies, he became clerk to Sir Richard Manhood, one of the chief barons of the exchequer; but finding that by his employment he could not improve his fortune, he went to Ireland in 1588, with fewer pounds in his pocket than he afterwards acquired thouſands a-year. He was then about 22, had a graceful perſon, and many accompliſhments, which enabled him to render himſelf uſeful to ſeveral of the principal perſons employed in the government, by drawing up for them memorials, caſes, and anſwers. In 1595, he married Joan the daughter and coheireſs of William Anſley, who had fallen in love with him; and ſhe dying in 1599 in labour of her firſt child, which was ſtillborn, left him an eſtate of 500l. a year in land. In conſequence of various ſervices, and the great abilities he diſplayed, he gradually roſe to the higheſt offices, and even to the dignity of the peerage of Ireland; to which he was raiſed by King James I. on the 29th of September 1616, by the ſtyle and title of *baron of Youghall*, in the county of Cork: four years after, he was created Viſcount Dungarvan and earl of Cork; and in 1631 was made lord treaſurer of Ireland, an honour that was made hereditary to his family. He particularly diſtinguiſhed himſelf by the noble ſtand he made, when the fatal rebellion broke out in that kingdom, in the reign of Charles I.; and in his old age acted with as much bravery and military ſkill, as if he had been trained from his infancy to the profeſſion of arms. He turned the caſtle of Liſmore, his capital ſeat, into a fortreſs capable of demanding reſpect from the Iriſh. He immediately armed and diſciplined his ſervants and Proteſtant tenants; and by their aſſiſtance, and a ſmall army raiſed and maintained at his own expence, which he put under the command of his four ſons, defended the province of Munſter, and in the ſpace of a year took ſeveral ſtrong caſtles, and killed upwards of 3000 of the enemy: during which time he paid his forces regularly; and when all his money was gone, like a true patriot converted his plate into coin. This great man died on the 15th of September, 1634.

Boyle, *Richard*, earl of Burlington and Cork, ſon to the former, was a nobleman of unblemiſhed loyalty in rebellious times, and of untainted integrity in times of the greateſt corruption. He was born at Youghall, October 20th, 1612, while his father was in the beginning of his proſperity, and only Sir Richard Boyle. He diſtinguiſhed himſelf by his loyalty to King Charles I. He not only commanded troops, but raiſed and for a long time paid them, and continued to wait upon the king as long as any one place held out for him in England, and then was forced to compound for his eſtate. He contributed all in his power to the Reſtoration; on which King Charles II. raiſed him to the dignity of earl of Burlington, or Bridlington, in the county of York, in the year 1663. He died Jan. 15. 1697-8, in the 86th year of his age. Boyle.

Boyle, *Roger*, earl of Orrery, younger brother of the former, and the fifth ſon of Richard, ſtyled the *Great earl of Cork*, was born April 25. 1621; and by the credit of his father with the lord deputy Faulkland, raiſed to the dignity and title of *Baron Broghill*, when only ſeven years old. He was educated at the college of Dublin, where he ſoon diſtinguiſhed himſelf as an early and promiſing genius. He afterwards made the tour of France and Italy; and at his return aſſiſted his father in oppoſing the rebellious Iriſh, in which he behaved with all the ſpirit of a young, and all the diſcretion of an old, officer. Upon the murder of the king, he retired to Marſton in Somerſetſhire, and hid himſelf in the privacy of a cloſe retirement; but being at length aſhamed to ſit the tame ſpectator of all the miſchief that appeared round him, he reſolved to attempt ſomething in favour of the king; and under the pretence of going to the Spa for the recovery of his health, he determined to croſs the ſeas, and apply himſelf to King Charles II. for a commiſſion to raiſe what forces he could in Ireland, in order to reſtore his majeſty, and recover his own eſtate. To this purpoſe, he prevailed on the earl of Warwick to procure a licenſe for his going to the Spa; and having raiſed a conſiderable ſum of money, came up to London to proſecute his voyage: but he had not been long in town when he received a meſſage from Cromwell, who was then general of the parliament's forces, that he intended to wait upon him. The lord Broghill was ſurpriſed at this meſſage, having never had the leaſt acquaintance with Cromwell; and deſired the gentleman to let the general know, that he would wait upon his excellency. But while he was waiting the return of the meſſenger, Cromwell entered the room; and after mutual civilities had paſſed between them, told him in few words, that the committee of ſtate were appriſed of his deſign of going over and applying to Charles Stuart for a commiſſion to raiſe forces in Ireland; and that they were determined to make an example of him, if he himſelf had not diverted them from that reſolution. The lord Broghill interrupted him, by aſſuring him that the intelligence which the committee had received was falſe, and that he neither was in a capacity nor had any inclination to raiſe diſturbances in Ireland: but Cromwell, inſtead of making any reply, drew ſome papers out of his pocket, which were the copies of ſeveral letters which the lord Broghill had ſent to thoſe perſons in whom he moſt confided, and put them into his hands. The lord Broghill, upon the peruſal of theſe papers, finding it to no purpoſe to diſſemble any longer, aſked his excellency's pardon for what he had ſaid, returned him his humble thanks for his protection againſt the committee, and intreated his direction how to behave in ſuch a delicate conjuncture. Cromwell told him, that though till this time he had been a ſtranger to his perſon, he was not ſo to his merit and character: he had heard how gallantly his lordſhip had behaved in the Iriſh wars; and therefore, ſince he was named *lord lieutenant of Ireland*, and the reducing that kingdom was now become his province, he had

Boyle. obtained leave of the committee to offer his lordſhip the command of a general officer, if he would ſerve in that war; and he ſhould have no oaths or engagements impoſed upon him, nor be obliged to draw his ſword againſt any but the Iriſh rebels.

The lord Broghill was infinitely ſurpriſed at ſo generous and unexpected an offer. He ſaw himſelf at liberty, by all the rules of honour, to ſerve againſt the Iriſh, whoſe rebellion and barbarities were equally deteſted by the royal party and the parliament. He deſired, however, ſome time to conſider of what had been propoſed to him. But Cromwell briſkly told him, that he muſt come to ſome reſolution that very inſtant: that he himſelf was returning to the committee, who were ſtill ſitting; and if his lordſhip rejected their offer, they had determined to ſend him to the tower. Upon this, the lord Broghill, finding that his liberty and life were in the utmoſt danger, gave his word and honour that he would faithfully ſerve him againſt the Iriſh rebels: on which Cromwell once more aſſured him, that the conditions which he had made with him ſhould be punctually obſerved; and then ordered him to repair to Briſtol, adding, that he himſelf would ſoon follow him into Ireland. Lord Broghill, therefore, having ſettled the buſineſs of his command, went over into that country; where, by his conduct and intrepidity, he performed many important ſervices, and fully juſtified the opinion Cromwell had conceived of him. By his own intereſt he now raiſed a gallant troop of horſe, conſiſting chiefly of gentlemen attached to him by perſonal friendſhip; which corps was ſoon increaſed to a complete regiment of 1500 men. Theſe he led into the field againſt the Iriſh rebels; and was ſpeedily joined by Cromwell, who placed the higheſt confidence in his new ally, and found him of the greateſt conſequence to the intereſt of the commonwealth.

Among other conſiderable exploits performed by Lord Broghill, the following deſerves to be particularly mentioned. Whilſt Cromwell laid ſiege to Clonmell, Broghill being detached to diſperſe a body of 5000 men who had aſſembled to relieve the place, he, with 2000 horſe and dragoons, came up with the enemy at Maccrooms on the 10th of May 1650; and, without waiting for the arrival of his foot, immediately attacked and routed them, making their general priſoner. Then proceeding to the caſtle of Carrigdrohid, he ſent a ſummons to the garriſon to ſurrender before the arrival of his battering cannon, otherwiſe they were to expect no quarter. His own army was ſurpriſed at this ſummons, as knowing he had not one piece of heavy cannon: but Broghill had ordered the trunks of ſeveral large trees to be drawn at a diſtance by his baggage horſes; which the beſieged perceiving, and judging from the ſlowneſs of the motion that the guns muſt be of a vaſt bore, immediately capitulated. He afterwards relieved Cromwell himſelf at Clonmell, where that great commander happened to be ſo dangerouſly ſituated, that he confeſſed, nothing but the ſeaſonable relief afforded him by Lord Broghill could have ſaved him from deſtruction. When Ireton ſat down before Limeric, he gave Broghill 600 foot and 400 horſe, with orders to prevent Lord Muſkerry's joining the pope's nuncio, who had got together a body of 8000 men, and was determined to attempt the relief of Limeric. Muſkerry was at the head of 1000 horſe and dragoons, and about 2000 foot: notwithſtanding which, Lord Broghill fell reſolutely upon him. The Iriſh, having the advantage of the ground and numbers, would have conquered, but for a ſtratagem of Lord Broghill. In the heat of the action he deſired thoſe about him to repeat what he ſaid; and then cried out as loud as he could, "They run, they run." The firſt line of the Iriſh looked round to ſee if their rear broke; and the rear ſeeing the faces of their friends, and hearing the ſhouts of the enemy, imagined that the firſt line was routed, and fled. The taking of Limeric, which put an end to the war in Ireland, was the conſequence of this defeat. Boyle.

When Cromwell became protector, he ſent for Lord Broghill, merely to take his advice occaſionally. And we are told, that, not long after his coming to England, he formed a project for engaging Cromwell to reſtore the old conſtitution. The baſis of the ſcheme was to be a match between the king (Charles II.) and the protector's daughter. As his lordſhip maintained a ſecret correſpondence with the exiled monarch and his friends, it was imagined that he was beforehand pretty ſure that Charles was not averſe to the ſcheme, or he would not have ventured to have propoſed it ſeriouſly to Cromwell; who at firſt ſeemed to think it not unfeaſible. He ſoon changed his mind, however, and told Broghill that he thought his project impracticable: "For (ſaid he) Charles can never forgive me the death of his father." In fine, the buſineſs came to nothing, although his lordſhip had engaged Cromwell's wife and daughter in the ſcheme; but he never durſt let the protector know that he had previouſly treated with Charles about it.

On the death of the protector, Lord Broghill continued attached to his ſon Richard, till, when he ſaw that the honeſty and good-nature of that worthy man would infallibly render him a prey to his many enemies, he did not think it adviſable to ſink with a man that he could not ſave. The dark clouds of anarchy ſeemed now to be hovering over the Britiſh iſland. Lord Broghill ſaw the ſtorm gathering, and he deemed it prudent to retire to his command in Ireland, where he ſhortly after had the ſatisfaction of ſeeing things take a turn extremely favourable to the deſign he had long been a well-wiſher to, viz. that of the king's reſtoration. In this great event Lord Broghill was not a little inſtrumental; and, in conſideration of his eminent ſervices in this reſpect, Charles created him earl of Orrery by letters-patent bearing date September 5. 1660. He was ſoon after made one of the lords juſtices of Ireland; and his conduct, while at the head of affairs in that kingdom, was ſuch as greatly added to the general eſteem in which his character was held before.

His lordſhip's active and toilſome courſe of life at length brought upon him ſome diſeaſes and infirmities which gave him much pain and uneaſineſs; and a fever which fell into his feet, joined to the gout with which he was often afflicted, abated much of that vigour which he had ſhown in the early part of his life: but his induſtry and application were ſtill the ſame, and bent to the ſame purpoſes; as appears from his letters, which ſhow at once a capacity, and an attention to buſineſs, which do honour to that age, and may ſerve as an example to this.

Notwithſtanding

Boyle. Notwithſtanding his infirmities, on the king's deſiring to ſee his lordſhip in England, he went over in 1665. He found the court in ſome diſorder; where his majeſty was on the point of removing the great earl of Clarendon, lord high chancellor; and there was alſo a great miſunderſtanding between the two royal brothers. Lord Orrery undertook to reconcile the king with the duke of York; which he effected by prevailing on the latter to aſk his majeſty's pardon for ſome ſteps he had taken in ſupport of the lord chancellor.

On his return to Ireland, he found himſelf called to a new ſcene of action. The Dutch war was then at its height; and the French, in confederacy with the Hollanders, were endeavouring to ſtir up the aſhes of rebellion in Ireland. The duke de Beaufort, admiral of France, had formed a ſcheme for a deſcent upon Ireland; but this was rendered abortive by the extraordinary diligence, military ſkill, and prudent meaſures, of Lord Orrery.

But in midſt of all his labours, a diſpute aroſe, founded on a mutual jealouſy of each other's greatneſs, betwixt him and his old friend the duke of Ormond, then lord lieutenant; the bad effects of which were ſoon felt by both diſputants, who reſorted to England to defend their reſpective intereſts and pretenſions, both having been attacked by ſecret enemies who ſuggeſted many things to their prejudice. This quarrel, though of a private beginning, became at laſt of a public nature; and producing firſt an attempt to frame an impeachment againſt the duke of Ormond, occaſioned in the end, by the way of revenge, an actual impeachment againſt the earl of Orrery. He defended himſelf, however, ſo well againſt a charge of high crimes, and even of treaſon itſelf, that the proſecution came to nothing. He nevertheleſs loſt his public employments; but not the king's favour: he ſtill came frequently to court, and ſometimes to council. After this revolution in his affairs, he made ſeveral voyages to and from Ireland; was often conſulted by his majeſty on affairs of the utmoſt conſequence; and on all occaſions gave his opinion and advice with the freedom of an honeſt plain-dealing man and a ſincere friend; which the king always found him, and reſpected him accordingly.

In 1678, being attacked more cruelly than ever by his old enemy the gout, he made his laſt voyage to England for advice in the medical way. But his diſorder was beyond the power of medicine; and having in his laſt illneſs given the ſtrongeſt proofs of Chriſtian patience, manly courage, and rational fortitude, he breathed his laſt on the 16th of October 1679, in the 59th year of his age. His lordſhip wrote, 1. A work entitled "The Art of War." 2. Partheniſſa, a romance, in one volume folio. 3. Several poems. 4. Dramatic pieces, two volumes. 5. State-tracts, in one volume folio, &c. Mr Walpole, ſpeaking of this nobleman, ſays, he never made a bad figure but as a poet. As a ſoldier, his bravery was diſtinguiſhed, his ſtratagems remarkable. As a ſtateſman, it is ſufficient to ſay, that he had the confidence of Cromwell. As a man, he was grateful, and would have ſupported the ſon of his friend: but, like Cicero and Richelieu, he could not be content without being a poet; though he was ill qualified, his writings of that kind being flat and trivial.

Boyle. Boyle, *Robert*, one of the greateſt philoſophers as well as beſt men that our own or indeed any other nation has produced, was the ſeventh ſon and the 14th child of Richard earl of Cork, and born at Liſmore in the province of Munſter in Ireland, January 25. 1626-7. Before he went to ſchool, he was taught to write a very fair hand, and to ſpeak French and Latin, by one of the earl's chaplains, and a Frenchman that he kept in the houſe. In the year 1635, his father ſent him over to England, in order to be educated at Eton ſchool, under Sir Henry Wotton, who was the earl of Cork's old friend and acquaintance. Here he ſoon diſcovered a force of underſtanding which promiſed great things, and a diſpoſition to cultivate and improve it to the utmoſt. While he remained at Eton, there were ſeveral very extraordinary accidents that befel him, of which he has given us an account; and three of which were very near proving fatal to him. The firſt was, the ſudden fall of the chamber where he was lodged, when himſelf was in bed; when, beſides the danger he run of being cruſhed to pieces, he had certainly been choked with the duſt during the time he lay under the rubbiſh, if he had not had preſence of mind enough to have wrapped his head up in the ſheet, which gave him an opportunity of breathing without hazard. A little after this, he had been cruſhed to pieces by a ſtarting horſe that roſe up ſuddenly, and threw himſelf backwards, if he had not happily diſengaged his feet from the ſtirrups, and caſt himſelf from his back before he fell. A third accident proceeded from the carcleſſneſs of an apothecary's ſervant, who, by miſtaking the phials, brought him a ſtrong vomit inſtead of a cooling julep.

He remained at Eton, upon the whole, between three and four years; and then his father carried him to his own ſeat at Stalbridge in Dorſetſhire, where he remained for ſome time under the care of one of his chaplains who was the parſon of the place. In 1638, he attended his father to London; and remained with him at the Savoy, till his brother Mr Francis Boyle eſpouſed Mrs Eliſabeth Killigrew; and then, towards the end of October, within four days after the marriage, the two brothers, Francis and Robert, were ſent abroad upon their travels, under the care of Mr Marcombes. They embarked at Rye in Suſſex, and from thence proceeded to Dieppe in Normandy: then they travelled by land to Rouen, ſo to Paris, and from thence to Lyons; from which city they continued their journey to Geneva, where his governor had a family; and there the two gentlemen purſued their ſtudies without interruption. Mr Boyle, during his ſtay here, reſumed his acquaintance with the mathematics, or at leaſt with the elements of that ſcience, of which he had before gained ſome knowledge. For he tells us in his own memoirs, that while he was at Eton, and afflicted with an ague, before he was ten years old, by way of diverting his melancholy, they made him read Amadis de Gaul, and other romantic books, which produced ſuch a reſtleſſneſs in him, that he was obliged to apply himſelf to the extraction of the ſquare and cube roots, and to the more laborious operations of algebra, in order to fix and ſettle the volatile operations of his fancy.

In September 1641, he quitted Geneva, after having ſpent 21 months in that city; and paſſing through

Boyle. Switzerland and the country of the Griſons, entered Lombardy. Then, taking his route through Bergamo, Breſcia, and Verona, he arrived at Venice; where having made a ſhort ſtay, he returned to the continent, and ſpent the winter at Florence. Here he employed his ſpare hours in reading the modern hiſtory in Italian, and the works of the celebrated aſtronomer Galileo, who died in a village near this city during Mr Boyle's reſidence in it. It was at Florence that he acquired the Italian language; which he underſtood perfectly, though he never ſpoke it ſo fluently as the French. Of this indeed he was ſuch a maſter, that as occaſion required he paſſed for a native of that country in more places than one during his travels.

About the end of March 1642, he began his journey from Florence to Rome, which took up but five days. He ſurveyed the numerous curioſities of that city; among which, he tells us, "he had the fortune to ſee Pope Urban VIII. at chapel, with the cardinals, who, ſeverally appearing mighty princes, in that aſſembly looked like a company of common friars." He viſited the adjacent villages which had any thing curious or antique belonging to them; and had probably made a longer ſtay, had not the heats diſagreed with his brother. He returned to Florence; from thence to Leghorn; and ſo by ſea to Genoa: then paſſing through the county of Nice, he croſſed the ſea to Antibes, where he fell into danger from refuſing to honour the crucifix: from thence he went to Marſeilles by land. He was in that city, in May 1642, when he received his father's letters, which informed him that the rebellion had broken out in Ireland, and how difficultly he had procured the 250l. then remitted to them in order to help them home. They never received this money; and were obliged to go to Geneva with their governor Marcombes, who ſupplied them with as much at leaſt as carried them thither. They continued there a conſiderable time, without either advice or ſupplies from England; upon which Marcombes was obliged to take up ſome jewels upon his own credit, which were afterwards diſpoſed of with as little loſs as might be; and with the money thus raiſed, they continued their journey for England, where they arrived in the year 1644. On their arrival, Mr Boyle found his father dead; and though the earl had made an ample proviſion for him, by leaving him his manor of Stalbridge in England, as well as other conſiderable eſtates in Ireland, yet it was ſome time before he could receive any money. However, he procured protections for his eſtates in both kingdoms from the powers then in being; from which he alſo obtained leave to go over to France for a ſhort ſpace, probably to ſettle accounts with his governor Mr Marcombes.

In March 1646, he retired to his manor at Stalbridge, where he reſided for the moſt part till May 1650. He made excurſions ſometimes to London, ſometimes to Oxford; and in February 1647, he went over to Holland: but he made no conſiderable ſtay anywhere. During his retirement at Stalbridge, he applied himſelf with incredible induſtry to ſtudies of various kinds, to thoſe of natural philoſophy and chemiſtry in particular. He omitted no opportunity of obtaining the acquaintance of perſons diſtinguiſhed for parts and learning; to whom he was in every reſpect a ready, uſeful, generous aſſiſtant, and with whom he held a conſtant correſpondence. He was alſo one of the firſt members of that ſmall but learned body of men which, when all academical ſtudies were interrupted by the civil wars, ſecreted themſelves about the year 1645; and held private meetings, firſt in London, afterwards at Oxford, for the ſake of canvaſſing ſubjects of natural knowledge upon that plan of experiment which Lord Bacon had delineated. They ſtyled themſelves then *The philoſophic college;* and, after the Reſtoration, when they were incorporated, and diſtinguiſhed openly, they took the name of the *Royal Society*. Boyle.

In the ſummer of 1654, he put in execution a deſign he had formed for ſome time of reſiding at Oxford, where he choſe to live in the houſe of one Mr Croſſe, an apothecary, rather than in a college, for the ſake of his health, and becauſe he had more room to make experiments. Oxford was indeed the only place at that time in England where Mr Boyle could have lived with much ſatisfaction; for here he found himſelf ſurrounded with a number of learned friends, ſuch as Wilkins, Wallis, Ward, Willis, Wren, &c. ſuited exactly to his taſte, and who had reſorted thither for the ſame reaſons that he had done, the philoſophical ſociety being now removed from London to Oxford. It was during his reſidence here that he improved that admirable engine the air-pump; and by numerous experiments was enabled to diſcover ſeveral qualities of the air, ſo as to lay a foundation for a complete theory. He was not, however, ſatisfied with this; but laboured inceſſantly in collecting and digeſting, chiefly from his own experiments, the materials requiſite for this purpoſe. He declared againſt the philoſophy of Ariſtotle, as having in it more words than things; promiſing much, and performing little; and giving the inventions of men for indubitable proofs, inſtead of building upon obſervation and experiment. He was ſo zealous for, and ſo careful about, this true method of learning by experiment, that though the Carteſian philoſophy then made a great noiſe in the world, yet he would never be perſuaded to read the works of Des Cartes, for fear he ſhould be amuſed and led away by plauſible accounts of things founded on conjecture, and merely hypothetical. But philoſophy, and inquiries into nature, though they engaged his attention deeply, did not occupy it entirely; ſince we find that he ſtill continued to purſue critical and theological ſtudies. In theſe he had the aſſiſtance of ſome great men, particularly Dr Edward Pocock, Mr Thomas Hyde, and Mr Samuel Clarke, all of great eminence for their ſkill in the oriental languages. He had alſo a ſtrict intimacy with Dr Thomas Barlow, at that time head keeper of the Bodleian library, and afterwards biſhop of Lincoln, a man of various and extenſive learning. In the year 1659, Mr Boyle, being acquainted with the unhappy circumſtances of the learned Sanderſon, afterwards biſhop of Lincoln, who had loſt all his preferments on account of his attachment to the royal party, conferred upon him an honorary ſtipend of 50l. a-year. This ſtipend was given as an encouragement to that excellent maſter of reaſoning to apply himſelf to the writing of "Caſes of Conſcience:" and accordingly

Boyle. ingly he printed his lectures *De obligatione conſcientiæ*, which he read at Oxford in 1647, and dedicated them to his friend and patron.

Upon the reſtoration of Charles II. Mr Boyle was treated with great civility and reſpect by the king, as well as by the two great miniſters the lord treaſurer Southampton and the lord chancellor Clarendon. He was ſolicited by the latter to enter into holy orders, not only out of regard to him and his family, but chiefly with a view to ſerve the church itſelf; for Mr Boyle's noble family, his diſtinguiſhed learning, and, above all, his unblemiſhed reputation, induced Lord Clarendon to think that any eccleſiaſtical preferments he might attain would be worthily diſcharged, ſo as to do honour to the clergy, and ſervice to the eſtabliſhed communion. Mr Boyle conſidered all this with due attention: but, to balance theſe, he reflected, that, in the ſituation of life in which he was, whatever he wrote with reſpect to religion would have ſo much the greater weight as coming from a layman: ſince he well knew that the irreligious fortified themſelves againſt all that the clergy could offer, by ſuppoſing, and ſaying, that it was their trade, and that they were paid for it. He conſidered likewiſe, that, in point of fortune and character, he needed no acceſſions; and indeed he never had any appetite for either. He choſe, therefore, to purſue his philoſophical ſtudies in ſuch a manner as might be moſt effectual for the ſupport of religion; and began to communicate to the world the fruits of theſe ſtudies.

The firſt of theſe was printed at Oxford in 1660, in 8vo, under the title of, 1. New experiments, phyſico-mechanical, touching the ſpring of the air and its effects. 2. Seraphic love; or ſome motives and incentives to the love of God, pathetically diſcourſed of in a letter to a friend. 3. Certain phyſiological eſſays and other tracts, 1661, 4to. 4. Sceptical chemiſt, 1662, 8vo; a very curious and excellent work, reprinted about the year 1679, 8vo, with the addition of divers experiments and notes about the producibleneſs of chemical principles.

In the year 1663, the Royal Society being incorporated by King Charles II. Mr Boyle was appointed one of the council; and as he might be juſtly reckoned among the founders of that learned body, ſo he continued one of the moſt uſeful and induſtrious of its members during the whole courſe of his life. In June 1663. he publiſhed, 5. Conſiderations touching the uſefulneſs of experimental natural philoſophy, 4to. 6. Experiments and conſiderations upon colours; to which was added a letter, containing Obſervations on a diamond that ſhines in the dark, 1663, 8vo. This treatiſe is full of curious and uſeful remarks on the hitherto unexplained doctrine of light and colours; in which he ſhows great judgment, accuracy, and penetration; and may be ſaid to have led the way to that mighty genius the great Sir Iſaac Newton, who has ſince ſet that point in the cleareſt and moſt convincing light. 7. Conſiderations on the ſtyle of the Holy Scriptures, 1663, 8vo. It was an extract from a larger work, entitled, "An Eſſay on Scripture;" which was afterwards publiſhed by Sir Peter Pett, a friend of Mr Boyle's.

In 1664, he was elected into the company of the royal mines; and was all this year taken up in the proſecution of various good deſigns, which probably Boyle. was the reaſon why he did not ſend abroad any treatiſes either of religion or philoſophy. The year following, came forth, 8. Occaſional reflections upon ſeveral ſubjects; whereto is prefixed a diſcourſe about ſuch kind of thoughts, 1665, 8vo. This piece is addreſſed to *Sophronia*, under whoſe name he concealed that of his beloved ſiſter the viſcounteſs of Ranelagh. The thoughts themſelves are on a vaſt variety of ſubjects, written many years before; ſome indeed upon trivial occaſions, but all with great accuracy of language, much wit, more learning, and in a wonderful ſtrain of moral and pious reflection. Yet this expoſed him to the only ſevere cenſure that ever was paſſed upon him; and that too from no leſs a man than the celebrated Dean Swift, who, to ridicule theſe diſcourſes, wrote *A pious meditation upon a broomſtick, in the ſtyle of the honourable Mr Boyle.* But as his noble relation the late Lord Orrery has ſaid, "To what a height muſt the ſpirit of ſarcaſm ariſe in an author, who could prevail on himſelf to ridicule ſo good a man as Mr Boyle? The ſword of wit, like the ſcythe of time, cuts down friend and foe, and attacks every object that lies in its way. But, ſharp and irreſiſtible as the edge of it may be, Mr Boyle will always remain invulnerable."

The ſame year, he publiſhed an important work, entitled, 9. New experiments and obſervations upon cold, 1665, 8vo. In the year 1666, he publiſhed, 10. Hydroſtatical paradoxes made out by new experiments, for the moſt part phyſical and eaſy, in 8vo. 11. The origin of forms and qualities, according to the corpuſcular philoſophy, illuſtrated by conſiderations and experiments. This treatiſe did great honour to Mr Boyle, whether we conſider the quickneſs of his wit, the depth of his judgment, or his indefatigable pains in ſearching after truth. We muſt not forget to obſerve, that, both in this and the former year, he communicated to his friend Mr Oldenburgh, who was ſecretary to the Royal Society, ſeveral curious and excellent ſhort treatiſes of his own, upon a great variety of ſubjects, and others tranſmitted to him by his learned friends both at home and abroad, which are printed and preſerved in the Philoſophical Tranſactions.

In the year 1668, Mr Boyle reſolved to ſettle in London for life: and removed for that purpoſe to the houſe of his ſiſter, the lady Ranelagh, in Pall-Mall. This was to the infinite benefit of the learned in general, and particularly to the advantage of the Royal Society, to whom he gave great and continual aſſiſtance, as the ſeveral pieces communicated to them from time to time, and printed in their Tranſactions, do abundantly teſtify. Thoſe who applied to him, either to deſire his help, or to communicate to him any new diſcoveries in ſcience, he had his ſet hours for receiving; otherwiſe it is eaſy to conceive that he would have had very little of his time for himſelf. But, beſides theſe, he kept a very extenſive correſpondence with perſons of the greateſt figure, and moſt famous for learning, in all parts of Europe. In the year 1669, he publiſhed, 12. A continuation of new experiments touching the weight and ſpring of the air; to which is added, A diſcourſe of the atmoſpheres of conſiſtent bodies: and the ſame year he reviſed and made many additions to ſeveral of his former tracts, ſome of

which

Boyle. which were now tranſlated into Latin, in order to gratify the curious abroad. 13. Tracts about the cosmical qualities of things; cosmical ſuſpicions; the temperature of the ſubterraneous regions; the bottom of the ſea: to which is prefixed an introduction to the hiſtory of particular qualities. This book occaſioned much ſpeculation, as it ſeemed to contain a vaſt treaſure of knowledge which had never been communicated to the world before; and this too grounded upon actual experiments, and arguments juſtly drawn from them, inſtead of that notional and conjectural philoſophy which in the beginning of the 17th century had been ſo much in faſhion.

In the year 1671, he publiſhed, 14. Conſiderations on the uſefulneſs of experimental and natural philoſophy; the ſecond part, 4to. And, 15. A collection of tracts upon ſeveral uſeful and important points of practical philoſophy, 4to. Both of which works were received as new and valuable gifts to the learned world. 16. An eſſay about the origin and virtues of gems, 1672, 8vo. 17. A collection of tracts upon the relation between flame and air; and ſeveral other uſeful and curious ſubjects: beſides furniſhing, in this and the former year, a great number of ſhort diſſertations upon a vaſt variety of topics, addreſſed to the Royal Society, and inſerted in their Tranſactions. 18. Eſſays on the ſtrange ſubtilty, great efficacy, and determinate nature, of effluvia; to which were added a variety of experiments on other ſubjects; 1673, 8vo. 19. A collection of tracts upon the ſaltneſs of the ſea, the moiſture of the air, the natural and preternatural ſtate of bodies; to which is prefixed a dialogue concerning cold; 1674, 8vo. 20. The excellency of theology compared with philoſophy, 1673, 8vo. This diſcourſe was written in the year 1665, while Mr Boyle, to avoid the great plague which then raged in London, was forced to go from place to place in the country, and had little or no opportunity of conſulting his books. It contains a great number of curious and uſeful, as well as juſt and natural, obſervations. 21. A collection of tracts containing ſuſpicions about hidden qualities of the air; with an appendix touching celeſtial magnets; animadverſions upon Mr Hobbes's problem about a vacuum; a diſcourſe of the cauſe of attraction and ſuction; 1674, 8vo. 22. Some conſiderations about the reconcileableneſs of reaſon and religion. By T. E. a layman. To which is annexed a diſcourſe about the poſſibility of the reſurrection. By Mr Boyle, 1675, 8vo. The reader muſt be informed, that both theſe pieces were of his writing; only he thought fit to mark the former with the final leters of his name. Among other papers that he communicated this year to the Royal Society, there were two connected into one diſcourſe: the firſt was entitled, An experimental diſcourſe of quickſilver growing hot with gold: the other related to the ſame ſubject; and both of them contained diſcoveries of the utmoſt importance.

In the year 1676, he publiſhed, 23. Experiments and notes about the mechanical origin or production of particular qualities, in ſeveral diſcourſes on a great variety of ſubjects, and among the reſt on electricity. In 1678, he communicated to Mr Hooke a ſhort memorial of ſome obſervations made upon an artificial ſubſtance that ſhines without any preceding illuſtration; which that gentleman thought fit to publiſh in his *Lectiones Cutlerianæ*. 24. Hiſtorical account of a degradation of gold made by an anti-elixir. This made a great noiſe both at home and abroad, and is looked upon as one of the moſt remarkable pieces that ever fell from his pen; ſince the facts contained in it would have been eſteemed incredible, if they had been related by a man of leſs integrity and piety than Mr Boyle. The regard which the great Newton had for Mr Boyle, appears from a very curious letter, which the former wrote to him, at the latter end of this year, for the ſake of laying before him his ſentiments of that etherial medium, which he afterwards conſidered in his Optics as the cauſe of gravitation. This letter is to be found in the life of our author by the reverend Dr Birch. Boyle.

In the year 1680, Mr Boyle publiſhed, 25. The aerial noctiluca; or ſome new phenomena, and a proceſs of a factitious ſelf-ſhining ſubſtance, 8vo. This year the Royal Society, as a proof of the juſt ſenſe of his great worth, and of the conſtant and particular ſervices which through a courſe of many years he had done them, made choice of him for their preſident; but he being extremely, and, as he ſays, peculiarly tender in point of oaths, declined the honour done him, by a letter addreſſed to "his much reſpected friend Mr Robert Hooke, profeſſor of mathematics at Greſham college." 26. Diſcourſe of things above reaſon; inquiring, whether a philoſopher ſhould admit any ſuch; 1681, 8vo. 27. New experiments and obſervations upon the icy noctiluca: to which is added a chemical paradox, grounded upon new experiments, making it probable that chemical principles are tranſmutable, ſo that out of one of them others may be produced: 1682, 8vo. 28. A continuation of new experiments, phyſico-mechanical, touching the ſpring and weight of the air, and their effects, 1682, 8vo. In 1683, he publiſhed nothing but a ſhort letter to Dr Beale, in relation to the making of freſh water out of ſalt. In 1684, he publiſhed two very conſiderable works, viz. 29. Memoirs for the natural hiſtory of human blood, eſpecially the ſpirit of that liquor, 8vo; and, 30. Experiments and conſiderations about the poroſity of bodies, &c.

In 1685, Mr Boyle obliged the world with, 31. Short memoirs for the natural experimental hiſtory of mineral waters, with directions as to the ſeveral methods of trying them; including abundance of new and uſeful remarks, as well as ſeveral curious experiments. 32. An eſſay on the great effects of even languid and unheeded motion; whereunto is annexed an experimental diſcourſe of ſome hitherto little regarded cauſes of the ſalubrity and inſalubrity of the air and its effects. None of his treatiſes, it is ſaid, were ever received with greater or more general applauſe than this. 33. Of the reconcileableneſs of ſpecific medicines to the corpuſcular philoſophy; to which is annexed a diſcourſe about the advantages of the uſe of ſimple medicines; 8vo. Beſides theſe philoſophical tracts, he gave the world the ſame year, an excellent theological one, 34. Of the high veneration man's intellect owes to God, peculiarly for his wiſdom and power, 8vo.

At the entrance of the ſucceeding year, came abroad his, 35. Free inquiry into the vulgarly received notion

of

Boyle. of nature; a piece which was then, and will always be, greatly admired by thoſe who have a true zeal and reliſh for pure religion and philoſophy. In 1687, he publiſhed, 36. The martyrdom of Theodora and Didymia; a work he had drawn up in his youth. 37. A diſquiſition about the final cauſes of natural things; wherein it is inquired, whether, and (if at all) with what caution, a naturaliſt ſhould admit them; with an appendix about vitiated light; 1688, 8vo. In the month of May this year, our author, though very unwilling, was conſtrained to make his complaint to the public, of ſome inconveniences under which he had long laboured; and this he did by an advertiſement, about "the loſs of many of his writings addreſſed to J. W. to be communicated to thoſe of his friends that are virtuoſi; which may ſerve as a kind of preface to moſt of his mutilated and unfiniſhed writings." He complains in this advertiſement of the treatment he had met with from plagiaries both at home and abroad; and though it might have been difficult in any other man to have done ſo without incurring the imputation of ſelf-conceit and vanity, yet Mr Boyle's manner is ſuch as only to raiſe in us a higher eſteem and admiration of him. This advertiſement is inſerted at length in his life by Birch.

He began now to find that his health and ſtrength, notwithſtanding all his care and caution, gradually declined, as he obſerves in a letter to M. le Clerc, dated May 30. 1689; which put him upon uſing every poſſible method of huſbanding his remaining time for the benefit of the learned. It was with this view that he no longer communicated particular diſcourſes, or new diſcoveries, to the Royal Society; becauſe this could not be done without withdrawing his thoughts from taſks which he thought of ſtill greater importance. It was the more ſteadily to attend to theſe, that he reſigned his poſt of governor of the corporation for propagating the goſpel in New England; nay, he went ſo far as to ſignify to the world that he could no longer receive viſits as uſual, in an advertiſement which begins in the following manner: "Mr Boyle finds himſelf obliged to intimate to thoſe of his friends and acquaintance, that are wont to do him the honour and favour of viſiting him, 1. That he has by ſome unlucky accidents, namely, by his ſervant's breaking a bottle of oil of vitriol over a cheſt which contained his papers, had many of his writings corroded here and there, or otherwiſe ſo maimed, that, without he himſelf fill up the lacunæ out of his memory or invention, they will not be intelligible. 2. That his age and ſicklineſs have for a good while admoniſhed him to put his ſcattered and partly defaced writings into ſome kind of order, that they may not remain quite uſeleſs. And, 3. That his ſkilful and friendly phyſician, Sir Edmund King, ſeconded by Mr Boyle's beſt friends, has preſſingly adviſed him againſt ſpeaking daily with ſo many perſons as are wont to viſit him, repreſenting it as what cannot but waſte his ſpirits, &c. He ordered likewiſe a board to be placed over his door, with an inſcription ſignifying when he did, and when he did not, receive viſits."

Among the other great works, which by this means he gained time to finiſh, there is great reaſon to believe, that one was a collection of elaborate proceſſes in chemiſtry; concerning which he wrote a letter to a friend, which is ſtill extant; wherein we read, that "he left it as a kind of hermetic legacy to the ſtudious diſciples of that art." Beſides theſe papers committed to the care of one whom he eſteemed his friend, he left very many behind him at his death, relating to chemiſtry; which, as appears by a letter directed to one of his executors, he deſired might be inſpected by three phyſicians whom he named, and that ſome of the moſt valuable might be preſerved. Boyle.

In the mean time, Mr Boyle publiſhed ſome other works before his death; as, 38. *Medicina Hydroſtatica*; or, Hydroſtatics applied to the materia medica, ſhowing how, by the weight that divers bodies uſed in phyſic have in water, one may diſcover whether they be genuine or adulterated. To which is ſubjoined a previous hydroſtatical way of eſtimating ores, 1690, 8vo. 39. The Chriſtian virtuoſo; ſhowing, that, by being addicted to experimental philoſophy, a man is rather aſſiſted than indiſpoſed to be a good Chriſtian. To which are ſubjoined, 1. A diſcourſe about the diſtinction that repreſents ſome things as above reaſon, but not contrary to reaſon. 2. The firſt chapters of a diſcourſe entitled *Greatneſs of mind promoted by Chriſtianity*. The laſt work which he publiſhed himſelf, was in the ſpring of 1691; and is entitled, 40. *Experimenta et Obſervationes Phyſicæ*: wherein are briefly treated of ſeveral ſubjects relating to natural philoſophy in an experimental way. To which is added a ſmall collection of ſtrange reports, 8vo.

About the entrance of the ſummer, he began to feel ſuch an alteration in his health as induced him to think of ſettling his affairs; and accordingly, on the 18th of July, he ſigned and ſealed his laſt will, to which he afterwards added ſeveral codicils. In October, his diſtempers increaſed; and on the laſt day of December 1691, he departed this life, in the 65th year of his age. He was buried in St Martin's church in the Fields, Weſtminſter, on the 7th of January following; and his funeral ſermon was preached by Dr Gilbert Burnet, biſhop of Saliſbury. The biſhop made choice upon this occaſion of a text very appoſite to the ſubject; namely, "For God giveth to a man that is good in his ſight, wiſdom, knowledge, and joy *." After explaining the meaning of the words, he applied the doctrine to the honourable perſon deceaſed; of whom, he tells us, he was the better able to give a character from the many happy hours he had ſpent in converſation with him, in the courſe of 29 years. He gives a large account of Mr Boyle's ſincere and unaffected piety; and more eſpecially of his zeal for the Chriſtian religion, without having any narrow notions concerning it, or miſtaking, as ſo many do, a bigotted heat in favour of a particular ſect, for that zeal which is an ornament of a true Chriſtian. He mentions as a proof of this, his noble foundation for lectures in defence of the goſpel againſt infidels of all ſorts; the effects of which have been ſo conſpicuous in the many volumes of excellent diſcourſes which have been publiſhed in conſequence of that noble and pious foundation. He was at the charge of the tranſlation and impreſſion of the New Teſtament into the Malayan tongue, which he ſent over all the Eaſt Indies. He gave a noble reward to him that tranſlated Grotius's incomparable book "Of the truth of the Chriſtian religion" into Arabic; and was at the charge of a whole impreſſion, which he took care

* *Eccleſ.* ii. 26.

ſhould

Boyle. should be diſperſed in all the countries where that language was underſtood. He was reſolved to have carried on the impreſſion of the New Teſtament in the Turkiſh language; but the company thought it became them to be the doers of it, and ſo ſuffered him only to give a large ſhare towards it. He was at 700l. charge in the edition of the Iriſh bible, which he ordered to be diſtributed in Ireland; and he contributed liberally to the impreſſion of the Welſh bible. He gave, during his life, 300l to advance the deſign of propagating the Chriſtian religion in America; and as ſoon as he heard that the Eaſt India Company were entertaining propoſitions for the like deſign in the eaſt, he ſent 100l. for a beginning, as an example, but intended to carry it much farther when it ſhould be ſet on foot to purpoſe.

In other reſpects his charities were ſo bountiful and extenſive, that they amounted, as this prelate tells us, from his own knowledge, to upwards of 1000l. a-year. But as our limits will not allow us to follow the biſhop in the copious and eloquent account he has given of this great man's abilities, we muſt therefore content ourſelves with adding the ſhort eulogium by the celebrated phyſician, philoſopher, and chemiſt, Dr Herman Boerhaave; who, after having declared Lord Bacon to be the father of experimental philoſophy, aſſerts, that "Mr Boyle, the ornament of his age and country, ſucceeded to the genius and inquiries of the great chancellor Verulam. Which (ſays he) of all Mr Boyle's writings ſhall I recommend? All of them. To him we owe the ſecrets of fire, air, water, animals, vegetables, foſſils: ſo that from his works may be deduced the whole ſyſtem of natural knowledge." The reader perhaps may here be pleaſed to know, that Mr Boyle was born the ſame year in which Lord Bacon died.

As to the perſon of this great man, we are told, that he was tall, but ſlender; and his countenance pale and emaciated. His conſtitution was ſo tender and delicate, that he had divers ſorts of cloaks to put on when he went abroad, according to the temperature of the air; and in this he governed himſelf by his thermometer. He eſcaped indeed the ſmall-pox; but for almoſt forty years he laboured under ſuch feebleneſs of body, and ſuch lowneſs of ſtrength and ſpirits, that it was aſtoniſhing how he could read, meditate, make experiments, and write, as he did. He had likewiſe a weakneſs of his eyes; which made him very tender of them, and extremely apprehenſive of ſuch diſtempers as might affect them. He imagined likewiſe, that if ſickneſs ſhould confine him to his bed, it might raiſe the pains of the ſtone to a degree which might be above his ſtrength to ſupport; ſo that he feared his laſt minutes ſhould be too hard for him. This was the ground of all the caution and apprehenſion with which he was obſerved to live; but as to life itſelf, he had that juſt indifference for it which became a philoſopher and a Chriſtian. However, his ſight began to grow dim not above four hours before he died; and when death came upon him, he had not been above three hours in bed before it made an end of him, with ſo little pain that the flame appeared to go out merely for want of oil to maintain it.

Mr Boyle was never married; but Mr Evelyn was aſſured, that he courted the beautiful and ingenious daughter of Cary earl of Monmouth, and that to this paſſion was owing his "Seraphic Love." Boyle. In the memorandum of Mr Boyle's life ſet down by Biſhop Burnet, it is remarked that he abſtained from marriage, at firſt out of policy, afterwards more philoſophically; and we find by a letter of Dr John Wallis to him, dated at Oxford, July 17th, 1669, that he had an overture made him with reſpect to the Lady Mary Haſtings, ſiſter to the earl of Huntingdon: But it does not appear from any of his papers, that he had ever entertained the leaſt thoughts of that kind; nay, there is a letter of his, wrote when he was young, to the Lady Barrymore his niece, who had informed him of a report that he was actually married, which almoſt ſhows that he never did. The letter is written with great politeneſs, and in the true ſpirit of gallantry; and is a clear proof, that though Mr Boyle did not chooſe to marry, yet it was no miſanthropic cynical humour which reſtrained him from it. It is impoſſible to entertain the reader better than by preſenting him with that part of it which concerns the point in queſtion. "It is high time for me to haſten the payment of the thanks I owe your ladyſhip for the joy you are pleaſed to wiſh me, and of which that wiſh poſſibly gives me more than the occaſion of it would. You have certainly reaſon, madam, to ſuſpend your belief of a marriage, celebrated by no prieſt but Fame, and made unknown to the ſuppoſed bridegroom. I may poſſibly ere long give you a fit of the ſpleen upon this theme; but at preſent it were incongruous to blend ſuch pure raillery, as I ever prate of matrimony and amours with, among things I am ſo ſerious in as thoſe this ſcribble preſents you. I ſhall therefore only tell you, that the little gentleman and I are ſtill at the old defiance. You have carried away too many of the perfections of your ſex to leave enough in this country for reducing ſo ſtubborn a heart as mine; whoſe conqueſt were a taſk of ſo much difficulty, and ſo little worth it, that the latter property is always likely to deter any that hath beauty and merit enough to overcome the former. But though this untamed heart be thus inſenſible to the thing itſelf called *love*; it is yet very acceſſible to things very near of kin to that paſſion; and eſteem, friendſhip, reſpect, and even admiration, are things that their proper objects fail not proportionably to exact of me, and conſequently are qualities which in their higheſt degrees are really and conſtantly paid my lady Barrymore by her moſt obliged humble ſervant, and affectionate uncle, Robert Boyle."

We ſhall conclude this account of Mr Boyle with the mention of his poſthumous works, which are as follow. 1. "The general Hiſtory of the air deſigned and begun. 2. "General heads for the natural hiſtory of a country, great or ſmall; drawn out for the uſe of travellers and navigators." 3. "A paper of the honourable Robert Boyle's, depoſited with the ſecretaries of the Royal Society, October 14th, 1680, and opened ſince his death; being an account of his making the phoſphorus, September 30th, 1680." Printed in the Philoſophical Tranſactions. 4. "An account of a way of examining waters, as to freſhneſs or ſaltneſs." 5. "A free diſcourſe againſt cuſtomary ſwearing, and a diſſuaſive from curſing," 1695, 8vo. 6. "Medicinal experiments, or a collection of choice remedies, chiefly ſimple and eaſily prepared, uſeful in families, and fit for the ſervice of the country people. The third and laſt volume,

Boyle. volume, publiſhed from the author's original manuſcript; whereunto is added ſeveral uſeful notes explicatory of the ſame," 1698, 12mo. Beautiful editions of all his works have been printed at London, in 5 volumes folio, and 6 volumes 4to.

BOYLE, *Charles*, earl of Orrery in Ireland, and baron of Maſton in the county of Somerſet, was the ſecond ſon of Roger the ſecond earl of Orrery, and was born in Auguſt 1679. He was educated at Chriſt-church in Oxford, and ſoon diſtinguiſhed himſelf by his learning and abilities. Like the firſt earl of Orrery, he was an author, a ſoldier, and a ſtateſman. He tranſlated the life of Lyſander from the Greek of Plutarch; and publiſhed a new edition of the epiſtles of Phalaris, which engaged him in a literary diſpute, in which he defended the genuineneſs of theſe epiſtles againſt Dr Bentley. He was three times member for the town of Huntingdon; but his elder brother, Lionel earl of Orrery dying on the 23d of Auguſt 1703 without iſſue, he ſucceeded to that title; and, entering into the queen's ſervice, had a regiment given him, when he behaved with ſuch bravery, that in 1709 he was raiſed to the rank of major-general, and ſworn one of her majeſty's privy council. At the famous battle of the wood, he gave the ſtrongeſt proofs of his intrepid courage, remaining at the head of his regiment in the warmeſt part of the action, till the victory was complete, which, as it was one of the moſt glorious, ſo it was the deareſt bought, of any of that war. His lordſhip had the honour of being appointed the queen's envoy to the ſtates of Brabant and Flanders; and having honourably diſcharged the truſt, was raiſed to the dignity of a Britiſh peer, by the title of Lord Boyle, baron of Maſton in Somerſetſhire. He enjoyed ſeveral other additional honours in the reign of King George I.; but having the misfortune to fall under the ſuſpicion of the government, his lordſhip was committed to the tower: he was, however, at length, admitted to bail; and nothing being found that could be eſteemed a ſufficient ground for a proſecution, he was diſcharged. His lordſhip died after a ſlight indiſpoſition, on the 21ſt of Auguſt 1731. To his tutor, Mr Atterbury, he probably owed a good part of that fine reliſh he had for the writings of the ancients. He made theſe his conſtant ſtudy, and expreſſed a high contempt, ſays Budgell, for the greater part of our modern wits and authors. He was delighted with the company of two ſorts of perſons; either ſuch as were really geniuſes of the firſt rank, who had fine underſtandings, ſtrong judgments, and true taſtes; or ſuch as had a few foibles, and an eye of ridicule in them, which ſerved to make him laugh. He would rally theſe in ſo agreeable, and yet in ſo tender a manner, that, though it diverted himſelf and others, it was never offenſive to the perſon rallied. The inſtrument which was invented by him, and bears his name, repreſenting the ſolar ſyſtem according to the ſentiments of the new aſtronomers, is an undeniable proof of his mechanic genius. His lordſhip had alſo a turn for medicine; which led him not only to buy and read whatever was publiſhed on that ſubject, but alſo to employ his friends to ſend him accounts of herbs and drugs in foreign countries.

BOYLE, *John*, earl of Cork and Orrery, a nobleman diſtinguiſhed by his learning and genius, was the only ſon of Charles earl of Orrery, and was born on the 2d of January 1707. He was educated at Chriſt church college in Oxford; but, as he himſelf declares, early diſappointments, indifferent health, and many untoward accidents, rendered him fond of retirement, and of improving his talents for polite literature and poetry; of which laſt art he gave ſeveral excellent ſpecimens. He alſo wrote a Tranſlation of Pliny the Younger's letter, with various notes, for the ſervice of his eldeſt ſon the Lord Boyle, in two volumes, 4to. This was firſt publiſhed in 1751. The year following, he publiſhed the Life of Dean Swift, in ſeveral letters, addreſſed to his ſecond ſon Hamilton Boyle; and afterwards printed Memoirs of Robert Cary earl of Monmouth, a manuſcript preſented to him by a relation, with explanatory notes. He died in 1762. Boyle's Lectures || Boyſe.

BOYLE's Lectures, a courſe of eight ſermons or lectures preached annually, ſet on foot by the honourable Robert Boyle, Eſq; by a codicil annexed to his will in 1691; whoſe deſign, as expreſſed by the inſtitutor, is, to prove the truth of the Chriſtian religion againſt infidels, without deſcending to any controverſies among Chriſtians; and to anſwer new difficulties, ſcruples, &c. For the ſupport of this lecture he aſſigned the rent of his houſe in Crooked-lane to ſome learned divine within the bills of mortality, to be elected for a term not exceeding three years, by the late Archbiſhop Tenniſon and others. But the fund proving precarious, the ſalary was ill paid; to remedy which inconveniences, the ſaid archbiſhop procured a yearly ſtipend of 50l. for ever, to be paid quarterly, charged on a farm in the pariſh of Brill in the county of Bucks. To this appointment we are indebted for many elaborate defences both of natural and revealed religion.

BOYNE, a river in Ireland, which riſes in Queen's county in the province of Leinſter, and runs north-eaſt by Trim and Cavan, falling at laſt into the Iriſh channel a little below Drogheda. It is memorable for a battle fought on its banks between James II. and King William III. in which the former was defeated.

BOYSE, Boys, or Bois, *John*, one of the tranſlators of the Bible in the reign of James I. was ſon of William Bois, rector of Weſt Stowe, near St Edmunſbury, Suffolk, and born at Nettleſtead in Suffolk on the 3d of January 1560. He was taught the firſt rudiments of learning by his father; and his capacity was ſuch, that at the age of five years he read the Bible in Hebrew. He went afterwards to Hadley ſchool; and at 14 was admitted of St John's college, Cambridge, where he diſtinguiſhed himſelf by his ſkill in Greek. Happening to have the ſmall-pox when he was elected fellow, he, to preſerve his ſeniority, cauſed himſelf to be carried in blankets to be admitted. He applied himſelf for ſome time to the ſtudy of medicine; but, fancying himſelf affected with every diſeaſe he read of, he quitted that ſcience. He was ten years chief Greek lecturer in his college, and read every day. He voluntarily read a Greek lecture for ſome years at four in the morning, in his own chamber, which was frequented by many of the fellows. On the death of his father, he ſucceeded him in the rectory of Weſt Stowe. At the age of 36, he married the daughter of Mr Holt, rector of Boxworth, in Cambridgeſhire; whom he ſucceeded in that living, October 13. 1596. On his quitting the univerſity, the college gave him

Boyſe. 100l. His young wife, who was bequeathed to him with the living, which was an advowſon, proving a bad œconomiſt, and he himſelf being wholly addicted to his ſtudies, he ſoon became ſo much involved in debt, that he was obliged to ſell his choice collection of books, conſiſting of almoſt every Greek author then extant. When a new tranſlation of the Bible was by King James I. directed to be made, Mr Bois was elected one of the Cambridge tranſlators. He performed not only his own, but alſo the part aſſigned to another, with great reputation; though with no profit, for he had no allowance but his commons. He was alſo one of the ſix who met at Stationers Hall to reviſe the whole; which taſk they went through in nine months, having each from the company of ſtationers, during that time 30s. a-week. He afterwards aſſiſted Sir Henry Saville in publiſhing the works of St Chryſoſtom. In 1615, Dr Lancelot Andrews, biſhop of Ely, beſtowed on him, unaſked, a prebend in his church. He died on the 14th of January 1643, in the 84th year of his age. He left a great many manuſcripts behind him, particularly a Commentary on almoſt all the books of the New Teſtament.—When he was a young ſtudent at Cambridge, he received from the learned Dr Whitaker three rules for avoiding thoſe diſtempers which uſually attend a ſedentary life, to which he adhered with equal conſtancy acd ſucceſs. The firſt was, To ſtudy always ſtanding; the ſecond, Never to ſtudy in a window; and the third, Never to go to bed with his feet cold.

Boyse, *Joſeph*, a late eminent diſſenting miniſter in Dublin, much reſpected not only for learning and abilities, but his extenſive humanity and undiſſembled piety. During his miniſterial charge at Dublin, he publiſhed many ſermons which compoſe ſeveral folio volumes, a few poems, and other tracts; but what chiefly diſtinguiſhed him as a writer, was the controverſy he carried on with Dr King, archbiſhop of Dublin, and author of the *Origin of Evil*, concerning the office of a ſcriptural biſhop. This controverted point was managed on both ſides with great force of argument and calmneſs of temper. The biſhop aſſerted, that the epiſcopal right of juriſdiction had its foundation in the New Teſtament: Mr Boyſe, conſiſtent with his principles, denied that any eccleſiaſtical ſuperiority appeared there, with the greateſt candour and good manners. He was father to

Boyse, *Samuel*, the poet, a man remarkable for the fineneſs of his genius, the lowneſs of his manners, and the wretchedneſs of his life. He was born in 1708, and received the rudiments of his education in a private ſchool in Dublin. When he was but 18 years old, his father, who probably intended him for the miniſtry, ſent him to the univerſity of Glaſgow, that he might finiſh his education there. He had not been a year at the univerſity, when he fell in love with the daughter of a tradeſman in that city, and was imprudent enough to interrupt his education by marrying her before he had entered into his 20th year. The natural extravagance of his temper ſoon expoſed him to want; and as he had now the additional charge of a wife, his reduced circumſtances obliged him to quit the univerſity, and go over with his wife (who alſo carried a ſiſter with her) to Dublin, where they relied on the old gentleman for ſupport. Young Boyſe was of all men the furtheſt removed from a gentleman; he had no graces of perſon, and fewer ſtill of converſation. Never were three people of more libertine characters than young Boyſe, his wife, and ſiſter-in-law; yet the two ladies wore ſuch a maſk of decency before the old gentleman, that his fondneſs was never abated. The eſtate his father poſſeſſed in Yorkſkire was ſold to diſcharge his debts; and when the old man lay in his laſt ſickneſs, he was entirely ſupported by preſents from his congregation, and buried at their expence. We have no further account of Mr Boyſe, till we find him ſoon after his father's death at Edinburgh. At this place his poetical genius raiſed him many friends, and ſome patrons of very great eminence. He publiſhed a volume of poems in 1731, to which are ſubjoined *The Tablature of Cebes*, and *A Letter upon Liberty*, inſerted in the *Dublin Journal* 1726; and by theſe he obtained a very great reputation. They are addreſſed to the counteſs of Eglinton. This amiable lady was the patroneſs of all men of wit, and greatly diſtinguiſhed Mr Boyſe while he reſided in that country. Upon the death of the viſcounteſs Stormont, Mr Boyſe wrote an elegy, which was very much applauded by her ladyſhip's relations. This elegy he entitled *The Tears of the Muſes*, as the deceaſed lady was a woman of the moſt refined taſte in the ſciences, and a great admirer of poetry. The lord Stormont was ſo much pleaſed with this mark of eſteem paid to the memory of his lady, that he ordered a very handſome preſent to be given to Mr Boyſe by his attorney at Edinburgh. The notice which lady Eglinton and the lord Stormont took of our poet, recommended him likewiſe to the patronage to the ducheſs of Gordon; who was ſo ſolicitous to raiſe him above neceſſity, that ſhe employed her intereſt in procuring the promiſe of a place for him. She gave him a letter, which he was next day to deliver to one of the commiſſioners of the cuſtoms at Edinburgh. It happened that he was then ſome miles diſtant from the city; and, the morning on which he was to have rode to town with her grace's letter of recommendation proved to be rainy. This ſlender circumſtance was enough to diſcourage Boyſe, who never looked beyond the preſent moment: he declined going to town on account of the rainy weather; and while he let ſlip the opportunity, the place was beſtowed upon another, which the commiſſioner declared he kept for ſome time vacant in expectation of ſeeing a perſon recommended by the ducheſs of Gordon. Boyſe at laſt having defeated all the kind intentions of his patrons towards him, fell into contempt and poverty, which obliged him to quit Edinburgh. He communicated his deſign of going to London to the ducheſs of Gordon; who, having ſtill a very high opinion of his poetical abilities, gave him a letter of recommendation to Mr Pope, and obtained another for him to Sir Peter King the lord chancellor of England. Lord Stormont recommended him to the ſolicitor-general his brother, and many other perſons of the firſt faſhion. Upon receiving theſe letters, he, with great caution, quitted Edinburgh, regretted by none but his creditors. Upon his arrival in London, he went to Twickenham, in order to deliver the ducheſs of Gordon's letter to Mr Pope; but that gentleman not being at home, Mr Boyſe never gave himſelf the trouble to repeat his viſit. He wrote poems; but thoſe, though excellent in their kind, were loſt to the world, by being introduced with no advantage.

Boyſe.

He

Boyſe. He had ſo ſtrong a propenſity to grovelling, that his acquaintance were generally of ſuch a caſt as could be of no ſervice to him; and thoſe in higher life he addreſſed by letters, not having ſufficient confidence or politeneſs to converſe familiarly with them. Thus unfit to ſupport himſelf in the world, he was expoſed to a variety of diſtreſſes, from which he could invent no means of extricating himſelf but by writing mendicant letters. It will appear amazing, that this man, of ſo abject a ſpirit, was voluptuous and luxurious; he had no taſte for any thing elegant, and yet was to the laſt degree expenſive. Can it be believed, that often when he had received but a guinea in conſequence of a ſupplicating letter, he would go into a tavern, order a ſupper to be prepared, drink of the richeſt wines, and ſpend all the money that had juſt been given him in charity, without having any one to participate the regale with him, and while his wife and child were ſtarving at home?

It was about the year 1740, that Mr Boyſe, reduced to the laſt extremity of human wretchedneſs, had not a ſhirt, a coat, or any kind of apparel, to put on; the ſheets in which he lay were carried to the pawn-broker's, and he was obliged to be confined to his bed with no other covering than a blanket. He had little ſupport but what he got by writing letters to his friends in the moſt abject ſtyle; but was perhaps aſhamed to let this inſtance of his diſtreſs be known, which probably was the occaſion of his remaining ſix weeks in that ſituation. During this time he had ſome employment in writing verſes for the Magazines; and whoever had ſeen him in his ſtudy, muſt have thought the object ſingular enough: he ſat up in bed with the blanket wrapt about him, through which he had cut a hole large enough to admit his arm, and, placing the paper upon his knee, ſcribbled in the beſt manner he could the verſes he was obliged to make: whatever he got by thoſe, or any other of his begging letters, was but juſt ſufficient for the preſervation of life. And perhaps he would have remained much longer in this diſtreſsful ſtate, had not a compaſſionate gentleman, upon hearing this circumſtance related, ordered his clothes to be taken out of pawn, and enabled him to appear again abroad.

About the year 1745, Mr Boyſe's wife died. He was then at Reading, and pretended much concern when he heard of her death. His buſineſs at Reading was to compile a Review of the moſt material tranſactions at home and abroad during the laſt war: in which he has included a ſhort account of the late rebellion. Upon his return from Reading, his behaviour was more decent than it had ever been before; and there were ſome hopes that a reformation, though late, would be wrought upon him. He was employed by a bookſeller to tranſlate *Fenelon on the Exiſtence of God;* during which time he married a ſecond wife, a woman in low circumſtances, but well enough adapted to his taſte. He began now to live with more regard to his character, and ſupported a better appearance than uſual; but while his circumſtances were mending, and his irregular appetites loſing ground, his health viſibly declined. He had the ſatisfaction, while in this lingering illneſs, to obſerve a poem of his, entitled *The Deity*, recommended by two eminent writers, the ingenious Mr Fielding, and the reverend Mr James Harvey author of *The Meditations*.

Boyſe || Brabanciones.

Mr Boyſe's mind was often religiouſly diſpoſed; he frequently talked upon that ſubject, and probably ſuffered a great deal from the remorſe of his conſcience. The early impreſſions of his good education were never entirely obliterated; and his whole life was a continued ſtruggle between his will and reaſon, as he was always violating his duty to the one, while he fell under the ſubjection of the other. It was in conſequence of this war in his mind, that he wrote a beautiful poem called *The Recantation*. In May 1749, he died in obſcure lodgings near Shoe-lane; but in ſentiments, there is the greateſt reaſon to believe, very different from thoſe in which he had ſpent the greateſt part of his life. An old acquaintance of his endeavoured to collect money to defray the expences of his funeral, ſo that the ſcandal of being buried by the pariſh might be avoided; but in vain: the remains of this ſon of the muſes were, with very little ceremony, hurried away by the pariſh-officers.

Never was a life ſpent with leſs grace than that of Mr Boyſe, and never were ſuch diſtinguiſhed abilities given to leſs purpoſe. His genius was not confined to poetry only: he had a taſte for painting, muſic, and heraldry; with the latter of which he was very well acquainted. His poetical pieces, if collected, would make ſix moderate volumes. Many of them are ſcattered in *The Gentleman's Magazine*, marked with the letter *Y*, and *Alceus*. Two volumes were publiſhed in London. An ode of his in the manner of Spenſer, entitled *The Olive*, was addreſſed to Sir Robert Walpole, which procured him a preſent of ten guineas. He tranſlated a poem from the High Dutch of Van Haren, in praiſe of peace, upon the concluſion of that made at Aix la-Chapelle; but the poem which procured him the greateſt reputation was that upon the attributes of the Deity. He was employed by Mr Ogle to tranſlate ſome of Chaucer's tales into modern Engliſh, which he performed with great ſpirit, and received at the rate of three pence a line for his trouble. Mr Ogle publiſhed a complete edition of that old poet's *Canterbury Tales modernized*; and Mr Boyſe's name is put to ſuch tales as were done by him. In 1743, Mr Boyſe publiſhed, without his name, an ode on the battle of Dettingen, entitled *Albion's Triumph*.

BOZOLA, a town of Italy, in the duchy of Mantua, capital of a territory of the ſame name, and ſubject to the houſe of Auſtria. E. Long. 10. 25. N. Lat. 45. 9.

B QUADRO, Quadrato, or *Durale*, in muſic, called by the French *b quarre*, from its figure ♮. This is what we call B *natural* or *ſharp*, in diſtinction to B *mol* or *flat*. See Flat and Sharp.

If the flat ♭ be placed before a note in the thorough baſs, it intimates, that its third is to be minor; and if placed with any cypher over a note in the baſs, as ♭ 6, or ♭ 5, &c. it denotes, that the fifth or ſixth thereto are to be flat. But if the quadro ♮ be placed over any note, or with a cypher, in the thorough baſs, it has the contrary effect; for thereby the note or interval thereto is raiſed to its natural order.

BRABANCIONES, in middle age writers, a kind of Netherland ſoldiery, infamous for rapine, being lit-

Brabant || Bracciolini.

tle better than commiſſioned banditti, who hired themſelves to fight for any that could pay them beſt. The word is variouſly written by the hiſtorians of thoſe days; all given them from the country of Brabant, which was the chief nurſery of thoſe troops. They are alſo frequently confounded with the *Routiers*, *Roturiers*, *Ruptarii*, *Ruterarii*, *Corteraux*, &c.

BRABANT, a large province of the Netherlands, with the title of a duchy. It is bounded on the north by the province of Holland and the duchy of Guelderland; on the eaſt, by the ſame duchy and the biſhopric of Liege; on the ſouth, by the province of Namur and Hainault; and on the weſt, by Zealand. It is divided into Dutch Brabant and Auſtrian Brabant; watered by ſeveral rivers, of which the Scheld, the Ruppel, and the Dommel, are the chief. The ſoil is very fertile; and it contains 26 fortified towns, of which Bruſſels is the capital.

BRABEJUM, the African Almond. See Botany *Index*.

BRABEUTES, or Brabeuta, in *Antiquity*, an officer among the Greeks, who preſided at the public games, and decided controverſies that happened among the antagoniſts in the gymniſtical exerciſes. The number of brabeutæ was not fixed; ſometimes there was only one, but more commonly they amounted to nine or ten.

BRACCIANO, a town of St Peter's patrimony, about 12 miles north of Rome, ſituated on the weſt ſide of a lake to which it gives name. E. Long. 13. N. Lat. 42.

BRACCIOLINI, Francis, an Italian poet, a native of Poſtoia, and the friend of Pope Urban VIII. was born about the year 1566. Removing to Florence, he was admitted into the academy there, and devoted himſelf to literature. At Rome he entered into the ſervice of Cardinal Maffeo Barberini, with whom he afterwards went to France. After the death of Clement VIII. he returned to his own country, and for ſome years proſecuted his ſtudies in retirement. When his patron Barberini was elected pope, under the name of Urban VIII. Bracciolini repaired to Rome, where he was well received, and made ſecretary to the pope's brother, Cardinal Antonio. He had alſo the honour conferred on him of taking a ſurname from the arms of the Barberini family, which were Bees; and thenceforth he was known by the name of *Bracciolini dell' Api*. He reſided in Rome during the whole of that pontificate, frequenting the moſt illuſtrious academies, and liſtened to with general applauſe, but, at the ſame time, cenſured for his ſordid avarice. He returned at length to his native city, where he died in the year 1645.

Bracciolini was a copious writer. There is ſcarcely any ſpecies of poetry, epic, dramatic, paſtoral, lyric, and burleſque, which he did not attempt. He is principally noted for his mock-heroic poem, entitled *Scherno degli Dei*, which is a ridicule of the heathen mythology, and which diſputes priority of date with Taſſoni's *Secchia Rapita*. In merit, indeed, its inferiority is acknowledged, yet it obtained conſiderable applauſe. Of his ſerious heroic poems, the moſt celebrated is the *Croce Racquiſtata*," which by ſome is placed next to the great works of Arioſto and Taſſo, but not without a large interval. He celebrated the elevation of his patron Urban VIII. in a poem of twenty-three books, which ſhews with what facility he could write verſes. His dramatic paſtoral entitled *L'Amoroſo Sdegno*, is accounted one of the beſt productions of the age in which it was written; and ſome of his tragedies met with much applauſe, particularly his *Evandro*.

Brace || Brachmins.

BRACE is commonly taken for a couple or pair, and applied by huntſmen to ſeveral beaſts of game, as a brace of bucks, foxes, hares, &c.

Brace, or *Braſſe*, is alſo a foreign meaſure, anſwering to our fathom. See Fathom.

Brace, in *Architecture*, a piece of timber framed in with bevil joints, the uſe of which is to keep the building from ſwerving either way. When the brace is framed into the kingleſſes or principal rafters, it is by ſome called a *ſtrut*.

Brace, in writing or printing, a crooked line encloſing a paſſage, as in a triplet.

Braces, in the ſea-language, are ropes belonging to all the yards of a ſhip, except the mizen, two to each yard, reeved through blocks that are faſtened to pennants, ſeized to the yard-arms. Their uſe is either to ſquare or traverſe the yards. Hence to brace the yard, is to bring it to either ſide. All braces come aftward on; as, the main brace comes to the poop, the main-top-ſail brace comes to the mizen-top and thence to the main-ſhrouds; the fore and fore-top-ſail braces come down by the main and main-top-ſail ſtays, and ſo of the reſt. But the mizen-bowline ſerves to brace to the yard, and the croſs-jack braces are brought forwards to the main-ſhrouds, when the ſhip ſails cloſe by a wind.

Braces of a Coach, thick ſtraps of leather on which it hangs.

BRACELET, an ornament worn on the wriſt, much uſed among the ancients: it was made of different materials, and in different faſhions, according to the age and quality of the wearer. The word is French, *bracelet;* which Menage derives further from *braceletum*, a diminutive of *bracile*, a word occurring in writers of the Juſtinian age; all formed from the Latin *brachium*, *arm*. It amounts to the ſame with what was called by the ancients, *armilla*, *brachiale*, *occabus;* in the middle age, *boga*, *bauga*, *armiſpatha*.

Bracelets are much worn by the ſavages of Africa, who are ſo exceſſively fond of them, as to give the richeſt commodities, and even their fathers, wives, and children, in exchange for thoſe made of no richer materials than ſhells, glaſs-beads, and the like.

They form alſo, in modern civilized countries, a very common part of the ornaments of the ladies.

BRACHIÆUS, the name of a muſcle. See Anatomy, *Table of the Muſcles*.

Coraco-BRACHIALIS. See Anatomy *Index*.

BRACHIUM, or Arm. See Anatomy *Index*.

BRACHMINS, or Brachmans, a branch of the ancient Gymnoſophiſts, or philoſophers of India, remarkable for the ſeverity of their lives and manners. See the article Gymnosophists.

Some ſay they derive their name from the patriarch Abraham, whom they call in their language *Brachma*, or *Brama*. Others deduce it from the name of their god *Brachma;* which ſome again take to be the ſame with Abraham: whence Poſtel calls them *Abrachmanes*.

F. Thomaſſin

Brachygraphy || Brackets.

F. Thomaſſin derives the word from the Hebrew *barach*, to *fly* or *eſcape;* becauſe the Brachmans retire into the country and live in deſerts. The ſame author gives us another derivation, viz. from the Hebrew *barach* (*benedicere, orare*), to bleſs or pray; in regard this is their principal occupation.—The Greeks aſcribe to them the doctrine of the immortality of the ſoul, and certain notions concerning the nature of the Supreme Being and future rewards and puniſhments. To this ſpecies of knowledge the Brachmans added an infinite number of religious obſervances, which were adopted by Pythagoras in his ſchool; ſuch as faſting, prayer, ſilence, and contemplation. They were looked upon as the friends of the gods, becauſe they affected to pay them ſo much regard; and as the protectors of mankind, becauſe they paid them no regard at all. No bounds were therefore ſet to the reſpect and gratitude that were ſhown them: princes themſelves did not ſcruple to conſult theſe recluſes upon any critical conjuncture, from a ſuppoſition, no doubt, that they were inſpired; ſince it was impoſſible to imagine that they had the advantages of experience. We can ſcarcely, however, deny, that there might be among them ſome men of real virtue, whoſe minds reliſhed the pure and ingenious delights of ſtudy and ſcience; and who, by nobly raiſing their thoughts to the contemplation of the Firſt Being, muſt have had more powerful incitements to render themſelves worthy of his care, and none to juſtify them in deceiving and tyrannizing over their fellow-creatures.

There appear ſtill ſome remains of the ancient brachmans in the eaſt, under the denomination of Bramins. See Bramins.

BRACHYGRAPHY, the art of ſhort-hand-writing. See Short Hand.

BRACHYLOGY, (from βραχυς and λογος "expreſſion"), in *Rhetoric*, the expreſſing any thing in the moſt conciſe manner. This, ſo far as conſiſtent with perſpicuity, is a virtue and beauty of ſtyle; but if obſcurity be the conſequence, which is often the caſe, it becomes a blemiſh and inexcuſable defect.—Quintilian gives an inſtance of brachylogy from Salluſt: *Mithridates corpore ingenti perinde armatus;* "Mithridates, as it were, armed with the hugeneſs of his ſtature."

BRACHYPTERA, a term uſed by Willoughby, to denote thoſe hawks which have their wings ſo ſhort as not to reach to the end of the tail. Of this kind are the goſs-hawk, ſparrow-hawk, &c.

BRACHYPYRENIA, in the hiſtory of foſſils, a genus of ſeptariæ, with a ſhort roundiſh nucleus. See Septariæ.

BRACHYTELOSTYLA, in *Natural Hiſtory*, the name by which Dr Hill calls thoſe cryſtals which are compoſed of a ſhort hexangular column terminated at each end by an hexangular pyramid. See Crystal.

BRACKET, among carpenters, &c. a kind of wooden ſtay, ſerving to ſupport ſhelves and the like.

Brackets, in a ſhip, the ſmall knees, ſerving to ſupport the galleries, and commonly carved. Alſo the timbers that ſupport the gratings in the head are called *brackets*.

Brackets, in *Gunnery*, are the cheeks of the carriage of a mortar: they are made of ſtrong planks of wood, of almoſt a ſemicircular figure, and bound round with thick iron plates; they are fixed to the beds by four bolts, which are called *bed-bolts;* they riſe up on each ſide of the mortar, and ſerve to keep her at any elevation by means of ſome ſtrong iron bolts, called *bracket-bolts*, which go through theſe cheeks or brackets. Bracklau || Bradford.

BRACKLAU, a ſtrong town in Poland, capital of a palatinate of the ſame name. The houſes are built of wood. It was taken by the Turks in 1672, but retaken three years afterwards. It is ſeated on the river Bog, in E. Long. 29. 20. N. Lat. 48. 5.

BRACKLAW, a palatinate of that name, which is the eaſtern part of Podolia; it is alſo called *Lower Podolia*, and is of greater extent than Upper Podolia, but is more deſolate, on account of the neighbourhood of the Tartars.

BRACKLEY, a borough-town in Northamptonſhire, in England, ſeated on the edge of the county, next Buckinghamſhire, on a branch of the river Ouſe. It is an ancient and large corporation-town, containing two pariſh-churches; is governed by a mayor and aldermen; and ſends two members to parliament. It had formerly a college, which is turned into a free ſchool. W. Long. 1. 15. N. Lat. 52. 0.

BRACTEA, in *Natural Hiſtory*, denotes a ſpangle, or thin flake of any ſubſtance.

Bractea, in *Botany*, a thin leaf or plate of any *folium florale*, ranged by Linnæus among the *fulcra* of plants. Theſe floral leaves differ in ſhape and colour, from the other *folia* of the plant; are generally ſituated on the pedunculus, and often ſo near the corolla as to be eaſily miſtaken for the *calyx;* than which, however, the *bracteæ* are generally more permanent. Examples of the floral leaves are ſeen in the tilia, fumaria bulboſa, lavendula, and horminum.

BRACTEARIA, in *Natural Hiſtory*, a genus of talcs, compoſed of ſmall plates in form of ſpangles, each plate either being very thin, or fiſſile into very thin ones.

Of this genus there are a great many ſpecies, called from their different colours, *mica aurea*, or gold-glimmer; and *mica argentea*, ſilver-glimmer, or cats-ſilver, &c.

BRACKTON, Henry, lord chief juſtice of England in the reign of Henry III. was probably a native of Devonſhire. He was educated at Oxford, where he took the degree of doctor of laws, and was made one of the itinerant judges about the year 1244. Ten years after he became chief juſtice, and had the earl of Derby's houſe in London aſſigned him for his town reſidence, during the minority of that nobleman. He is ſaid to have filled this important office with ſingular reputation during 20 years. When he died is not known; probably it was in the reign of Edward I. He wrote *De legibus et conſuetudinibus Angliæ*, which is one of the moſt ancient, and alſo moſt methodical books on our laws. His method is copied from Juſtinian. This work was printed at London in 1569, folio; and in 1640, 4to. The firſt is very incorrect.

BRAD, a town of Sclavonia, ſeated on the north ſide of the river Save, in E. Long. 18. 40. N. Lat. 45. 20.

BRADFIELD, a town of Eſſex in England, in E. Long. 0. 30. N. Lat. 51. 14.

BRADFORD, a town of Wiltſhire in England, ſeated in W. Long. 2. 40. N. Lat. 51. 20.

Bradford, *John*, a divine, and martyr to the reformation,

Bradford || Bradley.

formation, was born in the former part of the reign of Henry VIII. at Manchester in Lancashire. Being a remarkable penman and accountant, he became secretary to Sir John Harrington, who was several times employed by King Henry, and his successor Edward VI. as paymaster to the troops abroad. Bradford at this time was a gay man, and to support his extravagance made free with the king's money; but being at last unable to support the reflection of his guilt, he determined to make restitution, and actually repaid the money. Quitting his employment of secretary, about the year 1547, he took chambers in the inner temple, and for some time studied the law; but finding in himself an inclination to preach the gospel, in the following year he removed to Catharine-hall in Cambridge, where he applied with such uncommon assiduity to the study of divinity, that in a much shorter time than usual he was admitted to the degree of master of arts, and soon after made fellow of Pembroke-hall. Bishop Ridley, who, in 1550, was translated to the see of London, charmed with Bradford's application and zeal, now sent for him to the metropolis, ordained and appointed him his chaplain. In 1553, he was also made chaplain to Edward VI. during which time he became one of the most popular preachers in the kingdom. Such a reformer was too dangerous to be suffered in the succeeding reign. Mary was hardly in possession of the crown, before Bradford's persecutions began. He was first confined in the tower for sedition, where he continued a year and a half; during which time he wrote several epistles that were dispersed in various parts of the kingdom. He was afterwards removed to other prisons, and at last brought to his trial before that infernal court of inquisition in which Gardiner sat as chief inquisitor, where he defended his principles to the last, in contempt of their utmost power. They condemned him to the flames; and he was accordingly burnt alive in Smithfield, on July 1. 1555. His works are, 1. Seventy-two letters, written to various people, whilst the author was in prison; printed in Bishop Coverdale's collection. 2. Ten letters, printed in Fox's acts and monuments. 3. Complaint of verity, 1559, 8vo. 4. Three examinations before the commissioners, and his private talk with the priests, with the original of his life, 1561, octavo. 5. Two notable sermons 1574, octavo, 1631. 6. Godly meditations and prayers 1614, 24to. 7. Treatise of repentance, 1622. With several translations and other pieces.

BRADFORTH, a town in the west of Yorkshire, seated on a branch of the river Are, in W. Long. 1. 35. N. Lat. 53. 40.

BRADLEY, Dr James, a famous English astronomer, was the third son of William and Jane Bradley, and was born at Sherborne in Dorsetshire in the year 1692.

He was educated for the university at North Leach by Mr Egles and Mr Brice, who kept a boarding-school there; and from North Leach he was sent to Oxford. His friends intended him for the church, and his studies were regulated with that view; and as soon as he was of sufficient age to receive holy orders, the bishop of Hereford, who had conceived a great esteem for him, gave him the living of Bridstow, and soon after he was inducted to that of Welfrie in Pembrokeshire. But notwithstanding these advantages, from which he might promise himself still father advancement in the church, he at length resigned his livings, that he might be wholly at liberty to pursue his favourite study the mathematics, and particularly astronomy. He was nephew to Mr Pound, a gentleman who is well known in the learned world by many excellent observations, and who would have enriched it with more, if the journals of his voyages had not been burnt at Pulo Condore, when the place was set on fire, and the English who were settled there cruelly massacred, Mr Pound himself very narrowly escaping with his life. With this gentleman, Mr Bradley passed all the time that he could spare from the duties of his function; and perhaps he sometimes trespassed upon them: he was then sufficiently acquainted with the mathematics to improve by Mr Pound's conversation; yet it does not appear that, in this study, he had any preceptor but his genius, or any assistant but his labour. Bradley.

It may be easily imagined, that the example and conversation of Mr Pound did not render Bradley more fond of his profession than he was before; he continued, however, as yet to fulfil the duties of it, though at this time he had made such observations as laid the foundation of those discoveries which afterwards distinguished him as one of the greatest astronomers of his age. Though these observations were made as it were by stealth, they gained him at first the notice, and then the friendship, of the lord chancellor Macclesfield, Mr Newton, afterwards Sir Isaac, Mr Halley, and many other members of the Royal Society, into which he was soon elected a member. About the same time, the chair of Savilian professor of astronomy became vacant by the death of the celebrated Dr Keil; and Mr Bradley was elected to succeed him on the 31st of October 1721, being then just 29 years old; and his colleague was Mr Halley, who was professor of geometry on the same foundation. Bradley, upon his being elected into this professorship, gave up both his livings, and with great joy quitted a situation in which his duty was directly opposite to his inclination. From this time, he applied himself wholly to the study of his favourite science; and in the year 1727 he published his theory of the aberration of the fixed stars, which is allowed to be one of the most useful and ingenious discoveries of modern astronomy. Three years after this discovery, by which Mr Bradley acquired very great reputation, he was appointed lecturer in astronomy and physics, at the museum of Oxford.

He pursued his studies with equal application and delight; and in the course of his observations, which were innumerable, he discovered that the inclination of the earth's axis upon the plane of the ecliptic was not always the same, but that it varied backwards and forwards some seconds, and that the period of these variations was nine years. This period seemed altogether unaccountable, as it could not be supposed to have any thing in common with the revolution of the earth, which is performed in one year. Mr Bradley, however, discovered the cause of this phenomenon in the Newtonian system of attraction. He published this discovery in 1737, so that in the space of about ten years he communicated to the world two of the finest discoveries in modern astronomy, which will for ever make a memorable epocha in the history of that science.

Mr

Bradley. Mr Bradley always preſerved the eſteem and friendſhip of Mr Halley; who, being worn out by age and infirmities, thought he could do nothing farther for the ſervice of aſtronomy, than procure for Mr Bradley the place of regius profeſſor of aſtronomy at Greenwich, which he had poſſeſſed himſelf many years with the greateſt reputation. With this view, he wrote many letters, which have been ſince found among Mr Bradley's papers, deſiring his permiſſion to apply for a grant of the reverſion of it to him, and even offering to reſign in his favour, if it ſhould be thought neceſſary: but before Mr Halley could bring this kind project to bear, he died. Mr Bradley, however, obtained the place afterwards, by the favour and intereſt of Lord Macclesfield, who was afterwards preſident of the Royal Society. As ſoon as the appointment of Mr Bradley to this place was known, the univerſity of Oxford ſent him a diploma creating him doctor of divinity. The appointment of aſtronomer at Greenwich placed Mr Bradley in his proper element, and he purſued his obſervations with unwearied diligence. However numerous the collection of aſtronomical inſtruments at the obſervatory at Greenwich, it was impoſſible that ſuch an obſerver as Dr Bradley ſhould not deſire to increaſe them, as well to anſwer thoſe particular views, as in general to make obſervations with greater exactneſs. In the year 1748, therefore, he took the opportunity of the annual viſit made by the Royal Society to the obſervatory, in order to examine the inſtruments and receive the profeſſor's obſervations for the year, to repreſent ſo ſtrongly the neceſſity of repairing the old inſtruments, and purchaſing new, that the ſociety thought proper to repreſent it to his majeſty, and his majeſty gave them 1000l. for that purpoſe. This ſum was laid out under the direction of Dr Bradley, who, with the aſſiſtance of the late celebrated Mr Graham and Mr Bird, furniſhed the obſervatory with as complete a collection of aſtronomical inſtruments, as the moſt ſkilful and diligent obſerver could deſire. Dr Bradley, furniſhed with ſuch aſſiſtance, purſued his obſervations with new aſſiduity, an incredible number of which were found after his death, and put into the hands of the Royal Society.

It has been already obſerved, that when Dr Bradley was elected to the profeſſor's chair at Oxford, he gave up his two livings, which were at ſuch a diſtance, that he could not poſſibly fulfil the duties of them himſelf; but it happened that after he was ſettled at Greenwich the living of that pariſh became vacant, which is very conſiderable, and which was offered to him, as he was upon the ſpot to perform the duty, and had the claim of uncommon merit to the reward. This living, however, Dr Bradley, very greatly to his honour, refuſed, fearing the duties of the aſtronomer would too much interfere with thoſe of the divine. His majeſty, however, hearing of the refuſal, was ſo pleaſed with it, that he granted him a penſion of 250l. a-year in conſideration of his great abilities and knowledge in aſtronomy and other branches of the mathematics, which had procured ſo much advantage to the commerce and navigation of Great Britain, as is particularly mentioned in the grant which is dated the 15th of February 1752. Dr Bradley, about the ſame time, was admitted into the council of the Royal Society. In the year 1748, he was admitted a member of the royal academy of ſciences and belles lettres of Berlin, upon the death of M. Crevier, firſt phyſician to his Catholic majeſty; in the year 1752, a member of the imperial academy at Peterſburg; and in 1757, of that inſtituted at Bologna. Bradley || Bradſhaw.

Dr Bradley was ſtill indefatigable in his obſervations, and whatever honour he received became an incitement to obtain new diſtinction; his corporeal abilities, however, at length declined, though his intellectual ſuffered no abatement. In the year 1760, he became extremely weak and infirm; and towards the end of June 1762, he was attacked with a total ſuppreſſion of urine, cauſed by an inflammation of the reins, which on the 12th of July following put an end to his life, in the 70th year of his age. He was buried at Mitchin-Hampton, in Glouceſterſhire, in the ſame grave with his mother and his wife. In the year 1744, he married Suſannah Peach, the daughter of a gentleman of that name in Glouceſterſhire, by whom he had only one daughter.

As to his character, he was remarkable for a placid and gentle modeſty, very uncommon in perſons of an active temper and robuſt conſtitution. It was ſtill more remarkable, that, with this untroubled equanimity of temper, he was compaſſionate and liberal in the higheſt degree. Although he was a good ſpeaker, and poſſeſſed the rare but happy art of expreſſing his ideas with the utmoſt preciſion and perſpicuity, yet no man was a greater lover of ſilence, for he never ſpoke but when he thought it abſolutely neceſſary. He did indeed think it neceſſary to ſpeak when he had a fair opportunity to communicate any uſeful knowledge in his own way; and he encouraged thoſe that attended his lectures to aſk him queſtions, by the exactneſs with which he anſwered, and the care he took to adapt himſelf to every capacity. He was not more inclined to write than to ſpeak, for he has publiſhed very little; he had a natural diffidence, which made him always afraid that his works ſhould injure his character; and therefore ſuppreſſed many, which probably were well worthy of the public attention. He was even known, as it were, in ſpite of himſelf; and, in ſpite of himſelf, he was known much, and conſequently much eſteemed. He was acquainted with many of the firſt perſons in this kingdom, perſons eminent as well for their rank as their abilities; he was honoured by all men of learning in general; and there was not an aſtronomer of any eminence in the world with whom he had not a literary correſpondence. Upon the whole, it may be ſaid of Dr Bradley, that no man cultivated great talents with more ſucceſs, or had a better claim to be ranked among the greateſt aſtronomers of his age.

BRADNINCH, a town of Devonſhire, once a conſiderable place, but ſome time ago totally deſtroyed by fire. W. Long. 3. 35. N. Lat. 50. 45.

BRADS, among artificers, a kind of nails uſed in building, which have no ſpreading heads as other nails have. They are diſtinguiſhed by ironmongers by ſix names; as *joiner's brads*, *flooring-brads*, *batten-brads*, *bill-brads*, or *quarter heads*, &c. Joiners-brads are for hard wainſcot; batten-brads are for ſoft wainſcot; bill-brads are uſed when a floor is laid in haſte, or for ſhallow joiſts ſubject to warp. See NAIL.

BRADSHAW, HENRY, a Benedictine monk, was born at Cheſter, about the middle of the 15th century. Diſcovering

Bradwardin, Brady.

Diſcovering an early propenſity to religion and literature, he was received while a boy into the monaſtery of St Werberg in that city; and having there imbibed the rudiments of his education, he was afterwards ſent to Glouceſter college, in the ſuburbs of Oxford, where for a time he ſtudied theology with the novices of his order, and then returned to his convent at Cheſter; here, in the latter part of his life, he applied himſelf chiefly to the ſtudy of hiſtory, and wrote ſeveral books. He died in the year 1513, the fifth of Henry VIII. His poetry is not inferior to that of any of his cotemporaries. His works are, 1. *De antiquitate et magnificentia urbis Ceſtriæ.* 2. *Chronicon.* 3. The life of the glorious virgin of St Werberg. Printed Lond. 1521, 4to, in verſe. The life of St Werberg makes only part of this work; for it contains alſo a deſcription of the kingdom of Mercia, life of St Etheldred, the life of St Sexburg, the foundation and hiſtory of Cheſter, and the chronicles of ſome kings. Poſſibly this work may include the two firſt. Biſhop Tanner ſays, that he wrote a chronicle in Engliſh verſe, extracted from Bede, Malmſbury, Geraldus, and others. Probably this is the chronicle above mentioned.

BRADWARDIN, Thomas, archbiſhop of Canterbury, was born at Hartfield in Suſſex, about the cloſe of the 13th century. He was educated at Merton College, Oxford, where he took the degree of doctor of divinity; and acquired the reputation of a profound ſcholar, a ſkilful mathematician, and conſummate divine. Authors are not agreed as to his firſt preferments. Pitt ſays he was profeſſor of divinity at Oxford. They agree, however, in aſſerting, that from being chancellor of the dioceſe of London, he became a courtier and confeſſor to Edward III. whom he conſtantly attended during his war with France, aſſiſting that victorious prince with his advice, animating the troops, and fervently praying for their ſucceſs. After his return from the war, he was made prebendary of Lincoln, and afterwards archbiſhop of Canterbury. He died at Lambeth in the year 1349, forty days after his conſecration: and was buried in St Anſelm's chapel, near the ſouth wall. His works are, 1. *De cauſa Dei*, printed at London, 1618, publiſhed by J. H. Savil. 2. *De geometria ſpeculativa*, &c. Paris, 1495, 1512, 1530. 3. *De arithmetica practica*, Paris, 1502, 1512. 4. *De proportionibus*, Paris, 1495. Venice, 1505, folio. 5. *De quadratura circuli*, Paris, 1495, folio.

BRADY, Robert, born in Norfolk in 1643, was maſter of Caius college, Cambridge, regius profeſſor there, and twice repreſentative of that univerſity in parliament. In 1685, he was made keeper of the records in the tower, and was phyſician in ordinary to James II. He wrote, An introduction to the Old Engliſh hiſtory; A hiſtory of England, from the time of the Romans to the end of the reign of Richard II.; and, A treatiſe on Engliſh boroughs. He died in 1700.

Brady, *Nicholas*, an excellent divine and poet, born at Bandon, in the county of Cork, October 28th 1659. He ſtudied at Weſtminſter-ſchool, and afterwards at Oxford and Dublin college. He was a zealous promoter of the Revolution; and, in 1690, when the troubles broke out in Ireland, by his intereſt with M'Carty, King James's general, he thrice prevented the burning of the town of Bandon. Having quitted ſeveral preferments in Ireland, he ſettled in London, where he was ſucceſſively promoted to ſeveral livings; and at the time of his death was rector of Clapham, miniſter of Richmond, and chaplain to the duke of Ormond's troop of horſe-guards. He wrote part of the new verſion of the Pſalms, now ſung in many churches in England and Ireland; the Æneids of Virgil, in 4 vols; and 3 vols of ſermons. He died May 20th 1726.

Bradypus || Brahe.

BRADYPUS, or Sloth, a genus of quadrupeds, belonging to the order of bruta. See Mammalia *Index.*

BRAE-mar, a mountainous territory of Scotland, in the ſhire of Aberdeen, where the laſt earl of Mar began to raiſe a rebellion in 1715. It is 27 miles north-weſt of Aberdeen.

Brae-Murray, a mountainous and woody tract of land, lying in the ſhires of Elgin and Nairn in Scotland.

BRAG, an ingenious and pleaſant game at cards, where as many may partake as the cards will ſupply; the eldeſt hand dealing three to each perſon at one time, and turning up the laſt card all round. This done, each gameſter puts down three ſtakes, one for each card.—The firſt ſtake is won by the beſt card turned up in the dealing round; beginning from the ace, king, queen, knave, and ſo downwards. When cards of the ſame value are turned up to two or more of the gameſters, the eldeſt hand gains; but it is to be obſerved, that the ace of diamonds wins, to whatever hand it be turned up.—The ſecond ſtake is won by what is called the *brag*, which conſiſts in one of the gameſters challenging the reſt to produce cards equal to his: Now it is to be obſerved, that a pair of aces is the beſt brag, a pair of kings the next, and ſo on; and a pair of any ſort wins the ſtake from the moſt valuable ſingle card. In this part conſiſts the great diverſion of the game; for, by the artful management of the looks, geſtures, and voice, it frequently happens, that a pair of fives, treys, or even duces, out-brags a much higher pair, and even ſome pairs royal, to the no ſmall merriment of the company. The knave of clubs is here a principal favourite, making a pair with any other card in hand, and with any other two cards a pair royal.—The third ſtake is won by the perſon who firſt makes up the cards in his hand one and thirty; each dignified card going for ten, and drawing from the pack, as uſual in this game.

BRAGA, the capital of the province of Entre-minho-duro, in Portugal, ſituated on the river Cavado, in W. Long. 8. 40. N. Lat. 41. 20.

BRAGANZA, a city of Portugal, and capital of a duchy of the ſame name. It is ſeated on an eminence, by a brook called *Farvenca*; and is divided into two parts, the old city and the town. The former is upon an eminence, and fortified with a double wall. That part next the town has five baſtions, but no ditch; the citadel is on the oppoſite ſide joined to the wall. The town is in a plain, and defended by a fort with four baſtions. It is ſeated near the river Sabor, on the frontiers of Galicia, in W. Long. 6. 15. N. Lat. 41. 27.

BRAGGOT, a kind of drink made of malt, honey, and ſpices, much uſed in Wales.

BRAHE, Tycho, a celebrated aſtronomer, deſcended of an illuſtrious family originally of Sweden but ſettled at Denmark, was born December 14. 1546, at

Brahe. at Knudſtorp in the county of Schonen. He was taught Latin when ſeven years old, and ſtudied five years under private tutors. His father dying, his uncle ſent him, in April 1559, to ſtudy philoſophy and rhetoric at Copenhagen. The great eclipſe of the ſun on the 21ſt of Auguſt 1560, happening at the preciſe time the aſtronomers had foretold, he began to look upon aſtronomy as ſomething divine; and purchaſing the tables of Stadius, gained ſome notion of the theory of the planets. In 1562, he was ſent by his uncle to Leipſic to ſtudy law; but aſtronomy wholly engroſſed his thoughts, and in purchaſing books on that ſcience he employed all his pocket-money. Having procured a ſmall celeſtial globe, he was wont to wait till his tutor was gone to bed, in order to examine the conſtellations and learn their names; and when the ſky was clear, he ſpent whole nights in viewing the ſtars. In 1565, a difference ariſing between Brahe and a Daniſh nobleman, they fought, and the former had part of his noſe cut off; which defect he ſo artfully ſupplied with one made of gold and ſilver, that it was not perceivable. It was about this time that he began to apply to chemiſtry, propoſing nothing leſs than to obtain the philoſopher's ſtone. In 1571, he returned to Denmark; and was favoured by his mother's brother, Steno Belle, a lover of learning, with a convenient place at his caſtle of Herritzvad near Knudſtorp, for making his obſervations, and building a laboratory. His marrying a country girl, beneath his rank, occaſioned ſuch a violent quarrel between him and his relations, that the king was obliged to interpoſe to reconcile them. In 1574, by his majeſty's command, he read lectures upon the theory of the comets at Copenhagen. The year following he began his travels through Germany, and proceeded as far as Venice: he then reſolved to remove his family, and ſettle at Baſil; but Frederic II. king of Denmark being informed of his deſign, and unwilling to loſe a man that was capable of being ſuch an ornament to his country, promiſed to enable him to purſue his ſtudies, to beſtow upon him for life the iſland of Huen in the Sound, to erect an obſervatory and laboratory there, and to defray all the expences neceſſary for carrying on his deſigns. Tycho Brahe readily embraced this propoſal; and accordingly the firſt ſtone of the obſervatory was laid Auguſt 8. 1576. The king alſo gave him a penſion of 2000 crowns out of his treaſury, a fee in Norway, and a canonry of Roſhild, which brought him in 1000 more. James VI. of Scotland, afterwards raiſed to the crown of England, going to Denmark in order to marry the princeſs Anne, paid a viſit to our author in his retirement at Uraniaburg, made him ſeveral preſents, and with his own hand wrote a copy of verſes in his praiſe; but, ſoon after the death of King Frederic, he was deprived of his penſion, fee, and canonry; upon which, finding himſelf incapable of bearing the expences of his obſervatory, he went to Copenhagen, whither he brought ſome of his inſtruments, and continued his aſtronomical obſervations in that city, till Valkendorf, chamberlain to the houſehold of Chriſtian IV. commanded him by the king's order to diſcontinue them. He then removed his family to Roſtock, and afterwards to Holſtein, in order to ſolicit Henry Ranzou to introduce him to the emperor; and that gentleman complying with his requeſt, he was received by the emperor at Prague with the utmoſt civility and reſpect. That prince gave him a magnificent houſe, till he could procure one for him more fit for aſtronomical obſervations; aſſigned him a penſion of 3000 crowns; and promiſed upon the firſt opportunity, a fee for him and his deſcendants: but he did not long enjoy this happy ſituation; for, upon the 24th of October 1601, he died of a retention of urine, in the 55th year of his age, and was interred in a very magnificent manner in the principal church at Prague, where a noble monument was erected to him. —His ſkill in aſtronomy is univerſally known, and he is famed for being the inventor of a new ſyſtem, which he endeavoured, though without ſucceſs, to eſtabliſh upon the ruins of that of Copernicus. He was very credulous with regard to judicial aſtrology and preſages. If he met an old woman when he went out of doors, or a hare upon the road on a journey, he uſed to turn back immediately, being perſuaded that it was a bad omen. When he lived at Uraniaburg, he had at his houſe a madman, whom he placed at his feet at table, and fed himſelf. As he imagined that every thing ſpoken by mad perſons preſaged ſomething, he carefully obſerved all that this man ſaid; and becauſe it ſometimes proved true, he imagined it might always be depended on. A mere trifle put him in a paſſion; and againſt perſons of the firſt rank, with whom it was his duty to keep on good terms, he openly diſcovered his reſentment. He was very apt to rally others, but highly provoked if the ſame liberty was taken with himſelf. His principal works are, 1. *Progymnaſmata aſtronomiæ.* 2. *De mundi ætherei recentioribus phænomenis.* 3. *Epiſtolarum aſtronomicarum liber.*

Brahma. Braidalbin.

BRAHMA. See BRAMA.

BRAIDALBIN, a diſtrict of Perthſhire in Scotland, ſtretching 32 miles from eaſt to weſt, and 13 where broadeſt from ſouth to north. It is a mountainous country, lying among the Grampian hills, ſuppoſed to be the country anciently known by the name of *Albanii*; whence the Highlanders to this day call themſelves *Albinich*. It is bounded on the weſt by Lochaber, Lorn, and Knapdale; on the north and eaſt, by part of Lochaber and part of Athol; and on the ſouth by Strathern and Monteith. It produces plenty of game and black cattle; is inhabited by Highlanders ſaid to be the moſt ferocious in all Scotland; and gives the title of earl to a branch of the Campbell family, which is poſſeſſed of a noble and magnificent ſeat in this diviſion. Much flax is cultivated here. Some years ago, when premiums were given for the greateſt crops, from 70 to 120 hogſheads of linſeed were annually ſown, each peck yielding two ſtones of dreſſed flax; and when the yarn ſold higheſt, 2000l. worth has been ſold out of the country. Oats and potatoes are the other crops. Oats yield from four to ſix fold at the moſt, oftener leſs; bear from eight to ten, at an average ſix. The corn raiſed ſeldom ſuffices the number of inhabitants, ſo they are often obliged to have recourſe to importation. From their potatoes ſome have diſtilled a very ſtrong ſpirit, which has been found cheaper than what is diſtilled from any grain. Starch is alſo made from them; and, in ſome places, bread. Corcur, or the *lichen omphaloides*, is an article of commerce; great quantities have been ſcraped from the rocks, and exported for the uſe of the dyers,

Brail || Bramber.

at the price of 1s. or 16d. per ſtone. A good many ſheep are reared here, and much wool is ſent out of the country. There are few horſes raiſed in this country: ſuch as feed on the tops of the higher hills are often afflicted with a diſtemper that commonly proves fatal, if a remedy is not applied within 24 hours. It attacks them in the months of July and Auguſt, uſually after a fall of rain, or before the dew riſes in the morning. An univerſal ſwelling ſpreads over the body; the remedy is exerciſe, chafing, or any other method that promotes urine and perſpiration. The common people attribute this evil to a certain animal that ſcatters its poiſon over the graſs; but, more probably, it ariſes from ſome noxious vegetable, hitherto unobſerved. Before the year 1745, Lord Braidalbin was obliged to keep a conſtant guard for the protection of his vaſſals cattle, or to retain ſpies among the thieviſh clans, having too much ſpirit to ſubmit to pay an infamous tax, called *blackmeal*, to the plundering chieftans, as the price of their ſafety.

BRAIL, or Brails, in a ſhip, are ſmall ropes made uſe of to furl the ſails acroſs: they belong only to the two courſes and the mizen-ſail; they are reeved through the blocks, ſeized on each ſide the ties, and come down before the ſail, being at the very ſkirt thereof faſtened to the cringles; their uſe is, when the ſail is furled acroſs, to hale up its bunt, that it may the more eaſily be taken up or let fall. Hale up the brails, or brail up the ſail; that is, Hale up the ſail, in order to be furled or bound cloſe to the yard.

BRAILOW, a town of Poland, in the province of Podolia, ſeated on the river Bog, in E. Long. 29. 0. N. Lat. 43. 50.

BRAIN, in *Anatomy*, is that large, ſoft, whitiſh maſs, encloſed in the cranium or ſkull; wherein all the organs of ſenſe terminate, and the ſoul is ſuppoſed principally to reſide. See Anatomy *Index*.

Brain le Comte, a town of the Auſtrian Netherlands, in the province of Hainault. E. Long. 4. 11. N. Lat. 50. 35.

BRAINTREE, a large town of Eſſex in England, ſituated in E. Long. 0. 30. N. Lat. 51. 50.

BRAKE, denotes female fern, or the place where it grows.—Alſo a ſharp bit or ſnaffle for horſes; and a baker's kneading-trough.—Alſo an inſtrument with teeth to bruiſe flax or hemp. See *Flax-Dreſſing*.

BRAKEL, a town of Germany, in the circle of Weſtphalia, and in the biſhopric of Paderborn, ſeated on the rivulet Brught, in E. Long. 9. 8. N. Lat. 51. 46.

BRAMA, or Bruma, a pagan deity of the Eaſt Indies. He is the firſt perſon of a kind of trinity in their theology; is the great progenitor of mankind; and has created as many worlds as there are conſiderable parts in his body. See the articles Brachmans, Bramins, and Indostan.

Brama, in *Ichthyology*,, the trivial name of a ſpecies of cyprinus. See Cyprinus.

BRAMANT, a town of Savoy, in the valley of Maurich, ſeated on the river Arck, in E. Long. 4. 15. N. Lat. 45. 0.

BRAMBER, a town of Suſſex in England, formerly of ſome account, but has neither market nor fair; however, it ſends two members to parliament. W. Long. 0. 15. N. Lat. 50. 50.

BRAMBLE, in *Botany*, the Engliſh name of the Rubus. See Botany *Index*. Bramble || Bramhall.

Bramble-Net, otherwiſe called *hallier*, is a net to catch birds in of ſeveral ſizes: the great maſhes muſt be four inches ſquare; thoſe of the leaſt ſize are three inches ſquare; and thoſe of the biggeſt, five. In the depth they ſhould not be above three or four inches: but as for the length, they may be enlarged at pleaſure; the ſhorteſt being 18 feet long.

Bramble, or *Brambling*, in *Ornithology*, the trivial name of a ſpecies of Fringilla.

BRAMER, Leonard, hiſtory-painter, was born at Delft in 1596; but learned the art of painting in the ſchool of Rembrandt, and imitated the manner of his maſter in ſmall. In the 18th year of his age he went to Rome for his improvement; but although he continued in Italy for ſome years, and acquired ſomewhat in his ſtyle rather more graceful than Rembrandt, yet he could never diveſt himſelf of the Flemiſh gout. He had a fine taſte of deſign; his expreſſion is generally good, and in ſome of his compoſitions truly noble. His pencil is delicate, and his colouring very peculiar in the tints, being alſo remarkably thin in many parts, ſo as barely to cover the pannel; yet, by great ſkill in the management of the chiaro-ſcuro, his colouring is bright, bold, and full of luſtre; particularly in the vaſes, which he was fond of introducing in every ſubject that could admit them, as he knew how to give them a rich and fine relievo. He had accuſtomed himſelf to paint with a very thin body of colour, eſpecially in the browns and ſhadowy parts, in order to give his pictures a greater tranſparence. At Venice, Naples, Florence, Mantua, and other cities of Italy, as well as at Rome, he left many proofs of his extraordinary merit, which rendered his name deſervedly famous; and his works are rarely to be met with out of Italy, where he painted moſt; but whenever they are to be purchaſed they are bought at conſiderable prices, if they are entire and undamaged. One of the moſt capital pictures of Bramer is the *Raiſing of Lazarus*, in which there is a charming oppoſition of light and ſhadow; and another is the *Denial of St Peter*: They are both painted in his beſt manner; they are bright, tranſparent, and finely penciled, and are ſtill preſerved at Rome. Likewiſe at the palace of Ryſwick, there are ſeveral valuable paintings by this maſter; in which the invention and execution are highly commendable. But none of his works can be more admired than a ſmall picture on copper repreſenting the ſtory of Pyramus and Thiſbe. *Pilkington's Dict.*

BRAMHALL, Dr John, archbiſhop of Armagh, was born of an ancient family at Pontefract in Yorkſhire, about the year 1593. He was invited over to Ireland by the lord deputy Wentworth; and ſoon after obtained the arch-deaconry of Meath, the beſt in that kingdom. In 1634, he was made biſhop of Londonderry, which ſee he improved very much; but the greateſt ſervice he did to the church of Ireland, was by getting, with the deputy's aſſiſtance, ſeveral acts paſſed for aboliſhing fee-farms, recovering impropriations, &c. by which, and by other means, he regained to the church in the ſpace of four years 30,000l. or 40,000l. a-year. In the convocation he prevailed upon the church of Ireland to unite in the ſame faith with the church of England, by adopting the 39 articles

Bramins. cles of that church; and would willingly have introduced the Engliſh canons, but could only prevail on their accepting ſuch as they deemed proper. Articles of treaſon were exhibited againſt him in the Iriſh parliament; and at the treaty of Uxbridge in 1644, the Engliſh parliament made it a preliminary article, that Biſhop Bramhall, with Archbiſhop Laud, and others, ſhould be excepted from the general pardon. He went abroad; but on the reſtoration was appointed archbiſhop of Armagh, primate and metropolitan of all Ireland, and was choſen ſpeaker of the houſe of lords. He died in 1663; and was the author of ſeveral works, which are collected in one vol. folio.

BRAMINS, the name of the prieſts among the idolatrous Indians; the ſucceſſors of the ancient Brachmans. See the title BRACHMANS.

Their name is formed from *Brama*, their particular deity. They are found in Siam, Malabar, China, Coromandel, and moſt other eaſtern nations anywiſe civilized; but their chief ſeat is in Indoſtan *, or the Mogul's country. They have a language peculiar to themſelves, which they call *Shanſcbrit*; in which they have ſeveral ancient books, written, as is alleged, by their great prophet Brahma; as the *Shaſtram*, which is their bible; and *Porane*, a hiſtory which they eſteem ſacred, and pretend to have been dictated by God himſelf.

* See *Indoſtan.*

There are ſeveral orders of Bramins. Thoſe who mix in ſociety are for the moſt part very corrupt in their morals: they believe that the water of the Ganges will waſh away all their crimes; and, as they are not ſubject to any civil juriſdiction, live without either reſtraint or virtue, excepting that character of compaſſion and charity which is ſo commonly found in the mild climate of India. The others, who live abſtracted from the world, are either weak-minded men or enthuſiaſts; and abandon themſelves to lazineſs, ſuperſtition, and the dreams of metaphyſics. We find in their diſputes the very ſame ideas that occur in the writings of our moſt celebrated metaphyſicians; ſuch as, ſubſtance, accident, priority, poſteriority, immutability, indiviſibility, &c.

Their religion, which was anciently of the allegorical and moral kind, hath degenerated into a heap of extravagant and obſcene ſuperſtitions, owing to their having realized thoſe fictions which were intended merely as ſo many ſymbols and emblems. Were it poſſible to obtain a ſight of their ſacred books, the only remains there are of the Indian antiquities, we might in ſome meaſure be enabled to remove the veil that envelopes thoſe numerous myſteries; but the following ſtory will ſhow how little reaſon there is to hope that we ſhall ever be intruſted with ſuch a communication.

Raynal's Hiſt. of the Indies.

The emperor Mahmoud Akbar had an inclination to make himſelf acquainted with the principles of all the religious ſects throughout his extenſive provinces. Having diſcarded the ſuperſtitious notions with which he had been prepoſſeſſed by his education in the Mahometan faith, he reſolved to judge for himſelf. It was eaſy for him to be acquainted with the nature of thoſe ſyſtems that are formed upon the plan of making proſelytes; but he found himſelf diſappointed in his deſign when he came to treat with the Indians, who will not admit any perſon whatever to the participation of their myſteries. Neither the authority nor promiſes of Akbar could prevail with the Bramins to diſcloſe the tenets of their religion; he was therefore obliged to have recourſe to artifice. The ſtratagem he made uſe of was to cauſe a boy, of the name of Feizi, to be committed to the care of theſe prieſts, as a poor orphan of the ſacerdotal line, who alone could be initiated into the ſacred rites of their theology. Feizi, having received the proper inſtructions for the part he was to act, was conveyed privately to Benares, the ſeat of knowledge in Indoſtan; he was received into the houſe of a learned Bramin, who educated him with the ſame care as if he had been his own ſon. After the youth had ſpent ten years in ſtudy, Abkar was deſirous of recalling him: but he was ſtruck with the charms of the daughter of his preceptor. The women of the ſacerdotal tribe are looked upon as the greateſt beauties in Indoſtan. The old Bramin laid no reſtraint upon that growing paſſion of the two lovers: he was fond of Feizi, who had gained his affection by his addreſs and docility; and offered him his daughter in marriage. The young man, divided between love and gratitude, reſolved to conceal the fraud no longer; and falling at the feet of the Bramin, diſcovered the impoſture and aſked pardon for his offence. The prieſt, without reproaching him in the leaſt, ſeized a poignard, which hung at his girdle, and was going to plunge it in his breaſt, if Feizi had not prevented him by taking hold of his arm. The young man uſed every means to pacify him, and declared himſelf ready to do any thing to expiate his treachery. The Bramin, burſting into tears, promiſed to pardon him on condition that he ſhould ſwear never to tranſlate the *Bedas* or ſacred volumes, or diſcloſe to any perſon whatever the ſymbol of the Bramin creed. Feizi readily promiſed all that the Bramin required: how far he kept his word is not known; but the ſacred books of the Indians have never been tranſlated by him, or any one elſe, to this day. As the Bramins are the only perſons who underſtand the language of the ſacred books, their comments on the text are the ſame as thoſe that have ever been made on religious books; all the maxims which fancy, intereſt, paſſion, or falſe zeal can ſuggeſt, are to be found in theſe volumes. See the articles SHAFTAH and VEDAM.

Bramins.

They own a ſupreme God, who created Brama, and gave him a power to create the world. They have alſo their ſubaltern deities, their pagods or temples, and idols, whom they fan to defend from flies, dancing before them. They alſo hold a feaſt in honour of the ſun, conſidered as the ſource of light and heat, whereby all nature is fecundified.

Their pagods or temples conſiſt of three parts. The firſt is a vaulted roof, ſupported on ſtone columns: it lies open, and all perſons, without diſtinction, are allowed to enter into it. It is adorned with ſymbolical figures made of wood, as elephants, oxen, and horſes. The ſecond part is open in the day-time, and ſhut at night. It is filled with groteſque and monſtrous figures, as men with many heads and arms. The third, which is a kind of chancel, is kept always ſhut, with a very ſtrong gate. In this is placed the ſtatue of the deity to whom the pagod is dedicated. A great num-

Brampour ‖ Bran.

ber of lamps burn day and night before the idol. The Bramins, before they go into the pagod, pull off their ſhoes, and leave them at the door.

The Bramins of Siam and Coromandel maintain that the earth will be deſtroyed by fire; and the former aſſert that another will ariſe out of its aſhes, in which there ſhall be no ſea, nor any change of ſeaſons, but an eternal ſpring; and the latter maintain a plurality of worlds, which are alternately deſtroyed and renewed.

Robert de Nobili, an Italian Jeſuit, and one of the Indian miſſionaries, in the beginning of the 17th century, in order to ſecure ſucceſs to his miſſion, aſſumed the title and appearance of a Bramin, and at length perſuaded the credulous people that he was in reality a member of that venerable order. He forged a deed in the ancient Indian characters, ſhowing that the Bramins of Rome were older than thoſe of India, and that the Jeſuits of Rome deſcended in a direct line from the god Brama. He farther declared on oath, that he derived his origin from this Indian deity. By this impoſture he proſelyted twelve eminent Bramins, whoſe influence proved very favourable to his miſſion. After his death, the Portugueſe Jeſuits carried on the impoſture with very conſiderable ſucceſs. Theſe miſſions, however, were ſuſpended and abandoned in conſequence of a papal mandate, iſſued out in the year 1744, by Benedict XIV. who declared his diſapprobation of the artifices that had been uſed in the converſion of the Indians. See further under the article Observatory.

BRAMPOUR, or Brampore, a city of Aſia, in the dominions of the Great Mogul, and capital of Candiſh. It formerly ſtood on as much ground as London; but is now greatly decayed, and chiefly inhabited by Banians. The ſtreets are numerous, but narrow, with low thatched houſes made of earth, though a few are covered with varniſhed tiles. In rainy weather many of the ſtreets are overflowed. In the market-place is the ſtatue of an elephant in red ſtone, as big as the life. On the other ſide of the river they have built a new town, which is in a better ſituation. A great trade is carried on in this town, and throughout all the province, where there is made a prodigious quantity of cotton-cloths, as cotton is in greater plenty here than in any other place of the empire. E. Long. 77. 25. N. Lat. 21. 10.

BRAMPTON, a town of Cumberland in England, ſeated not far from the Picts wall, and on the river Irthin. It is a very ancient place, but at preſent is very ſmall. W. Long. 2. 40. N. Lat. 54. 50.

BRAN, the ſkins or huſks of corn, eſpecially wheat ground, ſeparated from the flour by a ſieve or boulter. It contains, beſides, a portion of the farinaceous matter; this is leſs glutinous than the finer flour, and is ſuppoſed to have a detergent quality. Infuſions of bran are not unfrequently employed in this intention externally, and ſometimes likewiſe taken inwardly.

Among the ancients bran was uſed as an erotic, to excite love. Bran boiled purges ſcurf, dandreff, and cleanſes the hand in lieu of ſoap. The dyers reckon it among the nut-coloured drugs; and uſe it for making what they call the *four waters*, with which they prepare their ſeveral dyes. Bran is alſo uſed as a medicine for horſes. See Farriery *Index*.

Branch ‖ Branchioſtegi.

BRANCH, in *Botany*, an arm of a tree, or a part which, ſprouting out from the trunk, helps to form the head or crown thereof. Branches do not ſpring out of the mere ſurface of the trunk, but are profoundly rooted therein, ſo as not only to penetrate into the cortical, but alſo the woody ſubſtance, and even the pith. The conſtituent parts therefore of a *branch* are the ſame as of the trunk, viz. ſkin, bark, wood, and pith. See the article Plants.

Branches of a Bridle, in the manege, are two pieces of iron bended, which, in the interval between the one and the other, bear the bit-mouth, the croſs-chains, and the curb; ſo that on one end they anſwer to the head-ſtall, and on the other to the reins, in order to keep the horſe's head in ſubjection. With regard to their form and ſtructure, branches are either ſtraight, in form of a piſtil, for young horſes to form their mouth; or after the conſtable of France's faſhion, proper for a horſe that carries his head well. Some are in form of a gigot or leg, which will prevent horſes from carrying too low: Some are in form of a bent knee, contrived for horſes that arm themſelves againſt the operation of the bit; and others after the French faſhion, which is hardly above $\frac{1}{3}$ of an inch at the ſevile hole, and kneed $1\frac{1}{4}$ inch at the jarret or ham.

It is to be obſerved, 1. That the farther the branch is from the horſe's neck, the more effect it will have. 2. That ſhort branches, *cæteris paribus*, are ruder, and their effects more ſudden, than thoſe of longer. 3. That the branch is to be proportioned to the length of a horſe's neck; and one may ſooner err in chooſing one too ſhort than too long.

Branches of Ogives, in *Architecture*, are the arches of Gothic vaults. Theſe arches, traverſing from one angle to another diagonal-wiſe, form a croſs between the other arches, which make the ſides of the ſquare, of which the arches are diagonal.

Branch-Stand, with falconers, a term uſed to ſignify the making a hawk leap from tree to tree, till the dog ſprings the game.

BRANCHER, among ſportſmen, a young hawk, newly taken out of the neſt, that can hop from bough to bough.

BRANCHIÆ, or Gills, in the anatomy of fiſhes, the parts correſponding to the lungs of land-animals. All fiſhes except the cetaceous ones, and the pteromyzum, which have lungs, are furniſhed with theſe organs of reſpiration. See Anatomy *Index*.

BRANCHIDÆ, in Grecian antiquity, prieſts of the temple of Apollo, which was at Didymus in Ionia, a province of Leſſer Aſia, towards the Ægean ſea, upon the frontiers of Caria. They opened to Xerxes the temple of Apollo, the riches whereof he took away. After which, thinking it unſafe to ſtay in Greece, they fled to Sogdiana, on the other ſide of the Caſpian ſea, upon the frontiers of Perſia, where they built a city, called by their own name: but they did not eſcape the puniſhment of their crime; for Alexander the Great having conquered Darius king of Perſia, and being informed of their treachery, put them all to the ſword, and razed their city, thus puniſhing the impiety of the fathers in their poſterity.

BRANCHIOSTEGI, in *Ichthyology*, a term uſed to expreſs one of the general claſſes of fiſhes; the characters of which are, that the rays of the fins are of a bony

Branchon || Brandenburg.

bony ſubſtance, but theſe fiſh have no bones or oſſicula at the branchiæ, as the malacopterygious and acanthopterygious fiſhes all have.

BRANCHON, a town of the Auſtrian Netherlands, in the province of Namur, ſeated on the river Mehaigne. E. Long. 4. 40. N. Lat. 50. 32.

BRAND SUNDAY, *Dimanche des Brandons*, in French eccleſiaſtical writers, denotes the firſt Sunday in Lent; which is thus called on account of an ancient practice in the Lyonnois, where the peaſants, in the night of this day, walked about their orchards, gardens, &c. with torches lighted, or fire-brands in their hands; in which plight they viſited every tree, and addreſſing themſelves to them one after another, threatened, that if they did not bear fruit well the enſuing ſeaſon, they ſhould be cut down to the ground and burnt. This is evidently a relict of Paganiſm; the like of which was practiſed by the ancient idolaters in the month of February; hence called *Februarius, à februando*.

BRANDEIS, a town of Bohemia, ſeated on the river Elbe. E. Long. 14. 25. N. Lat. 50. 15.

BRANDENBURG, Marquiſate of, a large country of Germany, having Mecklenburgh and Pomerania on the north; Poland, on the eaſt; Sileſia, with the Luſatias, the electorate of Saxony, Anhalt, and duchy of Magdeburg, on the ſouth; and part of the ſame duchy, and that of Lunenburg, on the weſt. Its greateſt length is near 200 miles, and its greateſt breadth near 100. Its northern ſituation makes it very cold for ſeven or eight months in winter. The ſoil in general is far from being fruitful, a great part of it conſiſting of ſand: yet there are ſeveral fruitful ſpots in it; and the whole, under the laſt and preſent reign, has been greatly improved, and much better peopled. In ſome parts there is great plenty of potatoes and turnips; in others of buck-wheat, millet, and flax; in others of tobacco, woad, and other herbs for dyeing. All ſorts of colour-earth, together with alum, ſaltpetre, amber, iron, ſtone, and medicinal ſprings, are found in it. Abundance of cattle, eſpecially ſheep, are bred here; and the woods not only ſupply the inhabitants with fuel, but with timber, charcoal, tar, and wood-aſhes, both for domeſtic uſes and for exportation. The culture of ſilk alſo is carried on in this country with great ſucceſs. The principal rivers by which it is watered are the Elbe, the Oder, the Prignitz, the Havel, the Warte, and the Spree. Some of the rivers and lakes abound in fiſh, and are united by canals for the benefit of navigation. They reckon in the whole Mark 120 towns, above 2500 villages, and about 800,000 inhabitants. The ſtates here conſiſt of the nobility and towns, whoſe aſſembly-houſe is in the Spandau-ſtreet at Berlin, and who ſtill enjoy ſome ſmall remains of their ancient privileges. The hereditary officers of the marquiſate are a marſhal, chamberlain, cup-bearer, purveyor, ſewer, treaſurer, and ranger. The king of Pruſſia, who is alſo elector of Brandenburg, with his whole court, are Calviniſts; but the religion of moſt of the inhabitants is Lutheraniſm. The churches of both perſuaſions are well endowed, and the laity jointly employed by the government. The Roman Catholics are alſo tolerated here. In ſhort, every inhabitant enjoys full liberty of conſcience. A great variety of manufactures, moſt of which were introduced by the French refugees, are carried on in the marquiſate, eſpecially at Berlin and Potſdam; where are alſo excellent painters, ſtatuaries, and engravers. By means of theſe manufactures, fabrics, and arts, not only large ſums are kept in the country, but alſo imported from other parts, to which conſiderable quantities of the manufactures and natural productions are exported. For the education of youth and the advancement of learning, beſides Latin ſchools in ſeveral places, and gymnaſia, there is an univerſity at Frankfort on the Oder, and an academy of ſciences at Berlin. Brandenburg.

The Brandenburg family is of great antiquity. Some hiſtorians ſay it was founded by the Sclavonians, who gave it the name of *Branber*, which ſignifies the "Guards of the Foreſts;" and the Germans called it *Branburgh*. Henry I. ſurnamed the Fowler, fortified this place in the year 923, to ſerve as a rampart againſt the Huns, a warlike nation, who were extremely troubleſome by their frequent incurſions. He beſtowed the government on Sifro, count of Ringelheim, with the title of Margrave or Marquis, which ſignifies Protector of the Marches or Frontiers, in 923. It deſcended to Geron, margrave of Luſatia; and in ſucceſſion of time paſſed into the families of Staden, Aſcania, Bellenſtadt, and that of Bavaria, till the emperor Sigiſmund, with the conſent of the ſtates of the empire, in 1416, gave perpetual inveſtiture to Frederick VI. of Nuremberg; who alſo the following year received from the emperor, at the diet of Conſtance, the inveſtiture of the county of Brandenburg as Frederick I.; having had previouſly conferred upon him the dignity of elector and arch-chamberlain of the Holy Roman empire.

Brandenburg remained long in ſubjection to Poland; and the inveſtiture of Pruſſia was granted by the Poliſh kings to each ſucceeding margrave. Frederick-William, having concluded a treaty with the king of Poland, was acknowledged to be ſovereign of Ducal Pruſſia by an aſſembly of the ſtates at Konigſberg A. D. 1663. By the treaty of Vienna the emperor confirmed this title; and Frederick, the ſon of Frederick-William, was proclaimed king of Pruſſia, January 18. 1701. He was ſucceeded by his ſon, who performed the greateſt ſervices to his country, and prepared the materials of the future grandeur of the late ſovereign, Frederick III. who began his reign on the 31ſt of May 1740, at the age of 28. See PRUSSIA.

Among the electors he poſſeſſes the ſeventh place. As arch-chamberlain, he carries the ſceptre before the emperor at his coronation, and brings him water in a ſilver baſon to waſh with. In the college of princes of the empire he has five voices. His aſſeſſment, as elector, is 60 horſe and 277 foot, or 1828 florins in lieu of them. To the chamber of Wetzlar, his quota is 811 rix-dollars 58 kruitzers, each term. As to the orders of the knights of the Black Eagle, and of Merit, it is ſufficient here to obſerve, that the former was inſtituted by Frederic I. at his coronation, and the other by the preſent king. For the government of this country and the adminiſtration of juſtice, there are ſeveral ſupreme colleges and tribunals; particularly for the departments of war, foreign affairs, and the finances, there are diſtinct boards. Here is a ſupreme eccleſiaſtical council and conſiſtory for the Lutherans; a ſupreme directory

Brandenburg, Brandeum.

directory of the Calviniſt church; a ſupreme medicinal college; a ſupreme mine-office; a college or board of trade, &c. Thoſe of the French nation, ſettled in this country, are allowed particular courts of their own. The amount of the yearly revenues of the Mark, ariſing from the domains, protection money paid by the Jews, tolls, land-tax, mines, foreſts, duties on ſtamp-paper, ſalt, and variety of other impoſts and exciſes, is computed at about 2,500,000 crowns; but the money is ſaid to be much inferior in goodneſs to that of Saxony and the dominions of Hanover. During the late continental war it was extremely debaſed. Some eſtimate the whole number of the inhabitants of the royal and electoral dominions at 5,000,000, and the revenues at about 2,000,000 ſterling. Upwards of 100,000 men are kept on foot in time of peace, which are ſaid to coſt more than half of the royal revenue. Theſe troops are under ſtrict diſcipline, very expert at their exerciſe, always in readineſs to march, and always complete. Each regiment has a particular canton or diſtrict allotted it for its quarters and raiſing recruits. The infantry are clothed in blue, and the horſe and dragoons in white; and both are required to hear ſermon twice a-day when in quarters or garriſons. In time of peace they are allowed, for ſeveral months in the year, to hire themſelves out, or to follow their buſineſs either as burghers or peaſants, in the canton where they are quartered; but they are not allowed to marry. A conſiderable part of theſe troops are ſtationed in the Mark, particularly at Berlin and Potſdam. The corps of huſſars alone amounts to about 10,000 men. The Mark of Brandenburg is divided, in general, into the electoral and new Marks. The former is again ſubdivided into the old Mark, the Pregnitz, the middle Mark, and the Ucker Mark. The old Mark, which lies on the weſt ſide of the Elbe, between that river and Lunenburg, is about 50 miles in length, and 30 in breadth.

BRANDENBURG, a city of Germany, and capital of the marquiſate of that name, ſituated on the river Havel, in E. Long. 13. 0. N. Lat. 52. 25. It is divided into the old and new town, and was anciently the ſee of a biſhop. The mountain in the neighbourhood called *Marienberg*, is planted with vines. Here is a ſmall colony of French Calviniſts, with a manufacture of cloth, fuſtian, and canvas; and a pretty good trade is carried on by Havel. The fort here looks like a ſuburb, and contains a riding ſchool, with the cathedral church. The greateſt part alſo of the members of the chapter which ſtill ſubſiſts, and is compoſed of a Lutheran provoſt, dean, ſenior, ſubſenior, and three other canons, reſide in it. They are diſtinguiſhed by a croſs of gold enamelled with violet, terminating in eight points; and have a conſiderable eſtate. Near the town is a large lake.

BRANDEUM, in eccleſiaſtical writers, a linen cloth or veil put over the tombs of the apoſtles St Peter and St Paul, and left there for ſome time; by which it is ſuppoſed to acquire a degree of ſanctity, ſo as to be worſhipped as a relic; and for that purpoſe frequently ſent by the pope as a preſent to ſome prince. In this ſenſe, Brandeum amounts to the ſame with what was otherwiſe called *ſanctuarium*, *ſudarium*, *orarium*, and *velum*. The uſe of brandea was introduced as a means of diffuſing and propagating the virtues and influences of relics, without moving, or any way impairing, the ſubſtance of them; the tranſlation of relics in early days being forbidden.

Branding || Branſka,

BRANDING, in the face or hand, denotes a puniſhment inflicted by law on various offences, by burning with a hot-iron, after the offender hath been once admitted to benefit of clergy.

BRANDON, a town of Suffolk in England, ſeated on a little river Ouſe, over which it has a bridge, and a ferry at a mile's diſtance: whence it is divided into Brandon, and Brandon ferry; which laſt has the moſt buſineſs, becauſe commodities are brought thither from the iſle of Ely. This place gives the Britiſh title of duke to the family of Hamilton in Scotland. E. Long. 0. 55. N. Lat. 52. 30.

BRANDRITH, denotes a trevet or other iron ſtand, whereon to ſet a veſſel over the fire.

BRANDRITH, among builders, denotes a fence or rail about the mouth of a well.

BRANDT, GERARD, a learned divine of the reformed religion, was born at Amſterdam in 1626, and was ſucceſſively miniſter in ſeveral places of the Netherlands. He wrote ſome works which are eſteemed, particularly the Hiſtory of the reformation of the Netherlands, 4 vols 4to; and The Life of Admiral Ruyter; both written in the Flemiſh tongue. He died at Rotterdam in 1685.

BRANDY, a ſpirituous and inflammable liquor, extracted from wine and other liquors by diſtillation. See DISTILLATION.

Wine-brandy, made in France, is eſteemed the beſt in Europe. They make it wherever they make wine, and for that purpoſe uſe wine that is pricked rather than good wine. The chief brandies for foreign trade, and thoſe accounted beſt, are the brandies of Bourdeaux, Rochelle, Cogniac, Charenton, the iſle of Rhe, Orleans, the county of Blaſois, Poictou, Touraine, Anjou, Nantz, Burgundy, and Champaign.

BRANK, an inſtrument uſed in ſome parts of Scotland, and in Staffordſhire, for correcting ſcolding women. It is a ſort of head-piece, which opens and encloſes the head of the impatient, while an iron, ſharp as a chiſſel, enters the mouth, and ſubdues the more dreadful weapon within. Thus harneſſed, the offender is led in triumph through the ſtreets. Dr Plott, in his Hiſtory of Staffordſhire, has favoured the world with a minute deſcription and figure of the inſtrument*, which is there called a *ſcolding bridle*; and tells us, he looks upon it "as much to be preferred to the ducking-ſtool, which not only endangers the health of the party, but alſo gives the tongue liberty betwixt every dip; to neither of which this is at all liable."

*Page 380. Tab. 32.

BRANLIN, in *Ichthyology*, a ſpecies of ſalmon, with ſeveral tranſverſe black ſtreaks, reſembling the impreſſion of ſo many fingers.

BRANNODUNUM (Notitiæ), with a garriſon of the Equites Dalmatiæ, a town of Britain, on the Sinus Metaris: now Brancefter, in Norfolk, on the Waſhes.

BRANOGENIUM, or BRANONIUM, a town of the Coritani, a people in the heart of Britain: from the diſtances of the Itinerary, Camden ſuppoſes it to be Worceſter.

BRANSKA, a town of Tranſilvania, ſituated on the river Mariſh. E. Long. 23. 15. N. Lat. 46. 0.

BRASIDAS,

Braſidas ‖ Braſil.

BRASIDAS, a celebrated general of the Lacedemonians, about 424 years before the birth of Chriſt. He defeated the Athenians by land and ſea, took many places, and rendered his country formidable to all the neighbouring ſtates. He conquered the Athenians on their attempting to ſurpriſe Amphipolis, but died of the wounds he received in that battle. See ATTICA and LACEDEMON.

BRASIDA, an anniverſary ſolemnity at Sparta, in memory of Braſidas, a Lacedemonian captain, famous for his achievements at Methone, Pylos, and Amphipolis. It was celebrated with ſacrifices and games, wherein none were permitted to attend but free-born Spartans. Whoever neglected to be preſent at the ſolemnity was fined.

BRASIL, a large country of South America, being the eaſtermoſt part of that continent, lying between the equinoctial line and the tropic of capricorn. It is about 1560 miles in length, and 1000 in breadth; but, meaſuring along the coaſt, it is 2000 miles long. and is bordered with mountains that open from time to time, and form good harbours where veſſels may lie in ſafety. It was accidentally diſcovered by the Portugueſe in 1500. Emmanuel king of Portugal had equipped a ſquadron of 13 ſail, carrying 1200 ſoldiers and ſailors deſtined for the Eaſt Indies, under the conduct of Peter Alvarez Cabral. This admiral, quitting Liſbon on the 9th of March 1500, ſtruck out to ſea to avoid the coaſt of Guinea, and ſteered his courſe ſouthward, that he might the more eaſily turn the Cape of Good Hope, which projects a good way into the ocean. On the 24th of April, he got ſight of the continent of South America, which he judged to be a large iſland at ſome diſtance from the coaſt of Africa. Coaſting along for ſome time, he ventured to ſend a boat on ſhore; and was aſtoniſhed to obſerve the inhabitants entirely different from the Africans in features, hair, and complexion. It was found, however, impracticable to ſeize upon any of the Indians, who retired with great celerity to the mountains on the approach of the Portugueſe; yet, as the ſailors had diſcovered a good harbour, the admiral thought proper to come to an anchor, and called the bay *Puerto Seguro*. Next day he ſent another boat on ſhore, and had the good fortune to lay hold on two of the natives, whom he clothed and treated kindly, and then diſmiſſed, to make a proper report to their countrymen. The ſtratagem had the deſired effect. The Indians, having heard the relation of the priſoners, immediately crowded to the ſhore, ſinging, dancing, and ſounding horns of different kinds; which induced Cabral to land, and take ſolemn poſſeſſion in the name of his Portugueſe majeſty.

As ſoon as the court of Liſbon had ordered a ſurvey to be taken of the harbours, bays, rivers, and coaſts of Braſil, and was convinced that the country afforded neither gold nor ſilver, they held it in ſuch contempt, that they ſent thither none but condemned criminals and abandoned women. Two ſhips were ſent every year from Portugal, to carry the refuſe of the kingdom to this new world, and to bring home parrots and woods for the dyers and cabinet-makers. Ginger was afterwards added; but ſoon after prohibited, leſt it ſhould interfere with the ſale of the ſame article from India.

In 1548, the Jews. many of whom had taken refuge in Portugal, beginning to be perſecuted by the inquiſition, were ſtripped of their poſſeſſions, and baniſhed to Braſil. Here, however, they were not entirely forſaken. Many of them found kind relations and faithful friends; others, who were known to be men of probity and underſtanding, obtained money in advance from merchants of different nations with whom they had formerly had tranſactions. By the aſſiſtance of ſome enterpriſing men, they were enabled to cultivate ſugar canes, which they firſt procured from the iſland of Madeira. Sugar, which till then had been uſed only in medicine, became an article of luxury. Princes and great men were all eager to procure themſelves this new ſpecies of indulgence. This circumſtance proved favourable to Braſil, and enabled it to extend its ſugar plantations. The court of Liſbon, notwithſtanding its prejudices, began to be ſenſible, that a colony might be beneficial to the mother country, without producing gold or ſilver; and this ſettlement, which had been wholly left to the capricious management of the coloniſts, was now thought to deſerve ſome kind of attention; and accordingly Thomas de Souza was ſent thither, in 1549, to regulate and ſuperintend it. Braſil.

This able governor began by reducing theſe men, who had always lived in a ſtate of anarchy, into proper ſubordination, and bringing their ſcattered plantations cloſer together; after which he applied himſelf to acquire ſome information reſpecting the natives, with whom he knew he muſt be inceſſantly engaged either in traffic or war. This it was no eaſy matter to accompliſh. Braſil was full of ſmall nations, ſome of which inhabited the foreſts, and others lived in the plains and along the rivers. Some had ſettled habitations; but the greater number of them led a roving life, and moſt of them had no intercourſe with each other. It is not to be ſuppoſed that ſuch a people would be at all diſpoſed to ſubmit to the yoke which the Portugueſe wanted to put upon them on their arrival. At firſt they only declined all intercourſe with theſe ſtrangers: but finding themſelves purſued in order to be made ſlaves, and to be employed in the labours of the field, they took the reſolution to murder and devour all the Europeans they could ſeize upon. The friends and relations of the ſavages that were taken priſoners alſo ventured to make frequent attempts to reſcue them, and were ſometimes ſucceſsful: ſo that the Portugueſe were forced to attend to the double employments of labour and war.

Souza did not bring a ſufficient number of forces to change the ſituation of affairs. Indeed, by building San Salvador, he gave a centre to the colony; but the honour of ſettling, extending, and making it really uſeful to the mother-country, was reſerved for the Jeſuits who attended him. Theſe men, who for their arts of inſinuation and addreſs have been equalled by none, diſperſed themſelves among the Indians. When any of the miſſionaries were murdered, they were immediately replaced by others; and ſeeming to be inſpired only with ſentiments of peace and charity, the Indians, in proceſs of time, grew not only familiar but paſſionately fond of them. As the miſſionaries were too few in number to tranſact all the buſineſs themſelves, they frequently deputed ſome of the moſt intelligent Indians in their ſtead. Theſe men having diſtributed hatchets, knives, and looking-glaſſes, among the ſavages they

met

Brafil. met with, repreſented the Portugueſe as a harmleſs, humane, and good ſort of people.

The proſperity of the colony of Braſil, which was viſible to all Europe, excited the envy of the French, Spaniards, and Dutch ſucceſſively. The latter, indeed, bid faireſt for the conqueſt of the whole. Their admiral Henry Lonk arrived, in the beginning of the year 1630, with 46 men of war, on the coaſt of Fernambucca, one of the largeſt and beſt fortified captainſhips of theſe parts. He reduced it after ſeveral obſtinate engagements, in which he was always victorious. The troops he left behind ſubdued the captainſhips of Temaraca, Pareiba, and Rio Grande, in the years 1633, 1634, and 1635. Theſe, as well as Fernambucca, furniſhed annually a large quantity of ſugar, a great deal of wood for dyeing, and other commodities. The Hollanders were ſo elated with the acquiſition of this wealth, which flowed to Amſterdam inſtead of Liſbon, that they determined to conquer all the Braſils, and intruſted Maurice of Naſſau with the conduct of this enterprize. That general reached the place of his deſtination in the beginning of the year 1637. He found the ſoldiers ſo well diſciplined, the commanders ſuch experienced men, and ſo much readineſs in all to engage, that he directly took the field. He was ſucceſſively oppoſed by Albuquerque, Banjola, Lewis Rocca de Borgia, and the Braſilian Cameron, the idol of his people, paſſionately fond of the Portugueſe, brave, active, cunning, and who wanted no qualification neceſſary for a general, but to have learned the art of war under able commanders. Theſe ſeveral chiefs exerted their utmoſt efforts to defend the poſſeſſions that were under their protection; but their endeavours proved ineffectual. The Dutch ſeized upon the captainſhips of Siara, Seregippe, and the greater part of that of Bahia. Seven of the 15 provinces which compoſed the colony had already ſubmitted to them, and they flattered themſelves that one or two campaigns would make them maſters of the reſt of their enemies poſſeſſions in that part of America; when they were ſuddenly checked by the revolution happening on the baniſhment of Philip IV. and placing the duke of Braganza on the throne. After this, the Portugueſe recovering their ſpirits, ſoon drove the Dutch out of Braſil, and have continued maſters of it ever ſince.

The country of Braſil is divided into the following provinces, viz. Paria, Maragnano, Siara, Rio Grande, Pareiba, Tamarica, Fernambucca, Seregippe, Bahia, Porto Seguro, Eſperito Santo, Rio de Janeiro, Angra, St Vincent, and Del Rey. See theſe articles.

The firſt aſpect of the country from the ſea is rather unfavourable, as it appears high, rough, and unequal; but, on a more narrow inſpection, nothing can be more delightful, the eminences being covered with woods, and the valleys and ſavannahs with the moſt refreſhing verdure. In ſo vaſt a tract of land, it cannot be imagined that the climate will be found at all equal, or the ſeaſons uniform. The northern provinces are ſubject to heavy rains and variable winds, like other countries under the ſame parallels. Tornadoes, ſtorms, and the utmoſt fury of the elements, wreak their vengeance here; while the ſoutherly regions are bleſſed with all the comforts which a fine fertile ſoil and temperate climate can afford. In ſome of the provinces, the heat of the climate is thought to prove favourable to the generation of a great variety of poiſonous reptiles: ſome of Braſil. which, as the *liboy* or *roebuck* ſnake, are ſaid to extend to the length of 30 feet, and to be two or three yards in circumference. The rattleſnake and other reptiles of the ſame kind, grow likewiſe to an enormous ſize; and the ſerpent called *ibibaboka* is affirmed to be 7 yards long, and half a yard in circumference, poſſeſſed too of a poiſon inſtantaneouſly fatal to the human race. Here alſo are ſcorpions, ant-bears, tygers or madilloes, porcupines, janonveras, and an animal called *tapiraſſon*, which is the production of a bull and an aſs, having a great reſemblance to both. No country on earth affords a greater number of beautiful birds, nor variety of the moſt exquiſite fruits; but the chief commodities are Braſil-wood, ebony, dyeing woods, ambergris, roſin, balſams, indigo, ſweetmeats, ſugar, tobacco, gold, diamonds, beautiful pebbles, cryſtal, emeralds, jaſper, and other precious ſtones; in all which the Portugueſe carry on ſuch an amazing trade, as may juſtly be reputed the ſupport, and indeed the vital fountain, of the mother country. The gold and diamond mines are but a recent diſcovery: they are firſt opened in the year 1681; and have ſince yielded above five millions ſterling annually, of which ſum a fifth belongs to the crown. So plentiful are diamonds in this country, that the court of Portugal hath found it neceſſary to reſtrain their importation, to prevent too great a diminution of their value. They are neither ſo hard nor ſo clear as thoſe of the Eaſt Indies, nor do they ſparkle ſo much, but they are whiter. The Braſilian diamonds are ſold ten per cent. cheaper than the Oriental ones, ſuppoſing the weights to be equal. The largeſt diamond in the world was ſent from Braſil to the king of Portugal. It weighs 1680 carats, or 12$\frac{1}{2}$ ounces; and has been valued at 56,787,500l. Some ſkilful lapidaries, however, are of opinion that this ſuppoſed diamond is only a topaz; in which caſe a very great abatement muſt be made in its value. The crown revenue ariſing from this colony amounts to two millions ſterling in gold, if we may credit ſome late writers, beſides the duties and cuſtoms on merchandiſe imported from that quarter. This indeed is more than a fifth of the precious metal produced by the mines; but, every other conſequent advantage conſidered, it probably does not much exceed the truth. The exceſſive confluence of people to the Braſil colonies, as well from other countries as from Portugal, not only enlarges the imports of gold, but, what is of infinitely more importance to Europe in general, the exportation of the manufactures of this hemiſphere; of which the principal are the following. Great Britain ſends woollen manufactures; ſuch as fine broad medley cloths, fine Spaniſh cloths, ſcarlet and black cloths; ſerges, duroys, druggets, ſagathies, ſhalloons, camblets, and Norwich ſtuffs; black Colcheſter baiſe; ſays, and perpetuanas called *long ells;* hats, ſtockings, and gloves. Holland, Germany, and France, chiefly export fine hollands, bone-lace, and fine thread: ſilk manufactures, pepper, lead, block tin, and other articles, are alſo ſent from different countries. Beſides the particulars already ſpecified, England likewiſe trades with Portugal, for the uſe of the Braſils, in copper and braſs, wrought and unwrought pewter, and all kinds of hardware: all which articles have ſo enlarged the Portugueſe trade, that, inſtead of 12 ſhips uſually employed in the Braſil commerce, there are now never fewer

Braſil-wood || Braſs.

fewer than 100 ſail of large veſſels conſtantly going and returning to thoſe colonies. To all this may be added the vaſt ſlave-trade carried on with the coaſt of Africa for the uſe of the Braſil colonies: which, we may believe, employs a great number of ſhipping, from the multitude of ſlaves that are annually tranſported. Indeed the commerce of Braſil alone is ſufficient to raiſe Portugal to a conſiderable height of naval power, as it maintains a conſtant nurſery of ſeamen: yet a certain infatuation in the policy of the country has prevented that effect, even amidſt all theſe extraordinary advantages. All the ſhips in this trade, being under the direction of the government, have their appointed ſeaſons of going and returning, under convoy of a certain number of men of war; nor can a ſingle ſhip clear out or go, except with the fleet, but by a ſpecial licenſe from the king, which is ſeldom granted; though it is eaſily determined, that ſuch reſtrictions can prove no way beneficial to the general commerce, though poſſibly the crown revenue may be better guarded thereby. The fleets ſail in the following order, and at the following ſtated periods: That to Rio de Janeiro ſets ſail in January; the fleet to Bahia, or the bay of All Saints, in February; and the third fleet, to Fernambucca, in the month of March.

Brasil-Wood, or *Brazil-wood*, an American wood of a red colour, and very heavy. It is denominated variouſly, according to the places from whence it is brought: Thus we have braſil of Fernambucca, Japan, Lamon, &c. For its deſcription, &c. ſee Cæsalpinia, Botany *Index*.

BRASILETTO, the ſame with Braſil-wood.

BRASLAW, a conſiderable town of Poland, in Lithuania, and palatinate of Wilna, with a caſtle. It is ſeated on a ſmall lake, in E. Long. 17. 5. N. Lat. 55. 45.

BRASS, or, as the French call it, *yellow copper*, is a factitious metal, compoſed of copper and zinc. See Chemistry-*Index*.

The firſt formation of braſs, as we are aſſured by ſcripture, was prior to the flood, and diſcovered even in the ſeventh generation from Adam *. But the uſe of it was not, as is generally believed, and the Arundelian marbles aſſert, previous to the knowledge of iron. They were both firſt known in the ſame generation, and firſt wrought by the ſame diſcoverer. And the knowledge of them muſt have been equally carried over the world afterwards, with the ſpreading of the colonies of the Noachidæ. An acquaintance with the one or the other was abſolutely neceſſary to the exiſtence of the coloniſts; the clearing away of the woods about their ſettlements, and the erection of houſes for their habitation.

* Gen. iv.

The ancient Britons, though acquainted from the remoteſt periods with the uſe of both theſe metals, remained long ignorant that they were to be obtained in the iſland. Before this diſcovery they imported all their iron and braſs from the continent. And when they had at length detected the former in their own hills, and had ceaſed to introduce it, they continued to receive the latter. Their want of the metal remained, and no mines of it were opened in the iſland. In the earlieſt ages whoſe manners have been delineated by hiſtory, we find the weapons of their warriors invariably framed of this factitious metal; and the moſt authentic of all the profane records of antiquity, the Arundelian marbles, for that reaſon, miſtakenly date the firſt diſcovery of iron a couple of centuries below the Trojan war. Every military nation, as ſuch, is naturally ſtudious of brightneſs in its arms; and the Britons, particularly, gloried in the neatneſs of theirs. For this reaſon the nations of the world ſtill fabricated their arms of braſs, even long after the Arundelian era for the diſcovery of iron; and the Britons continued to import it from the continent, though they had found iron to be a native of the country, and could have ſupplied themſelves with a ſufficient quantity of it. Braſs.

Mr Whitaker † ſuppoſes, that when the Britons derived their iron and braſs from the continent, they purchaſed the latter at an eaſier expence than the former. The Gauls had many large braſs works carried on in the kingdom, but ſeem to have had but few iron forges within it. And this would naturally induce the Belgæ to be leſs diligent in their inquiry after the veins of copper and calamine at home, than for the courſes of iron ore; though the one was equally diſcoverable in the iſland as the other, and lay equally within the Belgic regions of it. Braſs being thus cheaper than iron, they neceſſarily formed with it ſome domeſtic as well as military implements. Such were common among the Gauls; and ſuch were familiar to the Britons, either imported into the iſland, as ſome actually were, or manufactured within it, as others alſo aſſuredly were. The Britons had certainly braſs founderies erected among them, and minted money, and fabricated weapons of braſs.

† *Hiſt. of Manchester.*

In this condition of the works, the Romans entered the iſland. And ſeeing ſo great a demand among the natives for this article, they would ſpeedily inſtruct them to diſcover the materials of it among themſelves. This muſt unavoidably have reſulted from the conqueſt of the Romans. The power of ſurpriſing their new ſubjects with ſo unexpected a diſcovery would naturally ſtimulate the pride of the Roman intellect; and the deſire of obliging themſelves with ſo cheap a ſupply of that uſeful metal, ſtationary as they were in that kingdom, would alſo equally actuate the ſelfiſhneſs of the Roman braſs. The veins of copper and calamine would be eaſily found out by an experienced inquirer after them; and the former metal is therefore diſtinguiſhed among the Welſh, only by the Roman appellation of *cyprium*, *koppr* or copper. And many founderies of braſs appear to have been eſtabliſhed in the iſland. Some had been erected before, one perhaps within the confines of every kingdom, and probably in the vicinity of every capital. One at leaſt would be neceſſary, in order to ſupply the armoury of the principality: and one perhaps was ſufficient for moſt of the Britiſh ſtates. But ſeveral appear now to have been ſettled in every kingdom, and one perhaps near every ſtationary town. Two have been diſcovered in the ſingle county of Eſſex, and within a narrow portion of it, at Fifield and Danbury. And a third was placed upon Eaſterly Moor in Yorkſhire, 12 miles to the north-weſt of York, and in the neighbourhood of Iſurium or Aldborough.

Corinthian Brass, famous in antiquity, is a mixture of gold, ſilver, and copper. L. Mummius having ſacked and burnt the city of Corinth, 146 years before Chriſt, it is ſaid this metal was formed from the immenſe quantities of gold, ſilver, and copper, wherewith

Braſs. that city abounded, thus melted and run together by the violence of the conflagration.

BRASS, in the glaſs trade.—Thrice calcined braſs is a preparation which ſerves the glaſſmen to give many very beautiful colours to their metal. The manner of preparing it is this: Place thin plates of braſs on tiles on the feet of the furnace near the occhis; let it ſtand to be calcined there for four days, and it will become a black powder ſticking together in lumps. Powder this, ſift it fine, and recalcine it four or five days more; it will not then ſtick together, but remain a looſe powder, of a ruſſet colour. This is to be calcined a third time in the ſame manner; but great care muſt be taken in the third calcination, that it be not overdone nor underdone: the way to be certain when it is right is, to try it ſeveral times in glaſs while melting. If it makes it, when well purified, to ſwell, boil, and riſe, it is properly calcined; if not, it requires longer time. This makes, according to the different proportions in which it is uſed, a ſea-green, an emerald-green, or a turcoiſe colour.

Braſs, by long calcination alone, and without any mixture, affords a fine blue or green colour for glaſs; but they have a method of calcining it alſo with powdered brimſtone, ſo as to make it afford a red, a yellow, or a chalcedony colour, according to the quantity and other variations in the uſing it. The method of making the calcination is this: Cut thin plates of braſs into ſmall pieces with ſhears, and lay them ſtratum ſuper ſtratum, with alternate beds of powdered ſulphur, in a crucible; calcine this for 24 hours in a ſtrong fire: then powder and ſift the whole; and finally expoſe this powder upon tiles for 12 days to a reverberating furnace; at the end of this time powder it fine, and keep it for uſe. The glaſs-makers have alſo a method of procuring a red powder from braſs, by a more ſimple calcination, which ſerves them for many colours. The method of preparing it is this: They put ſmall and thin plates of braſs into the arches of the glaſs furnaces, and leave them there till they are ſufficiently calcined, which the heat in that place, not being enough to melt them, does in great perfection. The calcined matter powdered, is of a duſky red, and requires no farther preparation.

Brass-Colour, one prepared by the braziers and colour-men to imitate braſs. There are two ſorts of it; the red braſs or bronze, and the yellow or gilt braſs: the latter is made only of copper-filings, the ſmalleſt and brighteſt that can be found; with the former they mix ſome red ochre, finely pulverized; they are both uſed with varniſh.—In order to make a fine braſs that will not take any ruſt or verdigris, it muſt be dried with a chafing-diſh of coals as ſoon as it is applied.—The fineſt braſs-colour is made with powder braſs imported from Germany, diluted into a varniſh, made and uſed after the following manner: The varniſh is compoſed of one pound four ounces of ſpirit of wine, two ounces of gum-lac, and two ounces of ſandarac; theſe two laſt drugs are pulverized ſeparately, and afterwards put to diſſolve in ſpirit of wine, taking care to fill the bottle but half full. The varniſh being made, you mix ſuch quantity as you pleaſe of it with the pulverized braſs, and apply it with a ſmall bruſh to what you would braſs over. But you muſt not mix too much at once, becauſe the varniſh being very apt to dry, you would not have time to employ it all ſoon enough; it is therefore better to make the mixture at ſeveral times. After this manner they braſs over figures of plaſter, which look as well as if they were of caſt braſs. Braſſaw || Praſſica.

Brass-Leaf is made of copper, beaten out into very thin plates, and afterwards rendered yellow. The German artiſts, particularly thoſe of Nuremberg and Augſburg, are ſaid to poſſeſs the beſt method of giving to theſe thin plates of copper a fine yellow colour like gold, by ſimply expoſing them to the fumes of zinc, without any real mixture of it with the metal. Theſe plates are cut into little pieces, and then beaten out fine like leaves of gold; after which they are put into books of coarſe paper, and ſold at a low price for the vulgar kinds of gilding. The parings or ſhreds of theſe very thin yellow leaves being well ground on a marble plate, are reduced to a powder ſimilar to gold; which ſerves to cover, by means of gum-water, or ſome other glutinous fluid, the ſurface of various mouldings or pieces of curious workmanſhip, giving them the appearance of real bronze, and even of fine gold, at a very trifling expence, becauſe the gold colour of this metallic powder may be eaſily raiſed and improved by ſtirring it on a wide earthen baſon over a ſlow fire.

Brass-Lumps, a common name given by miners to the globular pyrites. See PYRITES, MINERALOGY *Index*.

BRASSAW, or CRONSTADT, a ſtrong town of Tranſilvania in Burezland; ſeated on the river Buxel, in E. Long. 22. 35. N. Lat. 46. 30.

BRASSE. A ſpecies of PERCA. See ICHTHYOLOGY *Index*.

BRASSICA, CABBAGE, in *Botany*, for the claſſification of which ſee BOTANY *Index*. But as many of the ſpecies of this genus are of conſiderable importance as articles of food, we ſhall here lay before our readers a more particular account of their uſes and mode of culture under the names known to practical gardeners.

The ſpecies called *campeſtris* grows naturally on the ſea-ſhore near Dover, has a perennial branching ſtalk, and in this it differs from all the other ſpecies. In very ſevere winters, when the other ſorts are deſtroyed, this is a neceſſary plant, for the moſt ſevere froſts do not injure it. The flower-ſtalks grow from the end of the branches, and ſpread out horizontally; but thoſe which ariſe from the centre of the plants grow erect, and ſeldom put out branches. The cauliflower has been much more improved in Britain than in any other part of Europe. In France they rarely have cauliflowers till Michaelmas, and Holland has been often ſupplied with them from Britain. In many parts of Germany there were none of them cultivated till within a few years paſt, and moſt parts of Europe are ſupplied with ſeeds from Britain. That which is generally known by the title of *rape* or *cole-ſeed* is much cultivated in the iſle of Ely, and ſome other parts of England, for its ſeed, from which rape-oil is drawn; and it hath alſo been cultivated of late years, in other places, for feeding of cattle, to great advantage. The cole-ſeed, when cultivated for feeding of cattle, ſhould be ſown about the middle of June. The ground for this ſhould be prepared for it in the ſame manner as for turnips. The quantity of ſeeds for an acre of land is from ſix to eight pounds; and as the price of the ſeed is not great, ſo it is better to allow

eight

Braſſica. eight pounds; for if the plants are too cloſe in any part they may be eaſily thinned when the ground is hoed, which muſt be performed in the ſame manner as is practiſed for turnips, with this difference only, of leaving theſe much nearer together; for as they have fibrous roots and ſlender ſtalks, ſo they do not require near ſo much room. Theſe plants ſhould have a ſecond hoeing about five or ſix weeks after the firſt, which, if well performed in dry weather, will entirely deſtroy the weeds, ſo they will require no farther culture. Where there is not an immediate want of food, theſe plants had better be kept as a reſerve for hard weather, or ſpring feed, when there may be a ſcarcity of other green food. If the heads are cut off, and the ſtalks left in the ground, they will ſhoot again early in the ſpring, and produce a good ſecond crop in April; which may be either fed off, or permitted to run to ſeeds, as is the practice where this is cultivated for the ſeeds: but if the firſt is fed down, there ſhould be care taken that the cattle do not deſtroy their ſtems, or pull them out of the ground. As this plant is ſo hardy as not to be deſtroyed by froſt, ſo it is of great ſervice in hard winters for feeding of ewes; for when the ground is ſo hard frozen as that turnips cannot be taken up, theſe plants may be cut off for a conſtant ſupply. This will afford late food after the turnips are run to ſeed; and if it is afterwards permitted to ſtand for ſeed, one acre will produce as much as, at a moderate computation, will ſell for five pounds, clear of charges. Partridges, pheaſants, turkeys, and moſt other fowl, are very fond of this plant; ſo that wherever it is cultivated, if there are any birds in the neighbourhood, they will conſtantly lie among theſe plants. The ſeeds of this plant are ſown in gardens for winter and ſpring ſalads, this being one of the ſmall ſalad herbs.

The common white, red, flat, and long-ſided cabbages, are chiefly cultivated for autumn and winter uſe. The ſeeds of theſe ſorts muſt be ſown the beginning or middle of April, in beds of good freſh earth; and when the young plants have about eight leaves, they ſhould be pricked out into ſhady borders, about three or four inches ſquare, that they may acquire ſtrength, and to prevent their growing long ſhanked. About the middle of June you muſt tranſplant them out, where they are to remain. If they are planted for a full crop in a clear ſpot of ground, the diſtance from row to row ſhould be three feet and a half, and in the rows two feet and a half aſunder: if the ſeaſon ſhould prove dry when they are tranſplanted out, you muſt water them every other evening until they have taken freſh root; and afterwards, as the plants advance in height, you ſhould draw the earth about the ſtems with a hoe, which will keep the earth moiſt about their roots, and greatly ſtrengthen the plants. Theſe cabbages will ſome of them be fit for uſe ſoon after Michaelmas, and will continue until the end of February, if they are not deſtroyed by bad weather; to prevent which, the gardeners near London pull up their cabbages in November, and trench their ground up in ridges, laying their cabbages againſt their ridges as cloſe as poſſible on one ſide, burying their ſtems in the ground: in this manner they let them remain till after Chriſtmas, when they cut them for the market; and although the outer part of the cabbage be decayed (as is often the caſe in very wet or hard winters), yet, if the cabbages were large and hard when laid, the inſide will remain ſound. Braſſica.

The Ruſſian cabbage was formerly in much greater eſteem than at preſent, it being now only to be found in particular gentlemen's gardens, who cultivate it for their own uſe. This muſt be ſown late in the ſpring of the year, and managed as thoſe before directed, with this difference only, that theſe muſt be ſooner planted out, and muſt have an open clear ſpot of ground, and require much leſs diſtance every way, for it is but a very ſmall hard cabbage. This ſort will not continue long before they will break and run up to ſeed.

The early and ſugar loaf cabbages are commonly ſown for ſummer uſe, and are what the gardeners about London commonly call *Michaelmas cabbages*. The ſeaſon for ſowing of theſe is about the end of July, or beginning of Auguſt, in an open ſpot of ground; and when the plants have got eight leaves, you muſt prick them into beds at about three or four inches diſtance every way, that the plants may grow ſtrong and ſhort ſhanked; and toward the end of October you ſhould plant them out: the diſtance that theſe require is, three feet row from row, and two feet and a half aſunder in the rows. The ground muſt be kept clean from weeds, and the earth drawn up about your cabbage plants. In May, if your plants were of the early kind, they will turn in their leaves for cabbaging; at which time, the gardeners near London, in order to obtain them a little ſooner, tie in their leaves cloſe with a ſlender oſier-twig to blanch their middle; by which means, they have them at leaſt a fortnight ſooner than they could have if they were left untied.

The early cabbage being the firſt, we ſhould chooſe to plant the fewer of them, and a greater quantity of the ſugar-loaf kind, which comes after them; for the early kind will not ſupply the kitchen long, generally cabbaging apace when they begin, and as ſoon grow hard and burſt open; but the ſugar-loaf kind is longer before it comes, and is as ſlow in its cabbaging; and being of a hollow kind, will continue for a good long time. The ſugar-loaf kind may be planted out in February, and will ſucceed as well as if planted earlier; with this difference only, that they will be later before they cabbage. You ſhould alſo reſerve ſome plants of the early kind in ſome well-ſheltered ſpot of ground, to ſupply your plantation, in caſe of a defect; for in mild winters many of the plants are apt to run to ſeed, eſpecially when their ſeeds are ſown too early, and in ſevere winters they are often deſtroyed.

The Savoy cabbages are propagated for winter uſe, as being generally eſteemed the better when pinched by the froſt: theſe muſt be ſown about the end of April, and treated after the manner as was directed for the common white cabbage; with this difference that theſe may be planted at a cloſer diſtance than thoſe; two feet and a half ſquare will be ſufficient. Theſe are always much better when planted in an open ſituation, which is clear from trees and hedges; for in cloſe places they are very ſubject to be eaten almoſt up by caterpillars and other vermin, eſpecially if the autumn prove dry.

The broccoli may alſo be treated in the ſame manner, but need not be planted above one foot aſunder in the rows, and the rows two feet diſtance; theſe are ne-

Braſſica. ver eaten till the froſt hath rendered them tender; for otherwiſe they are tough and bitter.

The ſeeds of the broccoli (of which there are ſeveral kinds, viz. the Roman or purple, the Neapolitan or white, and the black broccoli, with ſome others, but the Roman is preferred to them all), ſhould be ſown about the latter end of May, or beginning of June, and when the plants are grown to have eight leaves, tranſplant them into beds (as was directed for the common cabbage); and toward the latter end of July they will be fit to plant out, which ſhould be done into ſome well-ſheltered ſpot of ground, but not under the drip of trees: the diſtance theſe require is about a foot and a half in the rows, and two feet row from row. The ſoil in which they ſhould be planted ought to be rather light than heavy: if your plants ſucceed well (as there will be little reaſon to doubt, unleſs the winter prove extremely hard), they will begin to ſhow their ſmall heads, which are ſomewhat like a cauliflower, but of a purple colour, about the end of December, and will continue eatable till the middle of April. The brown or black broccoli is by many perſons greatly eſteemed, though it doth not deſerve a place in the kitchen-garden where the Roman broccoli can be obtained, which is much ſweeter, and will continue longer in ſeaſon: indeed, the brown ſort is much hardier, ſo that it will thrive in the coldeſt ſituations, where the Roman broccoli is ſometimes deſtroyed in very hard winters. The brown ſort ſhould be ſown in the middle of May, and managed as hath been directed for the common cabbage, and ſhould be planted at the ſame diſtance, which is about two feet and a half aſunder. This will grow very tall, ſo ſhould have the earth drawn up to their ſtems as they advance in height. This doth not form heads ſo perfect as the Roman broccoli; the ſtems and hearts of the plants are the parts which are eaten. The Roman broccoli (if well managed) will have large heads, which appear in the centre of the plants like cluſters of buds. Theſe heads ſhould be cut before they run up to ſeed, with about four or five inches of the ſtem; the ſkin of the ſtems ſhould be ſtripped off before they are boiled. After the firſt heads are cut off, there will be a great number of ſide-ſhoots produced from the ſtems, which will have ſmall heads to them, but are full as well flavoured as the large. The Naples broccoli hath white heads very like thoſe of the cauliflower, and eats ſo like it as not to be diſtinguiſhed from it.—Beſides this firſt crop of broccoli (which is uſually ſown in the end of May), it will be proper to ſow another crop the beginning of July, which will come in to ſupply the table the latter end of March and the beginning of April; and being very young, will be extremely tender and ſweet.

In order to ſave good ſeeds of this kind of broccoli, you ſhould reſerve a few of the largeſt heads of the firſt crop, which ſhould be let remain to run up to ſeed, and all the under ſhoots ſhould be conſtantly ſtripped off, leaving only the main ſtem to flower and ſeed. If this be duly obſerved, and no other ſort of cabbage permitted to ſeed near them, the ſeeds will be as good as thoſe procured from abroad, and the ſort may be preſerved in perfection many years.

The turnip-rooted cabbage was formerly more cultivated in Britain than at preſent; for ſince other ſorts have been introduced which are much better flavoured, this ſort has been neglected. There are ſome perſons who eſteem this kind for ſoups, but it is too ſtrong for moſt palates; and is ſeldom good but in hard winters, which will render it tender and leſs ſtrong. At the end of June the plants ſhould be tranſplanted out where they are to remain, allowing them two feet diſtance every way, obſerving to water them until they have taken root; and as their ſtems advance, the earth ſhould be drawn up to them with a hoe, which will preſerve a moiſture about their roots, and prevent their ſtems from drying and growing woody, ſo that the plants will grow more freely; but it ſhould not be drawn very high, for as it is the globular part of the ſtalk which is eaten, ſo that ſhould not be covered. In winter they will be fit for uſe, when they ſhould be cut off, and the ſtalks pulled out of the ground and thrown away, being good for nothing after the ſtems are cut off. As food for cattle, however, the cultivation of this ſpecies deſerves particular attention. See AGRICULTURE *Index*. Braſſica.

The curled colewort or Siberian broccoli is now more generally eſteemed than the former, being extremely hardy, ſo is never injured by cold, but is always ſweeter in ſevere winters than in mild ſeaſons. This may be propagated by ſowing of the ſeeds the beginning of July; and when the plants are ſtrong enough for tranſplanting, they ſhould be planted in rows about a foot and a half aſunder, and ten inches diſtance in the rows. Theſe will be fit for uſe after Chriſtmas, and continue good until April, ſo that they are very uſeful in a family.

The muſk cabbage. This may be propagated in the ſame manner as the common cabbage, and ſhould be allowed the ſame diſtance: it will be fit for uſe in October, November, and December; but, if the winter proves hard, theſe will be deſtroyed much ſooner than the common ſort.

The common colewort or Dorſetſhire kale, is now almoſt loſt near London, where their markets are uſually ſupplied with cabbage plants inſtead of them. The beſt method to cultivate this plant in the fields is, to ſow the ſeeds about the beginning of July, chooſing a moiſt ſeaſon, which will bring up the plants in about ten days or a fortnight; the quantity of ſeed for an acre of land is nine pounds: when the plants have got five or ſix leaves they ſhould be hoed, as is practiſed for turnips, cutting down all the weeds from amongſt the plants, and alſo thinning the plants where they are too thick; but they ſhould be kept thicker than turnips, becauſe they are more in danger of being deſtroyed by the fly: this work ſhould be performed in dry weather, that the weeds may be killed. About ſix weeks after, the plants ſhould have a ſecond hoeing, which, if carefully performed in dry weather, will entirely deſtroy the weeds, and make the ground clean, ſo that they will require no farther culture: in the ſpring they may be either drawn up and carried out to feed the cattle, or they may be turned in to feed upon them as they ſtand; but the former method is to be preferred, becauſe there will be little waſte; whereas, when the cattle are turned in amongſt the plants, they will tread down and deſtroy more than they eat, eſpecially if they are not fenced off by hurdles.

The two laſt ſorts of cabbages are varieties fit for a botanic garden, but are plants of no uſe. They are annual

Braſſica. annual plants, and periſh when they have perfected their ſeeds.

The beſt method to ſave the ſeeds of all the ſorts of cabbages is, about the end of November you ſhould make choice of ſome of your beſt cabbages, which you ſhould pull up, and carry to ſome ſhed or other covered place, where you ſhould hang them up for three or four days by their ſtalks, that the water may drain from between their leaves; then plant them in ſome border near a hedge or pale, quite down to the middle of the cabbage, leaving only the upper part of the cabbage above ground, obſerving to raiſe the earth above it, ſo that it may ſtand a little above the level of the ground; eſpecially if the ground is wet, they will require to be raiſed pretty much above the ſurface. If the winter ſhould prove very hard, you muſt lay a little ſtraw or peaſe haulm lightly upon them, to ſecure them from the froſt, taking it off as often as the weather proves mild, leaſt by keeping them too cloſe they ſhould rot. In the ſpring of the year theſe cabbages will ſhoot out ſtrongly, and divide into a great number of ſmall branches: you muſt therefore ſupport their ſtems, to prevent their being broken off by the wind; and if the weather ſhould be very hot and dry when they are in flower, you ſhould refreſh them with water once a-week all over the branches, which will greatly promote their ſeeding, and preſerve them from mildew. When the pods begin to change brown, you will do well to cut off the extreme part of every ſhoot with the pods, which will ſtrengthen your ſeeds; for it is generally obſerved, that thoſe ſeeds which grow near the top of the ſhoots, are very ſubject to run to ſeed before they cabbage; ſo that by this there will be no loſs, but a great advantage. When your ſeeds begin to ripen, you muſt be particularly careful that the birds do not deſtroy it, for they are very fond of theſe ſeeds. The beſt method to prevent this, is to get a quantity of birdlime, and dawb over a parcel of ſlender twigs, which ſhould be faſtened at each end to ſtronger ſticks, and placed near the upper part of the ſeed in different places, ſo that the birds may alight upon them, by which means they will be faſtened thereto; where you muſt let them remain, if they cannot get off themſelves: and although there ſhould not above two or three birds be caught, yet it will ſufficiently terrify the reſt, that they will not come to that place again for a conſiderable time after.

When your ſeed is fully ripe, you muſt cut it off; and after drying, thraſh it out, and preſerve it in bags for uſe.

But in planting of cabbages for ſeed, it will be proper never to plant more than one ſort in a place, or near one another: for example, never plant red and white cabbages near each other, nor Savoy with white or red cabbages; for they will, by the commixture of their effluvia, produce a mixture of kinds: and it is ſaid to be owing to this neglect, that the gardeners rarely ſave any good red cabbage ſeed in Britain, but are obliged to procure freſh ſeeds from abroad; as ſuppoſing the ſoil or climate of Britain alters them from red to white, and of a mixed kind betwixt both; whereas, if they ſhould plant red cabbages by themſelves for ſeeds, and not ſuffer any other to be near them, they might continue the kind as good in Britain as in any other part of the world.

Cauliflowers have of late years been ſo far improved in Britain, as to exceed in goodneſs and magnitude what are produced in moſt parts of Europe, and by the ſkill of the gardener are continued for ſeveral months together; but the moſt common ſeaſon for the great crops is in May, June, and July. Having procured a parcel of good ſeed, you muſt ſow it about the 21ſt of Auguſt, upon an old cucumber or melon bed, ſifting a little earth over the ſeeds, about a quarter of an inch thick; and if the weather ſhould prove extremely hot and dry, you ſhould ſhade the beds with mats, to prevent the earth from drying too faſt, and give it gentle waterings as you may ſee occaſion. In about a month's time after ſowing, your plants will be fit to prick out: you ſhould therefore put ſome freſh earth upon your cucumber or melon beds; or where theſe are not to be had, ſome beds ſhould be made with a little new dung, which ſhould be trodden down cloſe, to prevent the worms from getting through it; but it ſhould not be hot dung, which would be hurtful to the plants at this ſeaſon, eſpecially if it proves hot; into this bed you ſhould prick your young plants at about two inches ſquare, obſerving to ſhade and water them at firſt planting; but do not water them too much after they are growing, nor ſuffer them to receive too much rain if the ſeaſon ſhould prove wet, which would be apt to make them black ſhanked, as the gardeners term it, which is no leſs than a rottenneſs in their ſtems, and is the deſtruction of the plants ſo affected. In this bed they ſhould continue till about the 30th of October, when they muſt be removed into the place where they are to remain during the winter ſeaſon; which, for the firſt ſowing, is commonly under bell or hand glaſſes, to have early cauliflowers, and theſe ſhould be of an early kind: but in order to have a ſucceſſion during the ſeaſon, you ſhould be provided with another more late kind, which ſhould be ſown four or five days after the other, and managed as was directed for them. In order to have very early cauliflowers, you ſhould make choice of a good rich ſpot of ground that is well defended from the north, eaſt, and weſt winds, with hedges, pales, or walls; but the firſt are to be preferred, if made with reeds, becauſe the winds will fall dead in theſe, and not reverberate as by pales or walls. This ground ſhould be well trenched, burying therein a good quantity of rotten dung; then level your ground, and if it be naturally a wet ſoil, you ſhould raiſe it up in beds about two feet and a half, or three feet broad, and four inches above the level of the ground; but if your ground is moderately dry, you need not raiſe it at all: then plant your plants, allowing about two feet ſix inches diſtance from glaſs to glaſs in the rows, always putting two good plants under each glaſs, which may be at about four inches from each other; and if you deſign them for a full crop, they may be three feet and a half row from row: but if you intend to make ridges for cucumbers between the rows of cauliflower plants (as is generally practiſed by the gardeners near London), you muſt then make your rows about eight feet aſunder; and the ground between the rows of cauliflowers may be planted with cabbage plants, to be drawn off for coleworts in the ſpring. When you have planted your plants, if the ground is very dry, you ſhould give them a little water, and then ſet your glaſſes over them, which may remain quite cloſe down over them till Braſſica.

Braſſica. till they have taken root, which will be in about a week or ten days time, unleſs there ſhould be a kindly ſhower of rain; in which caſe you may ſet off the glaſſes, that the plants may receive the benefit of it; and in about ten days after planting, you ſhould be provided with a parcel of forked ſticks or bricks, with which you ſhould raiſe your glaſſes about three or four inches on the ſide toward the ſouth, that your plants may have free air; in this manner your glaſſes ſhould remain over the plants night and day, unleſs in froſty weather, when you ſhould ſet them down as cloſe as poſſible; or if the weather ſhould prove very warm, which many times happens in November, and ſometimes in December, in this caſe you ſhould keep your glaſſes off in the day-time, and put them on only in the night, leſt, by keeping the glaſſes over them too much, you ſhould draw them into flower at that ſeaſon; which is many times the caſe in mild winters, eſpecially if unſkilfully managed. Toward the latter end of February, if the weather proves mild, you ſhould prepare another good ſpot of ground to remove ſome of the plants into, from under the glaſſes, which ſhould be well dunged and trenched (as before): then ſet off your glaſſes; and, after making choice of one of the moſt promiſing plants under each glaſs, which ſhould remain, take away the other plant, by raiſing it up with a trowel, &c. ſo as to preſerve as much earth to the root as poſſible; but take care not to diſturb or prejudice the roots of the plants which remain. Then plant the plants which you have taken out at the diſtance before directed, viz. if for a full crop, three feet and a half, row from row; but if for ridges of cucumbers between them, eight feet, and two feet four inches diſtance in the rows: then, with a ſmall hoe, draw the earth up to the ſtems of the plants which were left under the glaſſes, taking great care not to let the earth fall into their hearts; and ſet your glaſſes over them again, raiſing your props an inch or two higher than before, to give them more air, obſerving to take them off whenever there may be ſome gentle ſhowers, which will greatly refreſh the plants.

In a little time after, if you find your plants grow ſo faſt as to fill the glaſſes with their leaves, you ſhould then ſlightly dig about the plants, and raiſe the ground about them in a bed broad enough for the glaſſes to ſtand, about four inches high, which will give your plants a great deal of room, by raiſing the glaſſes ſo much higher when they are ſet over them; and by this means they might be kept covered until April, which otherwiſe they could not, without prejudice to the leaves of the plants; and this is a great advantage to them, for many times we have returns of ſevere froſts at the latter end of March, which prove very hurtful to theſe plants, if expoſed thereto, eſpecially after having been nurſed up under glaſſes.

After you have finiſhed your beds, you may ſet your glaſſes over your plants again, obſerving to raiſe your props pretty high, eſpecially if the weather be mild, that they may have free air to ſtrengthen them; and in mild ſoft weather ſet off your glaſſes, as alſo in gentle ſhowers of rain; and now you muſt begin to harden them by degrees to endure the open air; however, it is adviſable to let your glaſſes remain over them as long as poſſible, if the nights ſhould be froſty, which will greatly forward your plants; but you muſt not let your glaſſes remain upon them in very hot ſunſhine, eſpecially if their leaves preſs againſt the ſides of the glaſſes; for it hath often been obſerved in ſuch caſes, that the moiſture which hath riſen from the ground, together with the perſpiration of the plants, which by the glaſſes remaining over them hath been detained upon the leaves of the plants, when the ſun hath ſhone hot upon the ſides of the glaſſes, have acquired ſuch a powerful heat from the beams thereof, as to ſcald all their larger leaves, to the no ſmall prejudice of the plants: nay, ſometimes large quantities of plants have been ſo affected therewith, as never to be worth any thing after. Braſſica.

If your plants have ſucceeded well, toward the end of April ſome of them will begin to fruit: you muſt therefore look over them carefully every other day, and when you ſee the flower plainly appear, you muſt break down ſome of the inner leaves over it to guard it from the ſun, which would make the flower yellow and unſightly if expoſed thereto; and when you find your flower at its full bigneſs (which you may know by its outſide parting as if it would run), you muſt then draw it out of the ground, and not cut them off, leaving the ſtalk in the ground, as is by ſome practiſed; and if they are deſigned for preſent uſe, you may cut them out of their leaves; but if deſigned to keep, you ſhould preſerve their leaves about them, and put them into a cool place; the beſt time for pulling them is in a morning, before the ſun hath exhaled the moiſture; for cauliflowers pulled in the heat of the day, loſe that firmneſs which they naturally have, and become tough.

But to return to our ſecond crop (the plants being raiſed and manured as was directed for the early crop, until the end of October), you muſt then prepare ſome beds, either to be covered with glaſs-frames, or arched over with hoops, to be covered with mats, &c. Theſe beds ſhould have ſome dung laid at the bottom, about ſix inches or a foot thick, according to the ſize of your plants; for if they are ſmall, the bed ſhould be thicker of dung to bring them forward, and ſo *vice verſa;* this dung ſhould be beat down cloſe with a fork, in order to prevent the worms from finding their way through it; then lay ſome good freſh earth about four or five inches thick thereon, in which you ſhould plant your plants about two inches and a half ſquare, obſerving to ſhade and water them until they have taken new root: but you muſt not keep your coverings cloſe, for the warmth of the dung will occaſion a large damp in the bed, which, if pent in, will greatly injure the plants. When your plants have taken root, you muſt give them as much free open air as poſſible, by keeping the glaſſes off in the day-time as much as the weather will permit; and in the night, or at ſuch times as the glaſſes require to be kept on, raiſe them up with props to let in freſh air, unleſs in froſty weather; at which time the glaſſes ſhould be covered with mats, ſtraw, peaſe-haulm, &c. but this is not to be done but in very hard froſts; you muſt alſo obſerve to guard them againſt great rain, which in winter time is very hurtful to them, but in mild weather, if the glaſſes are kept on, they ſhould be propped to admit freſh air; and if the under leaves grow yellow and decay, be ſure to pick them off: for if the weather ſhould prove very bad in winter, ſo that you ſhould be obliged to keep them cloſe covered for two or three days together, as it ſometimes happens,

theſe

Braſſica. theſe decayed leaves will render the incloſed air very noxious; and the plants perſpiring pretty much at that time, are often deſtroyed in vaſt quantities.

In the beginning of February, if the weather be mild, you muſt begin to harden your plants by degrees, that they may be prepared for tranſplantation: the ground where you intend to plant your cauliflowers out (which ſhould be quite open from trees, &c. and rather moiſt than dry), having been well dunged and dug, ſhould be ſown with radiſhes a week or fortnight before you intend to plant out your cauliflowers; the ſowing of radiſhes is particularly mentioned, becauſe if there are not ſome radiſhes amongſt them, and the month of May ſhould prove hot and dry, as it ſometimes happens, the fly will ſeize your cauliflowers, and eat their leaves full of holes, to their prejudice, and ſometimes their deſtruction; whereas, if there are radiſhes upon the ſpot, the flies will take to them, and never meddle with the cauliflowers ſo long as they laſt: indeed, the gardeners near London mix ſpinach with their radiſh-ſeed, and ſo have a double crop; which is an advantage where ground is dear, or where perſons are ſtraitened for room; otherwiſe it is very well to have only one crop amongſt the cauliflowers, that the ground may be cleared in time.

Your ground being ready and the ſeaſon good, about the middle of February you may begin to plant out your cauliflowers; the diſtance which is generally allowed by the gardeners near London (who plant other crops between their cauliflowers to ſucceed them, as cucumbers for pickling, and winter cabbages (is every other row four feet and a half apart, and the intermediate rows two feet and a half, and two feet two inches diſtance in the rows; ſo that in the later end of May or beginning of June (when the radiſhes and ſpinach are cleared off), they put in ſeeds of cucumbers for pickling, in the middle of the wide rows, at three feet and a half apart; and in the narrow rows plant cabbages for winter uſe, at two feet two inches diſtance, ſo that theſe ſtand each of them exactly in the middle of the ſquare between four cauliflower plants; and theſe after the cauliflowers are gone off, will have full room to grow, and the crop be hereby continued in a ſucceſſion through the whole ſeaſon.

There are many people who are very fond of watering cauliflower plants in ſummer; but the gardeners near London have almoſt wholly laid aſide this practice, as finding a deal of trouble and charge to little purpoſe; for if the ground be ſo very dry as not to produce tolerable good cauliflowers without water, it ſeldom happens that watering of them makes them much better; and when once they have been watered, if it is not conſtantly continued, it had been much better for them if they never had any; as alſo, if it be given them in the middle of the day, it rather helps to ſcald them: ſo that, upon the whole, if care be taken to keep the earth drawn up to their ſtems, and clear them from every thing that grows near them, that they may have free open air, you will find that they will ſucceed better without than with water, where any of theſe cautions are not ſtrictly obſerved.

But in order to have a third crop of cauliflowers, you ſhould make a ſlender hot-bed in February, in which you ſhould ſow the ſeeds, covering them a quarter of an inch thick with light mould, and covering the bed with glaſs-frames. When the plants are come up, and have gotten four or five leaves, you ſhould prepare another hot-bed to prick them into, which may be about two inches ſquare; and in the beginning of April harden them by degrees, to fit them for tranſplanting, which ſhould be done the middle of that month, at the diſtance directed for the ſecond crop, and muſt be managed accordingly: theſe (if the ſoil is moiſt where they are planted, or the ſeaſon cool and moiſt) will produce good cauliflowers about a month after the ſecond crop is gone, whereby their ſeaſon will be greatly prolonged. Braſſicav || Bravo.

There is alſo a fourth crop of cauliflowers, which is raiſed by ſowing the ſeed about the 23d of May; and being tranſplanted, as hath been before directed, will produce good cauliflowers in a kindly ſeaſon and good ſoil after Michaelmas, and continue through October and November, and if the ſeaſon permit often a great part of December.

All the ſpecies of cabbage are ſuppoſed to be hard of digeſtion, to afford little nouriſhment, and to produce flatulencies, though probably on no very good foundation. They tend ſtrongly to putrefaction, and run into this ſtate ſooner than almoſt any other vegetable; when putrefied, their ſmell is likewiſe the moſt offenſive, greatly reſembling that of putrefied animal ſubſtances. A decoction of them is ſaid to looſen the belly. Of all theſe plants cauliflower is reckoned the eaſieſt of digeſtion. The white is the moſt fetid, and the red moſt emollient or laxative; a decoction of this laſt is recommended for ſoftening acrimonious humours in ſome diſorders of the breaſt, and in hoarſeneſs. The red cabbage is chiefly uſed for pickling. In ſome countries they bury the white cabbage when full grown in the autumn, and thus preſerve it all winter. The Germans cut them to pieces, and, along with ſome aromatic herbs and ſalt, preſs them cloſe down in a tub where they ſoon ferment, and are eaten under the name of *Sour-crout*. See that article.

BRASSICAVIT, or Brachicavit, in the manege, is a horſe whoſe fore-legs are naturally bended archwiſe: being ſo called by way of diſtinction from an arched horſe whoſe legs are bowed by hard labour.

BRAULS, Indian cloths with blue and white ſtripes. They are otherwiſe called *turbants*, becauſe they ſerve to cover thoſe ornaments of the head, particularly on the coaſt of Africa.

BRAUNA, a town of Germany, in Bavaria, ſeated on the river Inn. It has a ſtrong fortreſs: notwithſtanding, it was taken by the Auſtrians in 1743. E. Long. 13. 3. N. Lat. 48. 10.

BRAUNSBURG, a town of Poland, in Regal Pruſſia, with a very commodious harbour, and belonging to the king of Pruſſia. It is ſeated near the Baltic ſea, in E. Long. 20. 0. N. Lat. 54. 15.

BRAUNSFIELD, a town of Germany, in the circle of the Upper Rhine, and country of Solmes, with a handſome palace or caſtle. E. Long. 8. 32. N. Lat. 50. 22.

BRAVO, one of the Cape de Verd iſlands on the coaſt of Africa, remarkable for its excellent wines, and inhabited by Portugueſe. The land is very high, and conſiſts of mountains which look like pyramids. It abounds in Indian corn, gourds, water melons, potatoes, horſes, aſſes, and hogs. There is alſo plenty of fiſh on the

Bravo || Bray.

the coaſt, and the iſland produces ſalt-petre. W. Long. 25. 35. N. Lat. 14. 0.

BRAVO, a town of Africa, on the coaſt of Ajan, with a pretty good harbour. It is an independent place, and is about 80 miles diſtant from Magadoxo. E. Long. 41. 35. N. Lat. 1. 0.

BRAURONIA, in Grecian antiquity, a feſtival in honour of Diana, ſurnamed *Brauronia*, from its having been obſerved at Brauron, an Athenian borough. This feſtival was celebrated once in five years, being managed by ten men, called in Greek [*ieropoioi*]. The victim offered in ſacrifice was a goat, and it was cuſtomary for certain men to ſing one of Homer's Iliads. The moſt remarkable perſons at this ſolemnity were young virgins, habited in yellow gowns, and conſecrated to Diana. It was unlawful for any of them to be above ten or under five years of age.

BRAWN, the fleſh of a boar ſouced or pickled: for which end the boar ſhould be old; becauſe the older he is, the more horny will the brawn be.—The method of preparing brawn is as follows: The boar being killed, it is the flitches only, without the legs, that are made brawn; the bones of which are to be taken out, and then the fleſh ſprinkled with ſalt, and laid in a tray, that the blood may drain off: Then it is to be ſalted a little, and rolled up as hard as poſſible. The length of the collar of brawn ſhould be as much as one ſide of the boar will bear, ſo that when rolled up it will be nine or ten inches diameter.

The collar being thus rolled up, is to be boiled in a copper, or large kettle, till it is ſo tender, that you can run a ſtraw through it; then ſet it by till it is thorough cold, and put it into the following pickle. To every gallon of water, put a handful or two of ſalt, and as much wheat-bran: Boil them together, then drain the bran as clear as you can from the liquor; and when the liquor is quite cold, put the brawn into it.

BRAY, Sir Reginald, a celebrated architect and politician, was the ſecond ſon of Sir Richard Bray, one of the privy council to King Henry VI. Sir Reginald was inſtrumental in the advancement of King Henry VII. to the throne of England; and was greatly in favour with that prince, who beſtowed honours and wealth upon him. His ſkill in architecture appears from Henry VII.'s chapel at Weſtminſter, and the chapel of St George at Windſor, as he had a principal concern and direction in the building of the former, and the finiſhing and bringing to perfection the latter, to which he was alſo a liberal benefactor. In the middle of the ſouth aiſle of the above chapel is a ſpacious chapel built by him, and ſtill called by his name. He died in 1501; and was interred in the above chapel, probably under the ſtone where lies Dr Waterland; for, on opening the vault for that gentleman, who died in 1740, a leaden coffin of ancient form was found, which, by other appearances, was judged to be that of Sir Reginald, and was, by order of the dean, immediately arched over.

Bray, *Dr Thomas*, an eminent, learned, and pious divine, was born at Marton, in Shropſhire, in the year 1656, and educated at Oxford. He was at length preſented to the vicarage of Over-Whitacre, in Warwickſhire: and in 1690, to the rectory of Sheldon, where he compoſed his *Catechetical Lectures*; which procured him ſuch reputation, that Dr Compton, biſhop of London, pitched upon him as a proper perſon to model the infant church of Maryland, and eſtabliſh it upon a ſolid foundation, and for that purpoſe he was inveſted with the office of commiſſary. He now engaged in ſeveral noble undertakings. He procured ſums to be raiſed for purchaſing ſmall libraries for the uſe of the poor miniſters in the ſeveral parts of our plantations: and the better to promote this deſign, he publiſhed two books; one entitled *Bibliotheca parochialis*, or a ſcheme of ſuch theological and other heads as ſeem requiſite to be peruſed or occaſionally conſulted by the clergy, together with a catalogue of books which may be profitably read on each of thoſe points; the other, Apoſtolical charity, its nature and excellency conſidered. He endeavoured to get a fund eſtabliſhed for the propagation of the goſpel, eſpecially among the uncultivated Indians; and by his means a patent was obtained for erecting the corporation called *The ſociety for the propagation of the goſpel*. He, by his induſtry, procured relief for priſoners; and formed the plan for the ſociety for the reformation of manners, charity-ſchools, &c. He wrote, 1. his Martyrology, or papal uſurpation in one volume folio; 2. *Directorium miſſionarium*; and other works. This excellent man died in 1730, aged 73.

Bray || Brazen.

Bray, a port town of Ireland, in the county of Wicklow, and province of Leinſter, ſeated on St George's channel, eight miles ſouth of Dublin. W. Long. 6. 16. N. Lat. 53. 8.

Brar ſur Seine, a town of France, in Champagne, and in Senonois, on the confines of Brie. E. Long. 2. 15. N. Lat. 48. 35.

BRAYLE, among ſportſmen, a piece of leather ſlit to put upon the hawk's wing, to tie it up.

BRAZED, in *Heraldry*, a term ſerving to deſcribe three cheverons, one claſping another.

BRAZEN, ſomething conſiſting of braſs, or formed out of it. See Brass.

Brazen Age. See Age.

Brazen Diſh, among miners, is the ſtandard by which the other diſhes are gauged, and is kept in the king's hall.

Brazen Sea, in Jewiſh antiquity, one of the ſacred utenſils in the temple of Solomon. It was caſt in the plain of Jordan, and removed from thence into the inner court of the temple; where it was placed upon 12 oxen, three of which looked towards each quarter of the world. It was ten cubits from the one brim to the other, five cubits in height, and 30 cubits in circumference, and contained 3000 baths. The brim of it was perfectly round, and ſo it continued in the two upper cubits; but below the brim, in the three lower cubits, it was ſquare. It was a handbreadth thick, and the brim was wrought like the brim of a cup, with flowers of lilies. About the body of this huge veſſel there were two borders of engravings, being the heads of oxen in demi-relief; out of which ſome ſuppoſe the water iſſued, and that they were made as cocks and conveyances for that purpoſe.—This brazen or molten ſea, was deſigned for the prieſts to waſh themſelves in before they performed the ſervice of the temple. The ſupply of water was through a pipe out of the well Etam; though ſome are of opinion, that it was conſtantly ſupplied with water by the Gibeonites.

BRAZIER,

Brazier || Bread.

BRAZIER, an artificer who makes and deals in all kinds of braſs ware. This trade, as exerciſed in Britain, may be reckoned a branch of the ſmithery, though they ſeldom keep forges, except for brazing or ſoldering, and tinning the inſides of their veſſels, which they work up chiefly out of copper and braſs prepared rough to their hands. They conſiſt of a working part, and a ſhop-keeping part, which latter many carry on to a great extent, dealing as well in all ſorts of iron and ſteel, as copper and braſs goods for houſehold furniture; and lately have fallen much into ſelling what is called *French plate*, made of a ſort of white metal, ſilvered and poliſhed to ſuch a degree that the eye cannot ſoon diſtinguiſh it from real ſilver.

BRAZIL. See BRASIL.

BRAZING, the ſoldering or joining two pieces of iron together by means of thin plates of braſs, melted between the pieces that are to be joined. If the work be very fine, as when two leaves of a broken ſaw are to be brazed together, they cover it with pulverized borax, melted with water, that it may incorporate with the braſs powder, which is added to it: The piece is then expoſed to the fire without touching the coals, and heated till the braſs is ſeen to run.

BRAZING is alſo the joining two pieces of iron together by beating them hot, the one upon the other, which is uſed for large pieces by farriers, &c.

BRAZZA, a town and iſland on the coaſt of Dalmatia, in the gulf of Venice, oppoſite to Spalatro, and and ſubject to Venice. E. Long. 28. 0. N. Lat. 43. 0.

BREACH, in a general ſenſe, denotes a break or rupture in ſome part of a fence or encloſure, whether owing to time or violence.—Inundations, or overflowings of lands, are frequently owing to breaches in the dikes or ſea banks. Dagenham breach is famous; it was made in 1707, by a failure of the Thames wall in a very high tide. The force wherewith it burſt in upon the neighbouring level tore up a large channel or paſſage for water 100 yards wide, and in ſome places 20 feet deep, by which a multitude of ſubterraneous trees that had been buried many ages before were laid bare.

BREACH, in *Fortification*, a gape made in any part of the works of a town by the cannon or mines of the beſiegers, in order to make an attack upon the place. To make the attack more difficult, the beſieged ſow the breach with crow-feet, or ſtop it with *chevaux de friſe*.—A practicable breach, is that where the men may mount and make a lodgment, and ought to be 15 or 20 fathoms wide. The beſiegers make their way to it, by covering themſelves with gabions, earth-bags, &c.

BREACH, in a legal ſenſe, is where a perſon breaks through the condition of a bond or covenant; on an action upon which, the breach muſt be aſſigned: And this aſſignment muſt not be general, but particular, as, in an action of covenant for not repairing houſes, it ought to be aſſigned particularly what is the want of reparation: and in ſuch certain manner, that the defendant may take an iſſue.

BREAD, a maſs of dough kneaded and baked in an oven. See BAKER, BAKING, and BARM.

Macquer's Chem. Dict.

The grains of all vegetables are almoſt entirely compoſed of ſubſtances very proper for the nouriſhment of animals; and amongſt grains thoſe which contain a farinaceous matter are the moſt agreeable and moſt nutritive. Bread.

Man who appears to be deſigned by nature to eat of all ſubſtances which are capable of nouriſhing him, and ſtill more of vegetables than animals, has, from time immemorial, and in all parts of the earth, uſed farinaceous grains as the principal baſis of his food: but as theſe grains cannot be without difficulty eaten by men in their natural ſtate, this active and intelligent animal has gradually found means not only to extract the farinaceous part, that is, the only nutritive part of theſe grains, but alſo to prepare it ſo that it becomes a very agreeable and wholeſome aliment, ſuch as the bread we now generally eat.

Nothing appears ſo eaſy at firſt ſight as to grind corn, to make a paſte with the flour and water, and to bake this paſte in an oven. They who are accuſtomed to enjoy the advantages of the fineſt human inventions, without reflecting on the labour it has coſt to complete them, think all theſe operations common and trivial. However, it appears very certain, that for a long time men no otherwiſe prepared their corn than by boiling and forming compact viſcous cakes, not very agreeable to the taſte, and of difficult digeſtion, before they were able to make bread of good taſte and quality, as we have now. It was neceſſary to invent and complete ingenious machines for grinding corn, and ſeparating the pure flour with little trouble and labour; and that inquiries or rather ſome happy chance, which ſome obſerving perſon availed himſelf of, ſhould diſcover, that flour, mixed with a certain quantity of water, is ſuſceptible of a fermentation which almoſt entirely deſtroys its viſcidity, heightens its taſte, and renders it proper to make a light bread, very agreeable to the taſte, and of eaſy digeſtion.

This eſſential operation, on which the good quality of bread depends, is entirely of the province of chemiſtry. It would add to the honour of the ancient cultivators of chemiſtry, to attribute to them ſo uſeful and important a diſcovery; but, unhappily, it is too probable that they had no ſhare in it. The ancient chemiſts were engaged in other purſuits than that of bread and other common objects. They hoped to make gold; and what is bread in compariſon with gold?

However that be, to the fortunate invention of raiſing the paſte before baking we owe the perfection of the art of making bread. This operation conſiſts in keeping ſome paſte or dough, till by a peculiar ſpirituous fermentation it ſwells, rarefies, and acquires a ſmell and taſte quick, pungent, ſpirituous, ſomewhat ſour, and rather diſagreeable. This fermented dough is well worked with ſome freſh dough, which is by that mixture and moderate heat diſpoſed to a ſimilar but leſs advanced fermentation than that above mentioned. By this fermentation the dough is attenuated, and divided; air is introduced into it, which being incapable of diſengaging itſelf from the tenacious and ſolid paſte, forms in it ſmall cavities, raiſes and ſwells it: hence the ſmall quantity of fermented paſte which diſpoſes the reſt to ferment, is called *leaven*, from the French word *lever*, ſignifying to raiſe.

When the dough is thus raiſed, it is in a proper ſtate to be put into the oven; where, while it is baked, it

Bread. dilates itſelf ſtill more by the rarefaction of the air, and of the ſpirituous ſubſtance it contains, and it forms a bread full of eyes or cavities; conſequently light, and entirely different from the heavy, compact, viſcous, and indigeſted maſſes, made by baking unfermented dough.

The invention of beer, or wine of grains, furniſhes a new matter uſeful in the making of bread. This matter is the froth which forms upon the ſurface of theſe liquors during fermentation. When it is mixed with dough, it raiſes it better and more quickly than ordinary leaven. It is called *yeaſt* or *barm*. By means of this, the fineſt lighteſt bread is made. It often happens, that bread made with leaven dough has a ſouriſh and not agreeable taſte; which may proceed from too great a quantity of leaven, or from leaven in which the fermentation has advanced too far. This inconvenience does not happen to bread made with yeaſt; becauſe the fermentation of this ſubſtance is not too far advanced, or becauſe more attention is given to that finer bread.

It may be aſked, Why, ſince dough is capable of fermenting ſpontaneouſly and ſingly, as we ſee from the leaven, a ſubſtance is added to diſpoſe it to ferment? The true reaſon is, That all the parts of a fermenting ſubſtance do not ferment at the ſame time, nor to the ſame degree; ſo that ſome parts of this ſubſtance have finiſhed their fermentation, while others have not yet begun. The fermentable liquors which contain much ſugar, as hydromel, and muſt of wines, give proofs of this truth; for, after theſe liquors have become very vinous, they have ſtill very diſtinctly a ſaccharine taſte: but all ſaccharine matter is ſtill ſuſceptible of fermentation; and, in fact, if vinous hydromel, or muſt, or even new beer, be diſtilled, ſo that all their ardent ſpirit ſhall be ſeparated, and the reſiduums diluted with water, we ſhall ſee a ſecond fermentation take place, and a new quantity of ardent ſpirit formed.

The ſame thing preciſely happens to dough, and ſtill more ſenſibly, from its viſcoſity and want of fluidity; ſo that if it be left to ferment alone, and without the help of leaven, as the fermentation proceeds very ſlowly and ſucceſſively, the parts which ferment firſt will have become ſour and vapid before all the reſt be ſufficiently attenuated and changed, by which the bread will acquire a diſagreeable taſte.

A mixture of a ſmall quantity of leaven with dough effectually prevents this inconvenience; becauſe the effect of this leaven, and of all fermenting ſubſtances, is to diſpoſe to a ſimilar fermentation all matters capable of it, with which it is mixed; or rather, by means of leaven, the fermentation of all the parts of ſuch ſubſtances is effected more nearly at the ſame time.

Bread well raiſed and baked differs from unfermented bread, not only in being leſs compact, lighter, and of a more agreeable taſte, but alſo in being more eaſily miſcible with water, with which it does not form a viſcous maſs, which circumſtance is of great importance in digeſtion.

Cullen on the Mat. Med. It is obſervable, that without bread, or ſomewhat of this form, no nation ſeems to live. Thus the Laplanders, having no corn of their own, make a ſort of bread of their dried fiſhes, and of the inner rind of the pine, which ſeems to be uſed, not ſo much for their nouriſhment as for ſupplying a dry food. For this mankind ſeem to have an univerſal appetite, rejecting bland, ſlippery, and mucilaginous foods. This is not commonly accounted for, but ſeems to depend on very ſimple principles. The preparation of our food depends on the mixture of the animal fluids in every ſtage. Among others the ſaliva is neceſſary, which requires dry food as a neceſſary ſtimulus to draw it forth, as bland, ſlippery, fluid aliments are too inert, and make too ſhort ſtay in the mouth, to produce this effect, or to cauſe a ſufficient degree of manducation to emulge that liquor. For this reaſon we commonly uſe dry bread along with animal food, which otherwiſe would be too quickly ſwallowed. For blending the oil and water of our food nothing is ſo fit as bread, aſſiſted by a previous manducation. For which purpoſe, bread is of like neceſſity in the ſtomach, as it is proper that a ſubſtance of ſolid conſiſtence ſhould be long retained there. Now the animal fluids muſt be mixed with our aliments, in order to change the aceſcency it undergoes. But liquid foods would not attain this end, whereas the ſolid ſtimulates and emulges the glands of the ſtomach. The bread then appears to be exceedingly proper, being bulky without too much ſolidity, and firm without difficulty of ſolution. Bread.

Among the ancients we meet with various denominations of bread; as, 1. *Panis ſiligeneus*, called alſo *mundus*, *athleticus*, *iſungia*, *coliphius*, and *robys*, anſwering to our white bread; being made of the pureſt flour of the beſt wheat, and only uſed by the richer ſort. 2. *Panis ſecundus* or *ſecundarius*, called alſo *ſimilaceus* or *ſimilagineus*, the next in purity; being made of fine flour, only all the bran not ſifted out. 3. *Autopyrus*, called alſo *ſyncomiſtus* and *confuſaneus*, made of the whole ſubſtance of the wheat, without either retrenching the finer flour or coarſer bran; anſwering to our houſehold bread. 4. *Cacabaceus*, apparently the ſame with what was otherwiſe denominated *ſordidus*, as being given to dogs; *furfuraceus*, *furfureus*, or *furfurativus*, becauſe made in great part of bran; and, in the middle age, *biſſus*, on account of its brownneſs; ſometimes alſo *leibo*. There were other ſorts of bread, denominated from the manner in which they were made, or the uſes they were applied to; as, 1. The *militaris*, which was prepared by the ſoldiers and officers in camp with their own hands; for which purpoſe ſome had hand-mills, others pounded the corn in a mortar, and baked it on the coals. 2. *Clibanites*, that baked in an oven, by way of contradiſtinction from that baked on the hearth or under the embers. 3. That called *ſubcineritius*, or *ſub cinere coctus*; ſometimes alſo *reverſatus*, becauſe it was to be turned in the baking. 4. *Nauticus*, anſwering to our ſea-biſcuit, and denominated accordingly *bis coctus*, becauſe baked ſeveral times over to make it keep the longer. Other kinds of bread were denominated from their qualities and accidents; as, 1. The *panis ſiccus*, that which had been long baked; ſuch as were the *bis coctus*, naval and buccellated bread. 2. *Madidus*, a ſort made of rye or bear, ſometimes alſo made of fine flour, wherewith they ſmeared their faces, by way of a coſmetic, to render them ſmooth. 3. *Acidus*, or ſour bread, which was acidulated with vinegar. 4. *Azymus*, that unleavened or unfermented. *Suppl. to Chambers's Dict.*

The French have alſo a great variety of breads; as queen's

Bread. queen's bread, alamode bread, bread de Segovie, de Gentillay, quality-bread, &c. all prepared in peculiar manners by the bakers of Paris. The bread de Goneſſe excels all others, on account of the waters at Goneſſe, a town three leagues from Paris. It is light, and full of eyes, which are the marks of its goodneſs. *Pain de menage*, is that which each family bakes for itſelf. Spice-bread, *pain d'epice*, denotes bread baked and iced over with the ſcum taken off ſugar in refining houſes; it is ſometimes alſo made with honey and other ſorts of ſeaſoning, and anſwers to what the ancients call *panis mellitus*.

Among us, bread is chiefly divided into white, wheaten, and houſehold; differing only in degrees of purity. In the firſt, all the bran is ſeparated; in the ſecond, only the coarſer; in the third, none at all: ſo that fine bread is made only of flour; wheaten bread of flour and a mixture of the finer bran; and houſehold, of the whole ſubſtance of the grain, without taking out either the coarſe bran or fine flour. We alſo meet with ſymnel bread, manchet or roll bread, and French bread: which are only ſo many denominations of the fineſt and whiteſt bread, made of the pureſt flour; except that in ill-roll bread there is an addition of milk; and in French bread, of eggs and butter alſo. In Lancaſhire, and ſeveral of the northern counties of England, they have ſeveral ſorts of oaten bread; as, 1. The bannock, which is an oat-cake, kneaded only with water, and baked on the embers. 2. Clap-bread, which is made into thin hard cakes. 3. Bitchineſs bread, which is made of thin batter, and made into thin ſoft oat-cakes. 4. Riddle-cakes, which are thick and ſour, have but little leaven, and are kneaded ſtiff. And, 5. Jannock, which is oaten bread made up into loaves. Add to theſe, *peaſe-bread*, much uſed in many parts of Scotland; being bread conſiſting either wholly of the flour of peaſe, or of this and oat-meal mixed: the dough, ſometimes leavened, ſometimes made only with water, is formed either into bannocks or cakes, and baked over the embers; or into what they call *baps*, i. e. a kind of flattiſh rolls, and baked in the oven. In the ſtatute of aſſize of bread and ale, 51 Hen. III. mention is made of waſtel-bread, cocket bread, and bread of treet; which anſwer to the three kinds of bread now in uſe, called *white*, *wheaten*, and *houſehold* bread. In religious houſes, they heretofore diſtinguiſhed bread by the names eſquires bread, *panis armigerorum*; monks bread, *panis conventualis*; boys bread, *panis puerorum*; and ſervants bread, *panis famulorum*, called alſo *panis ſervientalis*. A like diſtribution obtained in the houſeholds of nobles and princes; where, however, we find ſome other denominations; as meſſengers bread, *panis nuncius*, that given to meſſengers as a reward of their labour; court-bread, *panis curialis*, that allowed by the lord for the maintenance of his houſehold; eleemoſynary bread, that diſtributed to the poor by way of alms.

It is for the intereſt of the community that the food of the poor ſhould be as various as poſſible, that, in time of dearth and ſcarcity of the ordinary kinds, they may not be without ready and cheap reſources. To the diſcovery of ſuch reſources ſeveral benevolent philoſophers having ſucceſsfully turned their inquiries, we ſhall lay before the reader the reſult of their experiments. Bread.

1. *Bread of Potatoes* *. Potatoes, previouſly deprived of their ſkin, cut into thin ſlices, and put between paper, will dry in a heat ſomewhat leſs than 35° of Reaumur's thermometer; and, when thus dried, they will preſerve their white colour. By this proceſs they loſe about two-thirds of their weight, and they may then be reduced to a fine powder. A little of this powder thrown upon the fire ſends out a ſmoke, accompanied with a ſmell reſembling burnt bread. As this ſmell is perceived from all farinaceous vegetables when treated in the ſame manner, M. Parmentier thinks it may be conſidered as the characteriſtic of the preſence of an *amylaceous* † matter. This ſmell does not, however, he obſerves, ariſe from the amylaceous or fibrous part ſeparately, but from both taken together. The powder of potatoes, obtained in the manner deſcribed above, has the ſmell and taſte of wheat; and, like it, is devoured by rats and mice; but, even when moſt finely powdered, it has not the feel or brightneſs of the flour of wheat; although, on a chemical analyſis, it yields the ſame products. It is alſo nutritious, and keeps well for a long time.

* From *Examen Chymique des Pommes de Terre*, &c, par M. Parmentier, apoth. major del hotel des invalides Paris.

† See the note *infra*.

Finding ſo great a ſimilarity between the meal of wheat and what may be called the meal of potatoes, M. Parmentier next endeavoured to make bread of them when mixed in different proportions. His trials were made with one-fourth, one-third, one-half, and two-thirds, of the potato-meal, the remainder being flour from wheat. Theſe proportions, with the addition of a little ſalt and yeaſt, yielded bread which was well taſted, but which had fermented little, was brown, and covered with hard brown cruſts. Bread made from the meal of potatoes alone, with the addition of ſalt and yeaſt, was eatable, but very heavy, unfermented, and exceedingly brown. This bread, from the meal of potatoes alone, was apt to crumble into powder. To give it more adheſion, he mixed with the meal a decoction of bran, or a mixture of honey and water; either of which made it lighter and more fermented: it obtained alſo a cruſt of a golden colour, became well taſted, and ſufficiently adheſive. M. Parmentier obtained bread alſo, well fermented, and of a good colour and taſte, from a mixture of raw potato-pulp with meal of wheat, or potato-meal, with the addition of yeaſt and ſalt.

Potatoes, when uſed for making bread, are not readily diſpoſed to ferment; without which, bread is very inſipid, and not eaſily digeſted. But M. Parmentier found, from a variety of experiments, that good bread might be made from equal quantities of flour and potato-meal. He concludes, therefore, with recommending the mixture of potatoes, in times of ſcarcity, with the flour of wheat, inſtead of employing rye, barley, or oats, as has frequently been done.

When grain is altogether wanting, he recommends the uſe of bread made from a mixture of the amylaceous powder of potatoes and of their pulp, this mixture being fermented with leaven or with honey. The meal of this root, when diluted with hot water, acquires a tenacious and gluey conſiſtence. However fair the meal of potatoes may be, it always gives a gray colour to the bread made by mixing it with the flour of

Bread.

wheat: but a mixture of the pulp of potatoes with the flour of wheat does not produce brown-coloured bread.

M. Parmentier made bread, very much like that of wheat, by a mixture of the following four ſubſtances, viz. four ounces of amylaceous powder of potatoes, one dram of mucilage extracted from barley, one dram of the bran of rye, and a dram and a half of glutinous matter dried and powdered.

2. *Bread from different Vegetables not commonly in Uſe* *. Although horſe-cheſnut has not hitherto been employed, yet it is certain that wholeſome bread, without any bitterneſs, may be obtained from it. M. Parmentier adviſes, that the fruit, after the ſkin is taken off, and the juice preſſed from it, be made into a paſte. This maſs muſt be diluted in water, and then ſtrained through a ſieve. A milky-coloured liquor is thus ſeparated, which, on ſtanding, depoſits a fine powder. This, being dried, is without either ſmell or taſte, and very fit for aliment; the maſs from which it is procured retaining the bitterneſs of the fruit.

* From *Memoire ſur les vegetaux qui pourroient ſuppleer en temps de diſette a ceux que l'on employe communement a la nourriture des hommes*, &c par M. Parmentier.

The roots of the bryona, when treated in the ſame manner, yielded a ſimilar white powder. By the ſame treatment alſo, fine, white, inſipid, inodorous powders may be procured from the roots of the iris, gladiolus, ranunculus, fumaria, arum, dracunculus, mandragora, colchicum, filipendula, and helleborus; plants which grow ſpontaneouſly, and in great abundance.

Of acorns bread has frequently been made; and to this day, in ſome countries, they are in common uſe. The method of preparation which M. Parmentier recommends is, that they be deprived of their cover by boiling, then dried and powdered, and afterwards baked in the ſame manner as the flour of wheat. When fully ripe, and made into a paſte, they were deprived of their aſtringency by merely preſſing their juice from them. The maſs remaining after the preſſure, when dried, was eaſily reduced to a fine powder by no means diſagreeable.

The *gramen caninum arvenſe*, in its appearance, approaches to corn; and ſome naturaliſts have conſidered it as the original ſpecies from which all our grain is produced. Its roots are ſweet-taſted, and have long been employed in making ptiſans. In the preparation of them for bread, it is only neceſſary that the roots ſhould be cleanſed, cut ſmall, dried, and pounded. This powder, M. Parmentier obſerves, does not diſſolve in cold water or ſpirits; but it does in boiling water, which it renders thick and cloudy, and, upon cooling, the whole maſs obtains a gelatinous conſiſtence. Upon a chemical analyſis, it yields an acid empyreumatic oil, which poſſeſſes a ſingular odour, reſembling that which is perceived on burning the plant. The ſpongy reſiduum, calcined in the air, gives a fixed alkali. Theſe properties inconteſtably prove, that it contains an *amylaceous* (A) matter ſimilar to that of grain, which appears to be the nutritive part of vegetables. This amylaceous matter, formed into a jelly, and diffuſed in water, keeps for a long time without ſuffering any change; it then turns acid, and at length putrefies.

Bread.

The amylaceous matter of acrid and poiſonous plants, although innocent and nutritive, cannot be converted into bread without the addition of ſome mucilaginous ſubſtance. In times of great ſcarcity, common bran will anſwer the purpoſe; but when potatoes are to be had, the addition of a proper proportion of theſe is to be preferred.

M. Parmentier gives an account of the bread which he obtained from the amylaceous powders of the different vegetables mentioned above, with the addition of potatoes and a ſmall quantity of common leaven of grain. This bread appeared in general to be well fermented; it was of a good white colour, and free from any diſagreeable odour: but to the taſte, it was ſomewhat inſipid; which, however, he imagines, might have been corrected by the addition of a proper quantity of ſalt.

As the reſources againſt ſcarcity here pointed out can be procured only at particular ſeaſons, the author propoſes a method for preſerving the matter thus obtained. For this purpoſe, he adviſes, that bread prepared in the manner mentioned above ſhould be carefully

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(A) M. Beccari of the Bolognian academy has diſcovered in the flour of wheat two diſtinct ſubſtances. The one he terms an *animal* or *glutinous* matter; the other, an *amylaceous* matter or *vegetable paſte*.

The *gluten* has been ſuppoſed to be the nutritive part of corn, from its not diſſolving unleſs in vegetable acids; from its aſſuming a ſpongy form in boiling water; from its ſuppoſed analogy to the animal lymph; and, laſtly, from the ſimilitude which the products it affords, on a chemical analyſis, bear to thoſe obtained from animal ſubſtances. M. Parmentier, however, from various experiments, was led to conclude, with the celebrated Model of Peterſburg, that the gluten or animal matter of Beccari exiſts in the bran, and is not the nutritive part of the wheat. Having made experiments with four different kinds of flour, it appeared that the quantity of animal matter was always proportioned to the coarſeneſs of the flour. Hence, were this gluten the nutritive part, the coarſeſt bread, or that which contained moſt bran, would afford the greateſt quantity of nouriſhment. The contrary of this, however, is now known to be fact.

The *amylaceous* part, or, as ſome have termed it, the *fecula*, of wheat and other vegetables, is a peculiar gum, not ſoluble in ſpirit of wine, vinegar, or cold water. It contains more acid, and leſs water, than the ordinary gums. It is found in many of theſe plants that make the nouriſhment of men and other animals. Hence M. Parmentier concludes it to be the nutritive matter.

Though we are not to conſider the glutinous matter as the nutritious part of vegetables, yet it is a very neceſſary ingredient. It is that which preſerves the coheſion of the paſte in fermenting bread: it is that which forms the viſcid pellicle, and ſtops the air in fermentation; gives the ſavoury taſte to bread; occaſions it to be light, to ferment, and which forms the ſmall cells ſeen in it. It is found eſpecially near the cortical part of grain; and this accounts for its being found in the greateſt quantity in coarſe brown meal. It is this gluten which renders wheat a ſuperior aliment to the other grains and roots.

Bread. fully dried, reduced to powder, and then kept in a close cask. By this means, he is of opinion that it may be preserved for a very long time, and will always be ready to make an agreeable and wholesome panada by the addition of a little butter and salt.

M. Parmentier, in order to discover the degree of power wherewith this alimentary powder nourished, made himself the subject of experiment; and found, that three ounces of it for dinner, and as much for supper, made into panada with water, was a sufficient quantity of aliment for a day. From his discharge by stool while he used it, he had reason to believe that it is almost totally alimentary. He concludes with recommending it not only as useful in times of scarcity, but as a proper substitute for sea-biscuit, and as a species of food well adapted for armies and hospitals.

3. *Cheap method of making wholesome* BREAD, when wheat-flour is dear, by mixing turnip with it*.

* From a letter in the *Museum Rusticum et Commerciale*

"At the time I tried this method, bread was very dear, insomuch thar the poor people, in the country where I live, can hardly afford themselves half a meal a-day. This put me upon considering whether some cheaper method might not be found than making it of wheat-meal. Turnips were at that time very plentiful. I had a number of them pulled, washed clean, pared, and boiled; when they were become soft enough to mash, I had the greatest part of the water pressed out of them, and afterwards had them mixed with an equal quantity in weight of coarse wheat-meal; the dough was then made in the usual manner, with yeast or barm, salt, water, &c. It rose very well in the trough; and after being well kneaded, was formed into loaves, and put into the oven to be baked. I had at the same time some other bread made with common meal in the ordinary way. I baked my turnip bread rather longer than the other. When they were drawn from the oven, I caused a loaf of each sort to be cut; and found, on examination, the turnip-bread was sweeter than the other, to the full as light and as white, but had a little taste (though nowise disagreeable) of the turnip. Twelve hours afterwards I tasted my turnip-bread again, when I found the taste of the turnip in it scarce perceivable, and the smell quite gone off. On examining it when it had been baked 24 hours, had I not known that there were turnips in its composition, I should not have imagined it: it had, it is true, a peculiar sweetish taste, but by no means disagreeable; on the contrary, I rather preferred it to the bread made of wheat-meal alone. After it had been baked 48 hours, it underwent another examination, when it appeared to me to be rather superior to the other; it ate fresher and moister, and had not at all abated in its good qualities: to be short, it was still very good after a week; and, as far as I could see, kept as well as the bread made of common wheat meal.

"In my trials of this bread by the taste, I was not satisfied with eating it by itself; I had some of it spread with butter; I tasted it with cheese; I ate of it toasted and buttered, and finally in boiled milk and in soup: in all these forms it was very palatable and good.

BREAD, in *Medicine*. Besides the alimentary, bread has also medical qualities.—Decoctions, creams, and jellies of bread, are directed in some dispensaries. Bread carefully toasted, and infused or lightly boiled in water, imparts a deep colour, and a sufficiently agreeable restringent taste. This liquor, taken as common drink, has done good service in a weak lax state of the stomach and intestines; and in bilious vomiting and purging, or the cholera morbus; examples are related in the Edinburgh essays of several cases of this kind cured by it, without the use of any other medicine.—In Westphalia there is a very coarse bread eaten, which still retains the opprobrious name given it by a French traveller of *Bonpournickel*, "good for his horse *Nickel*." It is the same with what the Romans called *panis furfuraceus*, or *panis impurus*, from its not being cleansed from the husk; and *panis ater*, from the blackness of its colour: though we learn from Pliny, that the Romans for 300 years knew no other bread. The Germans * make two sorts of waters by distillation from this bread; the one with, the other without, the addition of a spirituous liquor: to both which great virtues are ascribed. That without any thing spirituous, is made out of the juice of craw-fish, may-dew, rose-water, nutmegs, and saffron, distilled from a large quantity of this bread. This is esteemed a great restorative, and given in hectic habits. The other is distilled from this bread and Rhenish wine, with nutmegs and cinnamon. This is given in all the disorders of the stomach, vomiting, loss of appetite, and other complaints of the same kind: and besides these, there is a spirit distilled from it by the retort in the dry way, which, when separated from its fetid oil, is esteemed a powerful sudorific, and very valuable medicine in removing impurities of the blood.

* *Hoffman. Obser. Chem.*

Bread is also medicinal, applied *externally*, as is vulgarly known*. Mr Boyle assures us he drew a menstruum from bread stronger than aquafortis, and which would act even upon glass itself †.

* Boyle's *Phil. Works abridged*, vol. iii. p. 572.

† *Ibid*, vol. i. p 34, 49.

Bread Tree. See ARTOCARPUS, BOTANY *Index*.

Bees-Bread. See BEE.

Cassada Bread. See JATROPHA, BOTANY *Index*.

Earth BREAD ‡. "In the lordship of Moscaw in the Upper Lusatia, a sort of white earth is found, of which the poor, urged by the calamities of the wars which raged in those parts, make bread. It is taken out of a hill where they formerly worked at saltpetre. When the sun has somewhat warmed this earth, it cracks, and small white globules proceed from it as meal; it does not ferment alone, but only when mixed with meal. Mr Sarlitz, a Saxon gentleman, was pleased to inform us, that he has seen persons who in a great measure lived upon it for some time. He assures us that he procured bread to be made of this earth alone, and of different mixtures of earth and meal; and that he even kept some of this bread by him upwards of six years: he further says, a Spaniard told him, that this earth is also found near Geronne in Catalonia."

‡ From the *German Ephemerides*, 1764.

Eucharist or Sacramental BREAD, in the Protestant churches, is common leavened bread, in conformity to the ancient practice. In the Romish mass, azymous or unleavened bread is used, particularly in the Gallican church, where a sort is provided for this purpose called *pain a chanter*, made of the purest wheaten flour pressed between two iron plates graven like wafer-moulds, being first rubbed with white wax to prevent the paste from sticking. The Greeks observe divers ceremonies in their making the eucharist bread. It is necessary the

Bread. the perſon who bakes it have not lain with his wife the day before; or, if it be a woman, that ſhe have not converſed with her huſband. The Abyſſinians have an apartment in their churches for this ſervice, being a kind of ſacriſty. F. Sirmond, in his diſquiſition on azymous bread, ſhows from the council of Toledo, that anciently there were as many ceremonies uſed in the Latin church in the preparation of their unleavened bread as are ſtill retained in the eaſtern churches. He cites the example of Queen Radegonda, who diſtributed with her own hands in the church, the bread which ſhe herſelf had made. It appears alſo from the diſpute of Cardinal Humbert againſt the Greeks, that in the Latin church no bread was uſed for the euchariſt, but what was taken out of the ſacriſty, and had been made by the deacons, ſubdeacons, and even prieſts, who rehearſed ſeveral pſalms during the proceſs.

Eccleſiaſtical writers enumerate other ſpecies of bread allotted for purpoſes of religion; as, 1. *Calendarius*, that anciently offered to the prieſt at the kalends. 2. *Prebendarius*, the ſame with *capitularis*, that diſtributed daily to each prebendary or canon. 3. *Benedictus*, that uſually given to catechumens before baptiſm, in lieu of the euchariſtic bread, which they were incapable of partaking of. The *panis benedictus*, was called alſo *panagium* and *eulogium*, being a ſort of bread bleſſed and conſecrated by the prieſt, whereby to prepare the catechumens for the reception of the body of Chriſt. The ſame was uſed afterwards, not only by catechumens, but by believers themſelves, as a token of their mutual communion and friendſhip. Its origin is dated from the 7th century, at the council at Nantz. In the Gallican church we ſtill find *panis benedictus*, *pain benit*, uſed for that offered for benediction, and afterwards diſtributed to pious perſons who attend divine ſervice in chapels. 4. Conſecrated bread is a piece of wax, paſte, or even earth, over which ſeveral ceremonies have been performed with benedictions, &c. to be ſent in an *Agnus Dei*, or relic-box, and preſented for veneration. 5. Unleavened bread, *panis azymus*. The Jews eat no other bread during their paſſover; and exact ſearch was made in every houſe, to ſee that no leavened bread was left. The uſage was introduced in memory of their haſty departure from Egypt, when they had not leiſure to bake leavened. 6. Shew-bread was that offered to God every Sabbath-day, being placed on the golden table in the holy of holies.

Horſe-Bread is made of wheat, oats, and beans; to which ſometimes are added aniſeed, gentian, liquorice, fænugreek, eggs, and ale; and ſometimes rye and white wine are uſed.

For race-horſes three ſorts of bread are uſually given with ſucceſs, for the ſecond, third, and fourth nights feeding: they are all made of beans and wheat worked with barm; the difference conſiſting chiefly in the proportion of the two former. In the firſt kind, three times the quantity of beans is uſed to one of wheat; in the ſecond, equal quantities of both; in the third, three times the quantity of wheat to one of beans.

Sago-Bread. See Sago.

* See *Aſſize*, par. ult. *Aſſize* * *of Bread*. The price and weight of bread is regulated by the magiſtrates according to the price of wheat. We have divers tables of the weights of the loaves both of wheat, wheaten, and houſehold bread, at every price of wheat. If bread want one ounce in 36, the baker formerly was to ſuffer the pillory: now, to forfeit 5s. for every ounce wanting; and for every defect leſs than an ounce, 2s. 6d; ſuch bread being complained of and weighed before a magiſtrate within 24 hours after it is baked or expoſed to ſale within the bills of mortality, or within three days in any other place. It is to be obſerved, bread loſes weight by keeping: in ſome experiments recited by Bartholine, the diminution was near one-fourth in ſix months. The ſame author aſſures us, that in Norway they make bread which keeps 30 or 40 years; and that they are there fonder of their old hard bread, than elſewhere of new or ſoft; ſince the older it is, the more agreeable it grows. For their great feaſts, particular care is taken to have the oldeſt bread; ſo that, at the chriſtening of a child, they have uſually bread which had been baked perhaps at the chriſtening of his grandfather. It is made of barley and oat-meal baked between two hollow ſtones.

Bread || Bream.

Bread-Room, in a ſhip, that deſtined to hold the bread or biſket.

The boards of the bread-room ſhould be jointed and caulked, and even lined with tin-plates or mats. It is alſo proper to warm it well with charcoal for ſeveral days before the biſket is put into it; ſince nothing is more injurious to the bread than moiſture.

BREADTH, in *Geometry*, one of the three dimenſions of bodies, which multiplied into their length conſtitutes a ſurface.

BREAK, in a general ſenſe, ſignifies to divide a thing into ſeveral parts with violence.

In the art of war, to *break ground*, is to open the trenches before a place.

Among ſportſmen, to *break a horſe* in trotting, is to make him light upon the hand in trotting, in order to make him fit for a gallop. To *break* a horſe for hunting, is to ſupple him, to make him take the habit of running.

BREAKERS, a name given by ſailors to thoſe billows that break violently over rocks lying under the ſurface of the ſea. They are diſtinguiſhed both by their appearance and ſound, as they cover that part of the ſea with a perpetual foam, and produce a hoarſe and terrible roaring, very different from what the waves uſually have in a deeper bottom. When a ſhip is unhappily driven among breakers, it is hardly poſſible to ſave her, as every billow that heaves her upwards ſerves to daſh her down with additional force when it breaks over the rocks or ſands beneath it.

BREAKING, in a mercantile ſtyle, denotes the becoming bankrupt. See Bankrupt.

Breaking-Bulk, in the ſea-language, is the ſame with unlading part of the cargo.

BREAKSPEAR, Nicholas. See Adrian IV.

BREAM. See Cyprinus, Ichthyology *Index*.

To Bream, to burn off the filth, ſuch as graſs, ooze, ſhells, or ſea-weed, from a ſhip's bottom, that has gathered to it in a voyage, or by lying long in a harbour. This operation is performed by holding kindled furze, faggots, or ſuch materials, to the bottom, ſo that the flame incorporating with the pitch, ſulphur, &c. that had formerly covered it, immediately looſens and throws off whatever filth may have adhered to the planks. After this, the bottom is covered anew with a compoſition of ſulphur, tallow, &c. which not only makes

Breaſt. makes it ſmooth and ſlippery, ſo as to divide the fluid more readily, but alſo poiſons and deſtroys thoſe worms which eat through the planks in the courſe of a voyage. Breaming may be performed either when the ſhip lies aground after the tide has ebbed from her, or by docking, or by careening.

BREAST, in *Anatomy*, denotes the fore-parts of the thorax. See ANATOMY *Index*.

Smiting the breaſt is one of the expreſſions of penitence. In the Romiſh church, the prieſt beats his breaſt in rehearſing the general confeſſion at the beginning of the maſs.

BREASTS, or *Mammæ*, in *Anatomy*. See ANATOMY *Index*.

The breaſts are uſually two; though we alſo meet with inſtances of *trimamiæ* or women with three breaſts *, and even ſome with four, all yielding milk alike †.

* *Barthol. Act. Med.* p. 171. *Caſt. Lex. Med.* p. 728.
† *Cabrol. Obſerv.* 7. *Blaſ. Com. ad Veſling.* p. 133.

BREAST-Hooks, in *Ship-Building*, are thick pieces of timber incurvated into the form of knees, and uſed to ſtrengthen the fore-part of the ſhip, where they are placed at different heights directly acroſs the ſtem, ſo as to unite it with the bows on each ſide. The breaſt-hooks are ſtrongly connected to the ſtem and hawſe-pieces by tree-nails, and by bolts driven from without through the planks and hawſe-pieces, and the whole thickneſs of the breaſt-hooks, upon whoſe inſide thoſe bolts are forelocked or clinched upon rings. They are uſually about one-third thicker, and twice as long, as the knees of the decks they ſupport.

BREAST-Plate, in antiquity, a piece of armour worn to defend the breaſt, originally believed to be made of hides, or hemp, twiſted into ſmall cords, but afterwards made of braſs, iron, or other metals, which were ſometimes ſo exquiſitely hardened, as to be proof againſt the greateſt force.

BREAST-Plate, in Jewiſh antiquity, one part of the prieſtly veſtments anciently worn by the high-prieſts. It was a folded piece of the ſame rich embroidered ſtuff of which the *ephod* was made; and it was ſet with twelve precious ſtones, on each of which was engraven the name of one of the tribes. They were ſet in four rows, three in each row; and were divided from each other by little golden ſquares or partitions in which they were ſet. The names of theſe ſtones, and that of the tribes engraven on them, as alſo their diſpoſition on the breaſt-plate, are as follows:

Sardine REUBEN	*Emerald* JUDAH.	*Ligare.* GAD.	*Beryl* ZEBULUN.
Topaz SIMEON.	*Sapphire.* DAN.	*Agate* ASHER.	*Onyx.* JOSEPH.
Carbuncle LEVI.	*Diamond.* NAPHTALI.	*Amethyſt.* ISSACHAR	*Jaſper* BENJAMIN.

This breaſt-plate was faſtened at the four corners; thoſe on the top to each ſhoulder by a golden hook or ring at the end of a wreathed chain; and thoſe below, to the girdle of the ephod, by two ſtrings or ribbons, which had likewiſe two rings and hooks.

This ornament was never to be ſevered from the prieſtly garment! and it was called the *memorial*, to put the high-prieſt in mind how dear thoſe tribes ought to be to him, whoſe names he wore on his breaſt. It is alſo called the *breaſtplate of judgment*, becauſe it had the divine oracle of *Urim and Thummim* annexed to it. See URIM AND THUMMIM.

Breaſt ‖ Brechin.

BREAST-Plate, in the manege, the ſtrap of leather that runs from one ſide of the ſaddle to the other, over the horſe's breaſt, in order to keep the ſaddle tight, and hinder it from ſliding backwards.

BREAST-Work, in fortification, the ſame with PARAPET.

BREATH, the air inſpired and expelled again in the action of reſpiration.

The ancients were very watchful over the laſt breath of dying perſons, which the neareſt relations, as the mother, father, brother, or the like, received in their mouths.

BREATHING, the ſame with RESPIRATION.

BRECHIN, a town of Scotland, in the county of Angus, ſituated in W. Long. 2. 18. N. Lat. 56. 40. It conſiſts of one large handſome ſtreet, and two ſmaller; and is on the ſide of a ſmall hill, and waſhed by the river Southeſk, over which there is a ſtone-bridge of two large arches. At the foot of the town is a long row of houſes independent of it, built on ground held in feu from the family of Northeſk. It is a royal borough, and, with four others, ſends a member to parliament. In reſpect to trade, it has only a ſmall ſhare of the linen manufacture. It lies at no great diſtance from the harbour of Montroſe; and the tide flows within two miles of the town; to which a canal might be made, which perhaps might create a trade, but would be of certain ſervice in conveying down the corn of the country for exportation.

Brechin was a rich and ancient biſhopric founded by David I. about the year 1150. At the Reformation, its revenues, in money and in kind, amounted to 700l. a-year; but, after that event, were reduced to 150l. chiefly by the alienation of lands and tythes by Alexander Campbell, the firſt Proteſtant biſhop, to his chieftain the earl of Argyll.—The Culdees had a convent here. Their abbot Leod was witneſs to the grant made by King David to his new abbey of Dunfermline. In after times, they gave way to the Mathurines or Red Friars. The ruins of their houſe, according to Maitland, are ſtill to be ſeen in the College Wynd.—Here was likewiſe an hoſpital called *Maiſon de Dieu*, founded in 1256, by William de Brechin, for the repoſe of the ſouls of the Kings William and Alexander; of John earl of Cheſter, and of Huntingdon his brother; of Henry his father, and Juliana his mother. Albinus biſhop of Brechin, in the reign of Alexander II. was witneſs to the grant. By the walls which are yet ſtanding, behind the weſt end of the chief ſtreet, it appears to have been an elegant little building. *Penant's Tour in Scotland.*

The cathedral is a Gothic pile, ſupported by 12 pillars; is in length 166 feet, in breadth 61: part is ruinous, and part ſerves as the pariſh-church. The weſt end of one of the aiſles is entire: its door is Gothic, and the arch conſiſts of many mouldings; the window of it neat tracery. The ſteeple is a handſome tower, 120 feet high; the four lower windows in form of long narrow openings; the belfry windows adorned with that ſpecies of opening called the *quatrefoil*: the top-battlemented, out of which riſes a handſome ſpire.—At a ſmall

Brechin, Brecknock.

small distance from the aisle stands one of those singular round towers whose use has so long baffled the conjectures of antiquaries. These towers appear to have been peculiar to North-Britain and Ireland: in the last they are frequent; in the former, only two at this time exist. That at Brechin stood originally detached from other buildings. It is at present joined near the bottom by a low additional aisle to the church, which takes in about a sixth of its circumference. From this aisle there is an entrance into it of modern date, approachable by a few steps, for the use of the ringers; two handsome bells are placed in it, which are got at by means of six ladders placed on wooden semicircular floors, each resting on the circular abutments withinside of the tower. The height from the ground to the roof is 80 feet; the inner diameter, within a few feet of the bottom, is 8 feet; the thickness of the wall at that part, 7 feet 2 inches; so that the whole diameter is 15 feet 2 inches; the circumference very near 48 feet; the inner diameter at top is 8 feet 7 inches; the thickness of the walls 4 feet 6 inches; the circumference, 38 feet 8 inches: which proportion gives the building an inexpressible elegance: the top is roofed with an octagonal spire 23 feet high, which makes the whole 103. In this spire are four windows placed alternate on the sides, resting on the top of the tower; near the top of the tower are four others facing the four cardinal points: near the bottom are two arches, one within another, in relief; on the top of the outmost is a crucifixion: between the mouldings of the outmost and inner are two figures; one of the Virgin Mary; the other of St John, the cup, and lamb. On each corner of the bottom of this arch is a figure of certain beasts; one possibly the Caledonian bear; and the other, with a long snout, the boar. The stone-work within the inner arch has a small slit or peep-hole, but without the appearance of there having been a door within any modern period: yet there might have been one originally; for the filling up consists of larger stones than the rest of this curious rotund. The whole is built with most elegant masonry, which Mr Gough observed to be composed of 60 courses.—This tower hath often been observed to vibrate with a high wind.

The castle of Brechin was built on an eminence, a little south of the town; it underwent a long siege in the year 1303; was gallantly defended against the English under Edward III.; and, notwithstanding all the efforts of that potent prince, the brave governor Sir Thomas Maule, ancestor of the family of Panmure, held out this small fortress for 20 days, till he was slain by a stone cast from an engine on the 20th of August, when the place was instantly surrendered. The family of Panmure have now a noble house on the site of the old castle.—Brechin is also remarkable for a battle fought near it, in consequence of the rebellion raised in 1452, on account of the murder of the earl of Douglas in Stirling castle. The victory fell to the royalists under the earl of Huntly. The malecontents were headed by the earl of Crawford, who, retiring to his castle of Finhaven, in the frenzy of disgrace declared, that he would willingly pass seven years in hell, to obtain the glory that fell to the share of his antagonist.

BRECKNOCK, or Brecon, a town of Brecknockshire in Wales, and capital of the county. It is called by the Welch *Aber Hondey*, and is seated at the confluence of the rivers Hondey and Usk, over which there is a handsome stone bridge. It is an ancient place, containing three churches, one of which is collegiate, and is seated at the west end of the town. The houses are well built. Here was formerly a stately castle, and a strong wall, through which there were three gates, that are all demolished. It sends one member to parliament. It is well inhabited, which is in some measure owing to its being the town where the assizes are kept; and there is here a considerable woollen-manufactory. The markets are well supplied with cattle, corn, and provisions. W. Long. 3. 15. N. Lat. 52. 0.

Brecknockshire, Breda.

BRECKNOCKSHIRE, a county of Wales, bounded by Radnorshire, on the north; Cardiganshire and Caermarthenshire, on the west; Herefordshire and Monmouthshire, on the east; and by Glamorganshire and Monmouthshire, on the south. It is 35 miles in length, 30 in breadth, and about 100 in circumference. It is surrounded with hills, which renders the air in the valleys pretty temperate. The soil on the hills is very stony, but the streams descending from thence into the valleys render them fruitful both in corn and grass. The chief commodities here are corn, cattle, fish, and otter's fur, besides manufactures of cloth and stockings. The principal rivers are the Usk, the Wye, and the Yrvon. The chief towns are Brecknock, Bealt, and Hay.

Two miles to the east of Brecknock is a large lake, called *Brecknock Meer*, and by the Welch *Lhyn Savaddan*; it is two miles in length, and nearly the same in breadth. It contains plenty of otters, tench, perch, and eels. The county sends one member to parliament. It is in the diocese of Landaff, and contains 61 parishes, and is divided into six hundreds.

BREDA, a town in Holland, the capital of Dutch Brabant. It is a large, populous, well built city, regularly fortified after the modern way, and is one of the strongest places on the Dutch frontiers. It is seated on the river Meck, in a marshy country, which may be overflowed and rendered inaccessible to an army. It is 4000 paces in circumference, and contains upwards of 2000 houses. The town is of a triangular figure, and the ramparts are all planted round with elms. At every angle there is a gate built with brick. The great church is a noble structure, remarkable for its fine spire, which is 362 feet high. The mausoleum of Augelbert II. count of Nassau, is a curious piece, adorned with several statues and inscriptions suitable to the occasion. In 1577 the garrison delivered this city to the States-general; but it was retaken in 1581 by Cloude de Barlaimount, assisted by the baron de Fresin, who was prisoner therein. In 1590, Prince Maurice took it again from the Spaniards.

In 1625 it was invested by Spinola; when it endured a siege too remarkable not to deserve a particular detail.

The citadel, which formed the residence of the princes of that family, was surrounded by a ditch of prodigious depth filled with water, and a strong wall defended by three great bastions; and the arsenal was celebrated for its extent, and the vast quantities of arms and military stores it contained. Spinola, perfectly acquainted with the strength of the place, thought he should expose his whole army to imminent destruction, should he attempt an assault before he had regularly carried

Breda. carried on his approaches. He even reſolved upon reducing the city by famine, as the method attended with leaſt danger to his army; and accordingly began with drawing trenches round, for the ſpace of four miles, erecting forts and redoubts at certain diſtances.

On the other hand, the garriſon, conſiſting of ſeven thouſand infantry, and ſeveral troops of horſe, compoſed of Engliſh, French, and Dutch ſoldiers, took the moſt vigorous meaſures for their own defence. The Engliſh were under the command of Colonel Morgan, who had frequently diſtinguiſhed his valour in the ſervice of the States: the French were directed by Colonel de Hauterive; and the Dutch troops were ſubject to the immediate orders of Colonel Lohre, though the whole received their inſtructions from Juſtin de Naſſau, the governor. The firſt advantage was gained by Baglioni, who ſeized a large convoy of proviſions and ſtores coming up the river, converting the boats into a bridge. This loſs diſpirited the beſieged, and reduced them to a ſtated allowance of bread; and what added to their misfortunes, though they were ignorant of it, was the death of Prince Maurice, from whom they were in hopes of receiving relief.

Meanwhile Spinola proſecuted the ſiege with the utmoſt diligence and vigour. On his puſhing his trenches near the baſtions, the beſieged began a terrible fire to retard his approaches, and kept it up with ſuch vehemence and obſtinacy, that Spinola was in hopes they muſt ſoon ſurrender for want of ammunition. But here he formed a falſe judgment of the prudence of Juſtin de Naſſau, who finding he could not accompliſh his purpoſe by his firing, reſolved to try the effect of water. With this view, he ſtopped up the courſe of the river Marck; and having formed a large baſon of water, opened the ſluices, ſwept away men, horſes, and houſes, in an inundation, and overflowed the whole country. The chief force of the torrent fell upon Spinola's quarters, and he exerted his utmoſt ability to remove the conſequences. He dug large pits, and cut out ditches and canals to receive the water; but theſe being filled, and the whole ground covered over, ſo as to appear one uniform maſs of water, ſerved only to entrap his cavalry. The inundation was augmented by the rains which happened to fall; a mortality among the ſoldiers and horſes enſued; and of his whole army, Spinola had ſcarce twelve thouſand men fit for ſervice by the month of December. With theſe inconſiderable remains, lines of vaſt extent were to be defended, the works were to be advanced, the ſallies from the garriſon repulſed, and proviſions to be conveyed into the camp, while Spinola, the ſoul of action, was confined to a ſick-bed.

In the garriſon, an epidemical diſeaſe and ſcarcity likewiſe prevailed; but the excellent regulations made, and ſtrictly obſerved, enabled the town to hold out three or four months beyond the time expected. The magiſtrates bought the corn for the bakers; obliging them to ſell the bread to the inhabitants and garriſon at a price affixed, and returning the overplus of their pay to the ſoldiers. A variety of other prudent regulations were eſtabliſhed by the magiſtrates and governor, ſuch as we do not find equalled by any inſtances recorded in hiſtory upon a ſimilar occaſion, and all evincing the ſteadineſs, ſagacity, courage, and ability, of Juſtin de Naſſau. A kind of rivalſhip appeared between him and Spinola, which ſhould beſt fulfil their ſeveral duties. The Spaniſh general cauſed himſelf to be carried about the works in a litter; he inſpected and directed every thing; and diſplayed the activity of full health at the time his life was in imminent danger from an acute malady. He ordered ſeveral breaches in the lines to be repaired. Theſe the Hollanders had made by ſap, with a view of introducing ſuccours to the beſieged. He drove piles into all the ditches and canals though which their boats could paſs. He made drains, to clear off the waters of the river Marck; and ſucceeded in a great meaſure by dint of perſeverance, vigilance, and conduct. He was now reinforced with a body of eight thouſand foot, and one thouſand five hundred horſe; many of the ſick were perfectly recovered by his extreme care; and his army was again become formidable, amounting to twenty-five thouſand infantry, and eight thouſand cavalry. Nor was Prince Henry idle, who now ſucceeded to the titles and dominions of his brother Maurice, and was elected governor of Holland, Zealand, Guelderland, Utrecht, and Overyſſel. He preſſed France for aſſiſtance, and was joined by a body of cavalry under the conduct of the count de Rouſſi and the marquis de Rambures. With this reinforcement; and a body of German infantry, he attacked the enemy's lines, and after an obſtinate conflict was repulſed. He advanced a ſecond time; but Spinola, who entertained a high opinion of his valour and conduct, did not chooſe to wait for him in his lines; he marched out with the greater part of his army, ſeized upon a convenient poſt, and obliged the prince a ſecond time to retire towards Boiſleduc. Henry, finding no proſpect of being able to relieve the garriſon, ſent a permiſſion to the governor to ſurrender on the beſt conditions he could obtain. This plan, which was ſigned with no name, fell into the hands of the beſiegers, and Spinola ſent it open, by a trumpet, to Juſtin de Naſſau, offering him an honourable capitulation; but that intrepid governor, ſuſpecting the letter was forged, becauſe it was anonymous, replied civilly, that a permiſſion was not an order to ſurrender; and that he ſhould better follow the prince of Orange's intention, and ſhow his reſpect for Spinola, by continuing to defend the city to the laſt extremity. Breda.

By this time the garriſon was diminiſhed by diſeaſe, fatigue, want, and hardſhip, to half the original number; but Juſtin put on ſuch a countenance, as concealed his ſituation from Spinola. He frequently ſallied out upon Baglioni's quarters, where the Italians were periſhing with cold and hunger, the whole ſubſiſtence of the beſiegers depending on the contributions raiſed in the neighbouring territories. This inconvenience produced a mutiny in the camp, that could not be appeaſed without applying violent remedies, and executing within ſight of the whole army the chief ring-leaders. One of the mutineers blew up Spinola's chief magazine, valued at two hundred thouſand livres. Urged more by neceſſity than compaſſion for the beſieged, Spinola ſent a meſſage to the governor, exhorting him not to force him to extremities, which might be attended with fatal conſequence to a brave garriſon; but Juſtin, with equal art and diſſimulation, anſwered, that Spinola was certainly ill ſerved by his

Breda. ſpies, as he appeared wholly unacquainted with the ſtate of affairs in Breda, which was fully provided for a ſiege of ſeveral months, and defended by ſoldiers who preferred death to the neceſſity of ſurrendering. At that time the beſieged were not informed of the death of the prince of Orange. They flattered themſelves with the hopes of ſpeedy ſuccour, and were entirely ignorant of Prince Henry's late diſappointment. When they wrote to the army an account of their miſerable condition, Henry returned an anſwer, written with his own hand, and ſigned with his name, appriſing them of the death of Maurice, the unſucceſsful attempts made to raiſe the ſiege and throw in ſuccours, the great inferiority of his troops in point of numbers, and the death of King James, whereby he was diſappointed of a ſtrong reinforcement; concluding, that he left the city entirely to the diſcretion of the governor and other principal officers. Juſtin was thunderſtruck with the contents of this letter. He had hitherto concealed the total want of proviſion and ammunition from the enemy, and his own garriſon, except a few officers and other perſons in whom he repoſed confidence. The colonels Hauterive and Morgan would liſten to no propoſitions, ſaying, that the honour of their ſeveral countries was concerned, and that they were reſponſible for the conduct of the Engliſh and French forces. They therefore required an expreſs order from the prince of Orange to ſurrender, notwithſtanding they pined under the united preſſure of fatigue, ſcarcity, and diſeaſe. Juſtin acquainted the prince with their reſolution, and he ſent back an order to ſurrender, threatening with capital puniſhment whoever ſhould diſobey; but he requeſted that the garriſon would firſt acquaint him by a certain number of fires, lighted up in different parts of the city, how many days they ſhould be able to hold out. Upon receipt of this order, eleven fires were kindled; but as the prince had ſent a duplicate of the order by another meſſenger, and this fell into the hands of the enemy, Spinola was now acquainted with the deſperate circumſtances of the beſieged. By this acquiſition he likewiſe diſcovered the myſtery of the eleven fires: a council of war was aſſembled to deliberate whether they ſhould ſtay the eleven days, and then oblige the garriſon to ſurrender at diſcretion, or immediately offer conditions worthy of ſo brave a garriſon. The Spaniſh officers were of the former opinion; the count de Berg and Spinola ſupported the latter. At laſt the marquis, determined to purſue the dictates of his noble generoſity, ſent ſuch terms as could not be refuſed. The count de Berg conducted the negociation. Two ſeparate capitulations were drawn up, one for the garriſon and the other for the city, and both the moſt honourable and advantageous that could be deviſed. They were accepted, and the garriſon marched out on the 6th of June, after having ſuſtained a ſiege for ten months, whereby they were diminiſhed two thirds; nor was the loſs inferior on the part of the inhabitants. Spinola drew up his army to ſalute them, and, ſurrounded by his field officers, paid particular compliments to the governor, the colonels Morgan, Hauterive, and Lohre. He diſtributed money among the ſoldiers, ordered the ſick and wounded to be treated with the utmoſt tenderneſs, conveyed the reſt in the manner moſt commodious for them to Gertruydenburgh, and diſplayed all the ſentiments of a hero in the regard paid to the valour and merits of his enemies. Breda || Breeches.

Breda was retaken by the prince of Orange, for the United Provinces, in 1637. There was a congreſs held there, and peace concluded, in 1667, between the Dutch and the Engliſh. E. Long. 4. 45. N. Lat. 51. 35.

Breda, *John Van*, painter of hiſtory, landſcape, and converſations, was born at Antwerp in 1683, the ſon of Alexander Van Breda, an artiſt who was much eſteemed for landſcapes, views of particular ſcenes in Italy, fairs, and markets, with a variety of animals and figures. He was inſtructed by his father: and having the advantage of a good example and a good director, added to his own great application, he continued his ſtudies with his father till he was 18 years of age. Among the variety of capital paintings which were at that time in the poſſeſſion of John de Wit at Antwerp, Breda fixed upon thoſe of Velvet Breughel, which he copied with extraordinary ſucceſs; and he was alſo employed for nine years in copying the pictures of ſeveral other great maſters; which he performed with ſuch incredible exactneſs as ſcarcely to leave it in the power of any judicious perſon to diſtinguiſh the originals from the copies. Having at length eſtabliſhed his reputation in Holland, he went to London with Ryſbrack the ſculptor, and there gradually roſe into ſuch eſteem, that he was viſited by perſons of the higheſt rank, and particularly patronized by the unfortunate earl of Derwentwater, who was beheaded for rebellion in 1715. He found ſo much encouragement in London, that he was employed by the court and the nobility, and could ſcarce execute the large demands for his performances. After a reſidence of ſome years in England, he returned to Antwerp loaded with riches, the honourable teſtimonies of Engliſh liberality, as well as of his own merit; and in the year 1746, when Louis XV. arrived in that city, he ſo far honoured this maſter as to purchaſe four of his pictures: One repreſented Chriſt at the ſea of Tiberias; another, Chriſt performing miracles; and the other two were landſcapes, with a number of figures, ſo exquiſitely drawn and finiſhed that it would be difficult to diſtinguiſh them from thoſe of Velvet Breughel. He certainly approached nearer to thoſe great maſters whoſe manner he imitated, namely, Breughel and Wouvermans, than any other artiſt of his time. His landſcapes are in the ſtyle and taſte of the former; and his converſations, hiſtorical figures, fairs, ſkirmiſhes, or battles, are in the manner of the latter. His colouring is good; his touch neat; his ſkies and diſtances natural and beautiful; and his taſte of deſign agreeable. He had as much fire in his compoſition, and perhaps more genius, than Breughel, in thoſe ſubjects which he painted in the ſtyle of that maſter; his figures are generally well placed, his grounds ſkilfully broken; every ſmall figure hath its particular character, and occupies its proper place; and, in ſhort, he is a painter of ſuch a rank, that the value and eſtimation of his works muſt always increaſe. He died in 1750. *Pilkington's Dict.*

BREECH of a great gun, or cannon, the end next the touch-hole.

BREECHES, a garment worn by males, reaching from the girdle to the knees, and ſerving to cover the hips, thighs, &c.

The

Breechings, Breeding.

The ancient Romans had nothing in their dreſs anſwering to our breeches and ſtockings; inſtead of which, under their lower tunics and waiſtcoats they ſometimes bound their thighs and legs round with ſilken ſcarves or faſciæ, called *tibialia* and *femoralia*. Breeches appear to be a habit peculiar to the barbarous nations, eſpecially thoſe inhabiting the colder countries of the north; whence Tacitus calls them *barbarum tegmen*. We find mention made of them among the ancient Getæ, Sarmatæ, Gauls, Germans, and Britons; they alſo obtained among the Medes and Perſians, as being a people of Scythian origin; they alſo afterwards got footing in Italy, ſome pretend, as early as the time of Auguſtus; but without much foundation, that emperor's breeches, mentioned by Suetonius, being apparently only ſwaths tied over his thighs. However this be, breeches were at laſt received into Italy, and grew ſo highly into faſhion, that it was thought neceſſary, under Honorius and Arcadius, to reſtrain them by law, and expel the *bracarii* or breeches-makers out of the city; it being thought unworthy of a nation that conmanded the world, to wear the apparel of barbarians.

BREECHINGS, in the ſea-language, the ropes with which the great guns are laſhed or faſtened to the ſhip's ſide. They are thus called, becauſe made to paſs round the breech of the gun.

BREEDING, in a general ſenſe, the producing, nouriſhing, and educating, all manner of young animals.

Breeding, in a moral ſenſe, denotes a perſon's deportment or behaviour in the external offices and decorums of ſocial life. In this ſenſe we ſay *well-bred*, *ill-bred*, *a man of breeding*, &c. Good-breeding is hard to define; none can underſtand the ſpeculation but thoſe who have the practice. Good-breeding amounts to much the ſame with what is otherwiſe called *politeneſs*, among the ancient Romans *urbanity*. Good-breeding is near to virtue, and will of itſelf lead a man a great part of the way towards the ſame. It teaches him to rejoice in acts of civility, to ſeek out objects of compaſſion, and to be pleaſed with every occaſion of doing them good offices. Lord Shafteſbury compares the well-bred man with the real philoſopher: both characters aim at what is excellent, aſpire to a juſt taſte, and carry in view the model of what is beautiful and becoming. The conduct and manners of the one are formed according to the moſt perfect eaſe, and good entertainment of company; of the other, according to the ſtricteſt intereſt of mankind: the one according to his rank and quality in his private ſtation; the other according to his rank and dignity in nature. Horace ſeems to have united both characters,

Quid verum atque decens curo et rogo, et omnis in hoc ſum.

See the article *Good-Manners*.

Breeding of Horſes. See Equus.

Breeding of Fiſh. The neceſſary qualities of a pond, to make it ſerve well for breeding fiſh, are very different from thoſe which are to make it ſerve for the feeding of them, inſomuch that ſome particular ponds ſerve only for one of theſe purpoſes, and others for the other; and ſcarce ever the ſame pond is found to anſwer for them both. In general, it is much more rare to find a good breeding pond than a good feeding one. The beſt indications for a good breeding pond are theſe; that there be a good quantity of ruſhes and graſs about its ſides, with gravelly ſhoals, ſuch as horſe-ponds uſually have: when a pond has this property, and takes to the breeding of fiſh, it is amazing what a progreſs will be made in a little time. The ſpawn of fiſh is prodigious in quantity; and where it ſucceeds, one is able to produce many millions: thus, in one of theſe breeding ponds, two or three melters, and as many ſpawners, will, in a very little time, ſtock the whole country. When theſe ponds are not meant entirely for breeding, but the owner would have the fiſh to grow to ſome ſize in them, the method is to thin the numbers, becauſe they would otherwiſe ſtarve one another, and to put in other fiſh that will prey upon the young, and thin them in the quickeſt manner. Eels and perch are the moſt uſeful on this account; becauſe they prey not only upon the ſpawn itſelf, but upon the young fry from the firſt hatching to the time they are of conſiderable ſize. Some fiſh are obſerved to breed indifferently in all kinds of waters, and that in conſiderable plenty; of this nature are the roach, pike, and perch.

Breenberg || Brehar.

BREENBERG, Bartholomew, an excellent painter, was born in 1620. He is beſt known by the name of *Bartolomeo*, an appellation beſtowed upon him, for diſtinction ſake, by the ſociety of Flemiſh painters at Rome called *Bentvogels*. He was born at Utrecht; but in the early part of his life went to Rome. His ſtudies in the art of painting were attended with ſuch ſucceſs, that his pictures were held in the higheſt eſtimation. He greatly excelled in landſcapes, and theſe he enriched with hiſtorical ſubjects. The figures and animals which he introduced were very ſpirited, and drawn in a maſterly manner; eſpecially when they were not larger than the ſize in which he uſually painted them. He died in 1660, aged 40 years. He alſo etched from his own deſigns a ſet of 24 *Views and Landſcapes, ornamented with Ruins*.

BREEZE, a ſhifting wind that blows from ſea or land for ſome certain hours in the day or night; common in Africa and ſome parts of the Eaſt and Weſt Indies.

Breezes differ from *eteſiæ* or trade-winds, as the former are diurnal, or have their periods each day; and the latter are anniverſary, and blow at a diſtance from land. The ſea-breezes rule by day, and the land-breezes by night; ſo that, dividing their empire, they remain conſtant as the ſeaſons of the year, or courſe of the ſun, on which they ſeem to depend: not but that they appear ſooner or later, ſtronger or weaker, in ſome places than in others; and vary the alternative according to the ſeveral latitudes, ſituations, and ſoils, &c. of the countries where they are found. See the article Wind.

Breeze-Fly. See Tabanus, Entomology *Index*.

BREGENTZ, or, Bergentz, a town of Tyrol in Germany, ſituated at the eaſt end of the lake of Conſtance, in E. Long. 9. 40. N. Lat. 47. 36.

BREGMA, in *Anatomy*, the ſame with ſinciput. See Anatomy *Index*.

BREHAR, one of the Scilly iſlands, lying almoſt directly weſt of the land's end in Cornwall, about the diſtance of 30 miles. It lies between the iſles of Micarol, Guel, Treſcaw, and Samſon. It is the roughеſt and moſt mountainous of them all, and not many years

Brehons || Bremen.

since, there were only two families in it, but now there are 13. There are a few poor houſes called the *town of Brehar;* and there are ſeveral BARROWS edged with ſtone, in which they buried conſiderable perſons in ancient times; beſides many monuments of the DRUIDS. Some are of opinion, that this with the reſt made but one iſland, which is the reaſon why ſo many antiquities are now found in moſt of them.

BREHONS, the provincial judges among the ancient Iriſh, by whom juſtice was adminiſtered, and controverſies decided. Theſe ſages were a diſtinct tribe or family, to whom competent lands were allowed in inheritance. In criminal caſes the brehon had the eleventh part of all the fines; which could not but be conſiderable at a time when murders, rapes, robberies, and the like offences, were only ſubject to pecuniary commutations.

BREHON-Laws, or *Leges Brehonicæ*, denote the general maxims or rules of law obſerved by the brehons, and having the force of laws throughout all the provinces of Ireland. Several fragments of the *leges brehonicæ* are ſtill extant in public and private libraries. The moſt complete collection is that belonging to the duke of Chandos; containing 22½ ſheets cloſe written, full of abbreviated words, and not very legible. By the ſtatute of Kilkenny, made under Edward III. it is enacted that no Engliſh ſubject ſhall ſubmit to a trial by the *brehon* law, on the penalty of high treaſon. Notwithſtanding which, many were ſtill under a neceſſity of being concluded by the Iriſh laws and cuſtoms, till the whole kingdom was ſettled on an Engliſh bottom by King James I.

BREMEGARTON, a handſome and pretty conſiderable town of Swiſſerland, in the territory of Fyen-Aempter, between the cantons of Zurich and Bern. The inhabitants deal chiefly in paper; and their religion is the Roman-catholic. It is divided into the upper and lower towns, and is very advantageouſly ſeated on the river Ruſs. E. Long. 8. 25. N. Lat. 47. 20.

BREMEN, a large, populous, and very ſtrong town of Germany, capital of a duchy of the ſame name, with an archbiſhop's ſee, ſecularized in favour of the Swedes, but now belongs to the elector of Hanover. The river Weſer runs through the middle, and divides it into the old and new town. In September 1739, while the inhabitants were aſleep, the magazine of powder was ſet on fire by lightning, and all the houſes were ſhaken, as if there had been a violent earthquake, which threw them into a terrible conſternation. The town is divided into four quarters, each of which has a burgomaſter; and in the middle there is a large market-place, with the ſtatue of Rolando. Bremen drives a very large trade for iron, flax, hemp, and linen, with France, England, Spain, and Portugal, and in return takes back other proviſions, with which it ſupplies Weſtphalia and the countries about Hanover. It alſo gets a great deal by its fiſheries; the trade for blubber with the ſouth of Germany is very conſiderable. E. Long. 8. 45. N. Lat. 53. 40.

BREMEN, a duchy of Germany, in the province of Lower Saxony, lying between the rivers Weſer and the Elbe; of which the former ſeparates it from the duchy of Oldenburgh, and the other from that of Holſtein. The air is cold; but the country is fertile, and well peopled. It formerly belonged to the Swedes, but was afterwards ſold to the king of Great Britain, as elector of Hanover, in 1716. In the winter it is ſubject to inundations. In 1617, on Chriſtmas-day, ſeveral thouſand cattle were drowned, beſides ſeveral hundred of men; and the country was ſo covered with water, that it has coſt immenſe ſums to repair the dykes. Bremen is the capital town.

Bremen-Veerd || Brerewood.

BREMEN-Veerd, a town of Germany, in the circle of Lower Saxony, and duchy of Bremen. It is an open town, ſeated on the river Ooſt, and was formerly the place of reſidence of the archbiſhop. E. Long. 8. 35. N. Lat. 53. 58.

BRENNAGE, BRENNAGIUM, in middle age writers, a kind of tribute paid in lieu of bran, or bran itſelf, which the tenants were obliged to furniſh for the ſupport of the lord's hounds. The word is alſo written *brennage*, *brenagium*, and *brenaige*, *bernagium*, *brenaticum*, and *brennaticum*.

BRENNUS, a celebrated captain among the Gauls, who, about 388 years before the Chriſtian æra, entered Italy with a powerful army; made great conqueſts there; defeated the Romans; and ſacked Rome. The capitol alone was defended; and Camillus coming to its relief, drove the Gauls not only out of Rome, but out of all Italy. See (*Hiſtory of*) ROME.

BRENT, a town of Devonſhire, with a market on Saturdays, and two fairs, on May 13th and October 10th, for horned cattle. It is but a ſmall place, and lies on the road from Exeter to Plymouth, being 26 mtles ſouth-weſt from the former, and 198 weſt by ſouth of London. W. Long. 5. 7. N. Lat. 50. 30.

BRENT-Gooſe, a ſpecies of gooſe with a black neck, and a white collar round; uſually confounded with the barnacle, through in reality a diſtinct ſpecies. See ANAS, ORNITHOLOGY *Index*.

BRENTFORD, a town of Middleſex, on the great London road to the weſt. It is divided into old and new Brentford, in which laſt are the church and market-houſe, and where the county elections are held. It is a long place, well ſtocked with public houſes, and is ſeated on the river Thames, in W. Long. 0. 10. N. Lat. 51. 26.

BRENTWOOD or BURNTWOOD, a town of Eſſex in England; it ſtands on a riſing ground in the road from London to Colcheſter, and has ſeveral good inns. E. Long. 0. 25. N. Lat. 51. 38.

BREREWOOD, EDWARD, a very learned Engliſh mathematician and antiquary, was the ſon of Robert Brerewood a tradeſman, who was thrice mayor of Cheſter; and born in that city in the year 1565. He was educated in grammar learning at the free ſchool in Cheſter; and afterwards admitted, in 1581, of Brazen-noſe-college in Oxford. In the year 1596, he became the firſt profeſſor of aſtronomy in Greſham-college in London; where he led the ſame private and retired courſe of life that he had before done in Oxford. He died there of a fever, upon the 4th of November 1613, much lamented. He was a great ſearcher into antiquity and curious knowledge; but is remarkable for having never publiſhed any thing during his lifetime. After his death came out the following works. 1. *De ponderibus et pretiis veterum nummorum.* 2. Inquiries touching the diverſities of languages and religion through the chief parts of the world. 3. *Elementa logicæ in gratiam*

Breſcia || Breſlau.

tiam ſtudioſæ juventutis in Acad. Oxon. 4. *Tractatus quidam logici.* 5. 6. Two treatiſes on the Sabbath. 7. *Tractatus duo, quorum primus eſt de meteoris, ſecundus de oculo.* 8. *Commentarii in ethica Ariſtotelis.* Mr Wood tells us, that the original manuſcript of this, written with his own hand, is in the ſmalleſt and neateſt characters that his eyes ever beheld; and that it was finiſhed by him on the 27th of October 1586. 9. Patriarchal government of the ancient church.

BRESCIA, a ſtrong and handſome town of Italy, with a biſhop's ſee and a good citadel. It is the capital of Breſciano in the territory of Venice, and is ſeated in an agreeable plain on the river Garza, in E. Long. 10. 5. N. Lat. 45. 31.

BRESCIANO, a province of Italy in the territory of Venice; bounded on the north, by the Griſons and the biſhopric of Trent; on the eaſt, by the lake Garda, the Veroneſe, and the duchy of Mantua; on the ſouth, by the duchy of Mantua and the Cremoneſe; and on the weſt, by the Cremaſco, the Bergomaſco, and the Valtelina. It is watered by ſeveral ſmall rivers, which render it very fertile; and is full of towns and villages, of which Breſcia is the capital.

BRESELLO, a ſmall town of Italy in the duchy of Modena, ſeated on the river Po, in E. Long. 10. 25. N. Lat. 44. 55.

BRESCICATE, in commerce, a kind of baize, of which there is ſome trade carried on with the negroes, between the river Gambia and Sierra Leona. The beſt ſorts for that purpoſe are the blue and the red.

BRESLAU, a ſmall duchy of Lower Sileſia, in Germany, lying between thoſe of Wolaw, Olſſe, Brieg, Schwednitz, and Lignitz. It is everywhere level and flat: is an excellent corn country, yielding alſo good paſture; abounding alſo with herds of cattle and flocks of ſheep; but deſtitute of wood, except in one diſtrict or circle; and the roads in general are very bad. It is an immediate principality, that is, one of which both the property and juriſdiction belong to the king, forming a part of one of the three bailiwics into which all the immediate principalities are divided.

BRESLAU, the chief town of the duchy of that name, and of all Sileſia, is ſituated at the conflux of the Oder and Ohlau, in E. Long. 17. 5. N. Lat. 51. 4. Including the ſuburbs, it is of great extent; having many large regular ſquares, broad ſtreets, ſtately public and private edifices; but the fortifications are of no great importance. Here are in particular a great many churches and convents belonging to the Catholics; of the former are ſeveral alſo belonging to the Lutherans, one to the Calviniſts, and another to the Greeks. The Jews have likewiſe two ſynagogues, the biſhop a ſtately palace, and the Lutherans two gymnaſiums. The Popiſh univerſity is a noble ſtructure, nor is the exchange deſtitute of magnificence. This city is the ſeat of all the high colleges; and the third in rank, next to Berlin and Konigſberg, in all the Pruſſian dominions. The magiſtracy of it is Lutheran, and its trade and manufactures are very conſiderable. Several of the monaſteries and nunneries are very magnificent; and there are alſo ſome good public libraries in it, with two armouries, a college of phyſicians, and a mint. Breſlau is very populous, and much frequented by Hungarian, Bohemian, Poliſh, and other merchants, having ſeveral yearly fairs. The city was taken by the king of Pruſſia in 1741, and retaken by the Auſtrians in 1757; but the king of Pruſſia took it back again the ſame year, and gained a ſignal victory over the Auſtrians at Leuthen, a village not far from the capital.

Breſſe || Breſte.

BRESSE, a province of France, bounded on the north by Burgundy and the Franche Compte; on the eaſt, by Savoy; on the ſouth, by Viennois; on the weſt, by the principality of Dombes and the Somme. It is 40 miles from north to ſouth, and 23 from eaſt to weſt. It is fertile in corn and hemp, has fine paſtures, and ſeveral lakes with plenty of fiſh. It is divided into the higher and lower; the firſt is on the ſide of Bourges, and the ſecond towards St Trivier and the river Sonne. The French got poſſeſſion of it in 1601. The principal places are Bourgen, Breſſe, Montluel, Pont de Vaux, and Coligny.

BRESSICI, in *Geography*. See BRESTE.

BREST, a maritime town of France, in the department of Finiſterre, ſeated on the declivity of a hill on the ſide of its port, which is the largeſt in the kingdom, and will hold 500 ſhips at a time. There is an arſenal with ſea-ſtores, which was placed there on account of its nearneſs to the woods, mines of iron, and other things proper for the building of ſhips. It was entirely conſumed by fire in 1744, which was an irreparable loſs to France. The entrance into the port is guarded by a ſtrong caſtle ſeated on a rock, which cannot be attempted on the ſea ſide, becauſe it is craggy, and is defended on the land ſide by a large ditch and other fortifications. The ſtreets of Breſt are very narrow, ill contrived, few in number, and have all a deſcent. A great quay ſurrounds this ſide of the port, which is above a mile in length, and 200 paces broad; and there are magazines on the quay full of all foreign merchandiſes. On the other ſide of the port the fine church of Notre Dame is ſituated; and in a ſuburb, which is as big as half the city, there is a ſtrong tower oppoſite to the caſtle, at the entrance of the port; there is alſo a great quay on this ſide, bordered with large magazines, partly within the rock, which has been cut away to enlarge the place. Theſe are extended almoſt as far as the bottom of the harbour, where there are two docks very commodious for the building of large ſhips: the ſhops and houſes of the workmen are all around them: the ropewalks are ſeparated from the city by one of theſe docks. The entrance into the harbour is called the *gullet*, and is a paſſage extremely difficult on account of the ſunk rocks on both ſides of the ſhore; but there are experienced pilots who carry ſhips in very ſafely. The Engliſh attempted to take poſſeſſion of this harbour in 1694, but were diſappointed. W. Long. 4. 26. N. Lat. 48. 23.

BREST, or *Breaſt*, in *Architecture*, a term ſometimes uſed for the member of a column, more uſually called *torus*. See TORUS.

BREST-Summers, in timber buildings, are pieces in the outward ſide thereof, into which the girders are framed: this, in the ground-floor, is called a *cell*; and, in the garret-floor, a *beam*.—As to their ſize, it is the ſame with that of girders. See GIRDERS.

BRESTE, the palatinate of, is one of the provinces of Cujava, in Poland. It lies between the palatinates of Ploeſko, Rava, and Lencici Wiadiſlaw. It is divided:

Breſte ‖ Brethren.

ded into four chatelanies, and Breſte is the capital of the whole.

BRESTE, or *Breſſici*, the capital of the palatinate of Breſſici, and of Poleſia in Poland, ſeated on the river Bog, 80 miles eaſt of Warſaw, and ſubject to Poland. It is a fortified town, and has a caſtle built upon a rock. Here is a famous ſynagogue, reſorted to by the Jews from all the countries in Europe. E. Long. 24. 0. N. Lat. 41. 35.

BRET, a name the people on the coaſts of Lincolnſhire give to the common turbot, a fiſh extremely plentiful with them, and taken in vaſt abundance. The way of catching them is in a net trailed on the ground by two horſes; the one going up to the middle of his body in water, the other on ſhore.

BRETESSE, in *Heraldry*, denotes a line embattled on both ſides.

BRETHREN AND SISTERS OF THE FREE SPIRIT, in *Eccleſiaſtical Hiſtory*, an appellation aſſumed by a new ſect which ſprung up towards the cloſe of the thirteenth century, and gained many adherents in Italy, France, and Germany. They took their denomination from the words of St Paul, Rom. chap. viii. ver. 2, 14. and maintained, that the true children of God were inveſted with the privilege of a full and perfect freedom from the juriſdiction of the law. They were enthuſiaſts to a degree of diſtraction, both in their principles and practice. They reſembled the *Beghards*, by which name they were ſometimes called, in their aſpect, apparel, and manner of living. Some of their profeſſed principles reſembled thoſe of the Pantheiſts; for they held, that all things flowed by emanation from God; that rational ſouls were portions of the Deity, and that the univerſe was God; and that, by the power of contemplation, they were united to the Deity, and acquired hereby a glorious and ſublime liberty, both from the ſinful luſts and the common inſtincts of nature: and hence they conclude, that the perſon, who was thus abſorbed in the abyſs of the Deity, became a part of the Godhead, and was the ſon of God, in the ſame ſenſe and manner that Chriſt was, and that he was freed from the obligation of all laws human and divine. They treated with contempt all Chriſtian ordinances, and all external acts of religion, as unſuitable to the ſtate of perfection at which they were arrived. Some of them were honeſt but deluded enthuſiaſts; and they endured the torments inflicted upon them by the inquiſitors with aſtoniſhing calmneſs and triumph. Others proceeded to the moſt extravagant licentiouſneſs of conduct. They held their ſecret aſſemblies ſtark naked, and lay in the ſame beds with their ſpiritual ſiſters, and indiſcriminately with other women, without the leaſt ſcruple or heſitation: modeſty and decency being, according to their creed, marks of inward corruption. And ſome of them proceeded ſtill farther, and maintained, that the *divine man*, or believer, could not ſin, let his conduct be ever ſo horrible or atrocious. Many edicts were publiſhed againſt them; but notwithſtanding the ſeverities they ſuffered, they continued till about the middle of the fifteenth century. They were called by ſeveral other names, ſuch as Schweſtriones, Picards, Adamites, and Turlupins.

BRETHREN and Clerks of the Common Life, a denomination aſſumed by a religious fraternity towards the latter end of the fifteenth century. They lived under the rule of St Auguſtin, and were eminently uſeful in promoting the cauſe of religion and learning. Their ſociety was firſt formed, in the preceding century, by Gerard de Groote, a native of Deventer; but did not flouriſh till about the period above mentioned, when it obtained the approbation of the council of Conſtance, and became very reſpectable in Holland, the Lower Germany, and the adjacent provinces. It was divided into two claſſes; the *lettered brethren* or *clerks*, and the *illiterate*: they lived in ſeparate habitations, but maintained the cloſeſt fraternal union. The former applied to the ſtudy of polite literature, and the education of youth; whilſt the latter were employed in manual labour, and the mechanic arts. They were frequently called *Beghards* and *Lollards*, by way of reproach. Brethren, ‖ ton.

White BRETHREN, fratres albati, were the followers of a leader about the beginning of the fifteenth century, who was arrayed in a white garment; and as they were alſo clothed in white linen, they were diſtinguiſhed by this title. Their leader was a prieſt from the Alps, who carried about a croſs, like a ſtandard, and whoſe apparent ſanctity and devotion drew together a number of followers. This deluded enthuſiaſt practiſed many acts of mortification and penance, endeavoured to perſuade the European nations to renew the holy war, and pretended that he was favoured with divine viſions. Boniface IX. ordered him to be apprehended and committed to the flames, upon which his followers diſperſed.

BRETON, or CAPE-BRITAIN, an iſland near the eaſtern continent of North America, lying between 45 and 47 degrees of north latitude. It is ſeparated from Nova Scotia by a narrow ſtrait called *Canſo*, and is about 100 miles in length, and 50 in breadth. It is ſurrounded with little ſharp-pointed rocks, ſeparated from each other by the waves, above which ſome of their tops are viſible. All its harbours are open to the eaſt, turning towards the ſouth. On the other parts of the coaſt there are but a few anchoring places for ſmall veſſels, in creeks, or between iſlets. Except in the hilly parts, the ſurface of the country has but little ſolidity, being everywhere covered with a light moſs, and with water. The dampneſs of the ſoil is exhaled in fogs, without rendering the air unwholeſome. In other reſpects, the climate is very cold; owing either to the prodigious quantity of lakes, which cover above half the iſland, and remain frozen a long time; or to the number of foreſts, that totally intercept the rays of the ſun; the effect of which is beſides decreaſed by perpetual clouds.

Though ſome fiſhermen had long reſorted to this iſland every ſummer, not more than 20 or 30 had ever fixed there. The French, who took poſſeſſion of it in Auguſt 1713, were properly the firſt inhabitants. They changed its name into that of *Iſle Royale*, and fixed upon Fort Dauphin for their principal ſettlement. This harbour was two leagues in circumference. The ſhips came to the very ſhore, and were ſheltered from winds. Foreſts affording oak ſufficient to fortify and build a large city, were near at hand; the ground appeared leſs barren than in other parts, and the fiſhery was more plentiful. This harbour might have been rendered impregnable at a trifling expence; but the difficulty

Breton. difficulty of approaching it (a circumſtance that had at firſt made a ſtronger impreſſion than the advantages reſulting from it) occaſioned it to be abandoned, after great labour had been beſtowed upon the undertaking. They then turned their views to Louiſbourg, the acceſs to which was eaſier; and convenience was thus preferred to ſecurity: the fortification of Louiſbourg, however, was not begun till 1720.

In the year 1714, ſome fiſhermen, who till then had lived in Newfoundland, ſettled in this iſland. It was expected that their number would ſoon have been increaſed by the Acadians, who were at liberty, from the treaties that had been granted them, to remove with all their effects, and even to diſpoſe of their eſtates; but theſe hopes were diſappointed. The Acadians choſe rather to retain their poſſeſſions under the dominion of Britain, than to give them up for any precarious advantage they might derive from their attachment to France. Their place was ſupplied by ſome diſtreſſed adventurers from Europe, who came over from time to time to Cape Breton, and the number of inhabitants gradually increaſed to 4000. They were ſettled at Louiſbourg, Fort Dauphin, Port Toulouſe, Nerucka, and on all the coaſts where they found a proper beach for drying the cod. The inhabitants never applied themſelves to agriculture, the ſoil being unfit for it. They often ſowed corn, but it ſeldom came to maturity; and when it did thrive ſo much as to be worth reaping, it had degenerated ſo conſiderably, that it was not fit for ſeed for the next harveſt. They have only continued to plant a few pot-herbs that are tolerably well taſted, but muſt be renewed every year from abroad. The poorneſs and ſcarcity of paſtures has likewiſe prevented the increaſe of cattle. In a word, the ſoil of Cape Breton ſeemed calculated to invite none but fiſhermen and ſoldiers.

Though the iſland was entirely covered with foreſts before it was inhabited, its wood has ſcarce ever been an object of trade. A great quantity, however, of ſoft wood was found there fit for firing, and ſome that might be uſed for timber: but the oak has always been ſcarce, and the fir never yielded much reſin. The peltry trade was a very inconſiderable object. It conſiſted only in the ſkins of a few lynxes, elks, muſk-rats, wild cats, bears, otters, and foxes both of a red and ſilver-grey colour. Some of theſe were procured from a colony of Mickmac Indians who had ſettled on the iſland with the French, and never could raiſe more than 60 men able to bear arms. The reſt came from St John's, or the neighbouring continent. Greater advantages might poſſibly have been derived from the coal-mines which abound in the iſland. They lie in a horizontal direction: and being no more than ſix or eight feet below the ſurface, may be worked without digging deep, or draining off the waters. Notwithſtanding the prodigious demand for this coal from New England, from the year 1745 to 1749, theſe mines would probably have been forſaken, had not the ſhips which were ſent out to the French iſlands wanted ballaſt. In one of theſe mines a fire has been kindled, which could never yet be extinguiſhed.

The people of Cape Breton did not ſend all their fiſh to Europe. They ſent part of it to the French ſouthern iſlands, on board 20 or 25 ſhips from 70 to 140 tons burden. Beſides the cod, which made at leaſt half their cargo, they exported to the other colonies timber, planks, thin oak-boards, ſalted ſalmon and mackerel, train-oil, and ſea-coal. All theſe were paid for in ſugar and coffee, but chiefly in rum and molaſſes. The iſland could not conſume all theſe commodities. Canada took off but a ſmall part of the overplus; it was chiefly bought by the people of New England, who gave in exchange fruits, vegetables, wood, brick, and cattle. This trade of exchange was allowed; but a ſmuggling trade was added to it, carried on in flour, and ſalt fiſh. Breton.

This iſland, the key of Canada, was attacked by the Engliſh in 1745; and the event is of ſo ſingular a nature, that it deſerves a particular detail. The plan of this firſt invaſion was laid at Boſton, and New England bore the expence of it. A merchant named *Pepperel*, who had excited, encouraged, and directed the enterpriſe, was intruſted with the command of an army of 6000 men, which had been levied for this expedition.

Though theſe forces, convoyed by a ſquadron from Jamaica, brought the firſt news to Cape Breton of the danger that threatened it; though the advantage of a ſurpriſe would have ſecured the landing without oppoſition: though they had but 600 regular troops to encounter, and 800 inhabitants haſtily armed; the ſucceſs of the undertaking was ſtill precarious. What great exploits, indeed, could be expected from a militia ſuddenly aſſembled, who had never ſeen a ſiege or faced an enemy, and were to act under the direction of ſea-officers only. Theſe unexperienced troops ſtood in need of the aſſiſtance of ſome fortunate incident, which they were indeed favoured with in a ſingular manner.

The conſtruction and repairs of the fortifications had always been left to the care of the garriſon of Louiſbourg. The ſoldiers were eager of being employed in theſe works. which they conſidered as conducive to their ſafety, and as the means of procuring them a comfortable ſubſiſtence. When they found that thoſe who were to have paid them, appropriated to themſelves the profit of their labours, they demanded juſtice. It was denied them, and they were determined to aſſert their right. As theſe depredations had been ſhared between the chief perſons of the colony and the ſubaltern officers, the ſoldiers could obtain no redreſs. Their indignation againſt theſe rapacious extortioners roſe to ſuch a height, that they deſpiſed all authority. They had lived in an open rebellion for ſix months, when the Britiſh appeared before the place.

This was the time to conciliate the minds of both parties, and to unite in the common cauſe. The ſoldiers made the firſt advances; but their commanders miſtruſted a generoſity of which they themſelves were incapable. It was firmly believed that the ſoldiers were only deſirous of ſallying out, that they might have an opportunity of deſerting; and their own officers kept them in a manner priſoners, till a defence ſo ill managed had reduced them to the neceſſity of capitulating. The whole iſland ſhared the fate of Louiſbourg, its only bulwark.

This valuable poſſeſſion, reſtored to France by the treaty of Aix-la-Chapelle, was again attacked by the Britiſh in 1758. On the 2d of June, a fleet of 23 ſhips of the line and 18 frigates, carrying 16,000 well diſciplined troops, anchored in Gabarus bay, within half a league

Breton.

league of Louiſbourg. As it was evident it would be to no purpoſe to land at a great diſtance, becauſe it would be impoſſible to bring up the artillery and other neceſſaries for a conſiderable ſiege, it had been attempted to render the landing impracticable near the town. In the prudent precautions that had been taken, the beſiegers ſaw the dangers and difficulties they had to expect; but, far from being deterred by them, they had recourſe to ſtratagem, and while by extending their line they threatened and commanded the whole coaſt, they landed by force of arms at the creek of Cormorant.

This place was naturally weak. The French had fortified it with a good parapet planted with cannon. Behind this rampart they had poſted 2000 excellent ſoldiers and ſome Indians. In front they had made ſuch a cloſe hedge with branches of trees, that would have been very difficult to penetrate, even if it had not been defended. This kind of palliſade, which concealed all the preparations for defence, appeared at a diſtance to be nothing more than a verdant plain.

This would have preſerved the colony, had the aſſailants been ſuffered to complete their landing, and to advance with the confidence that they had but few obſtacles to ſurmount. Had this been the caſe, overpowered at once by the fire of the artillery and the ſmall arms, they would infallibly have periſhed on the ſhore or in the hurry of embarking; eſpecially as the ſea was juſt then very rough. This unexpected loſs might have interrupted the whole project.

But all the prudent precautions that had been taken were rendered abortive by the impetuoſity of the French. The Engliſh had ſcarce begun to move towards the ſhore, when their enemies haſtened to diſcover the ſnare they had laid for them. By the briſk and haſty fire that was aimed at their boats, and ſtill more by the premature removal of the boughs that maſked the forces, which it was ſo much the intereſt of the French to conceal, they gueſſed at the danger they were going to ruſh into. They immediately turned back, and ſaw no other place to effect their landing but a rock, which had been always deemed inacceſſible. General Wolfe, though much taken up in reimbarking his troops, and ſending off the boats, gave the ſignal to Major Scot to repair thither. That officer immediately removed to the ſpot with his men. His own boat coming up firſt, and ſinking at the very inſtant he was ſtepping out, he climbed up the rock alone. He was in hopes of meeting with 100 of his men who had been ſent thither ſome hours before. He found only ten. With theſe few, however, he gained the ſummit of the rock. Ten Indians and 60 Frenchmen killed two of his men, and mortally wounded three. In ſpite of his weakneſs, he ſtood his ground under cover of a thicket, till his brave countrymen, regardleſs of the boiſterous waves and the fire of the cannon, came up to him, and put him in full poſſeſſion of that important poſt, the only one that could ſecure their landing. The French, as ſoon as they ſaw that the enemy had got a firm footing on land, betook themſelves to the only remaining refuge, and ſhut themſelves up in Louiſbourg. The fortifications were in a bad condition, becauſe the ſea ſand, which they had been obliged to uſe, is by no means fit for works of maſonry. The revetments of the ſeveral curtains were entirely crumbled away. There was only one caſemate and a ſmall magazine that were bomb-proof. The garriſon which was to defend the place conſiſted only of 2900 men.

Brettigaw Breughel.

Notwithſtanding all theſe diſadvantages, the beſieged were determined to make an obſtinate reſiſtance. It is ſcarce credible that the French were confirmed in their reſolution by the courage of a woman. Madame de Drucourt was continually upon the ramparts, with her purſe in her hand; and firing herſelf three guns every day, ſeemed to diſpute with the governor her huſband the glory of his office. The beſieged were not diſmayed at the ill ſucceſs of their ſeveral ſallies, or the maſterly operations concerted by Admiral Boſcawen and General Amherſt. It was but at the eve of an aſſault, which it was impoſſible to ſuſtain, that they talked of ſurrendering. They made an honourable capitulation; and the conqueror ſhowed more reſpect for his enemy and for himſelf, than to ſully his glory by any act of barbarity or avarice.—The poſſeſſion was confirmed to Great Britain by the peace 1763; ſince which the fortifications have been blown up, and the town of Louiſbourg diſmantled.

BRETTIGAW, a territory or valley of the Griſons, lying between the Rhine and the county of Tyrol, and along the river Lanquet. The fortreſs of Caſtels is the principal town.

BREVE, in *Law*, is any writ directed to the chancellor, judges, ſheriffs, or other officers, whereby a perſon is ſummoned, or attached, to anſwer in the king's court, &c.

Breve Perquirere, the purchaſing of a writ or licenſe for trial in the king's courts; whence comes the preſent uſe of paying 6s. 8d. fine to the king in ſuit, for money due on bond, where the debt is 40l. and of 10s. where it is 100l. &c.

Breve de Recto, is a writ of right or licenſe for a perſon ejected, to ſue for the poſſeſſion of the eſtate detained from him.

Breve, in *Muſic*, a note or character of time, in the form of a diamond or ſquare, without any tail, and equivalent to two meaſures or minims.

BREVET, in the French cuſtoms, denotes the grant of ſome favour or donation from the king; in which ſenſe it partly anſwers to our warrant, and partly to letters-patent.

Brevet, more particularly denotes the commiſſion of a ſubaltern officer, being only written on parchment, and without ſeal. A brevet officer is one whoſe rank in the army is above his pay: for inſtance, a brevet major ſerves only as a captain, and receives pay as ſuch.

BREUGHEL, Peter, an eminent painter, commonly called *Old Breughel*, to diſtinguiſh him from his ſon, was born at a village of the ſame name near Breda, in the year 1565; and was the firſt pupil of Peter Cock, whoſe daughter he married. It was cuſtomary with him to dreſs like a country-man, in order to be more eaſily admitted into the company of country-people, and be allowed to join in their frolics, by which means he became perfectly acquainted with their manners and geſtures, of which he made excellent uſe in his pictures. He travelled to France and Italy, and for a long time ſtudied landſcapes on the mountains of Tyrol. His humorous turn of mind diſplayed itſelf in all his pictures, which generally conſiſted of country-dances, marriages,