



EDINBURGH INSTITUTION.

THE
PURSUIT OF KNOWLEDGE
UNDER DIFFICULTIES.

ILLUSTRATED BY
FEMALE EXAMPLES.

BEING A CONTINUATION OF THE
'PURSUIT OF KNOWLEDGE UNDER DIFFICULTIES, ILLUSTRATED
BY ANECDOTES.'

BY G. L. CRAIK, M.A.

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THE
PURSUIT OF KNOWLEDGE
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FEMALE EXAMPLES.

INTRODUCTION.

IN the little work of which the present is a continuation, or Second Part, numerous examples have been given of the successful pursuit of knowledge, or mental cultivation, under all the ordinary difficulties of situation and circumstances. It has been shown that an ardent love of improvement will surmount or force its way through almost any barriers. Extreme poverty, the humblest or most menial condition of life, the most uncongenial of occupations, the hardest struggle for daily bread, the most incessant and engrossing calls and cares of business or professional duty, the temptations that beset wealth and rank, the impediments interposed by bodily disease or debility and in many cases by the absolute deprivation of one or more of the organs of sense, have all been again and again triumphed over and

set at nought. That which was within the man has conquered that which was without him. Mind has moulded, neutralized, and all but annihilated matter.

The lessons thus taught are for the one sex as well as for the other, and do not require to be repeated here. We do not propose in the following pages merely to collect the few histories that have been recorded of the pursuit of knowledge by females in extraordinary circumstances. That would be only to reiterate what has been already written, with a variation in the form, but none in the substance, of the statement. Whatever has been done by the one sex in the acquisition of knowledge in the face of extraordinary difficulties may, generally speaking, be done by the other. If there have been literary shepherds and shoemakers, there may be literary shopwomen and milkmaids. If a blind man has cultivated a talent for poetry, it is nothing wonderful that a blind woman should do the same. The examples that are wanted for women are of a different kind. Every instance of the pursuit of knowledge by a woman in any circumstances is an instance of the pursuit of knowledge under difficulties. Her sex alone raises a host of difficulties to obstruct her in such an enterprise. Every woman who has greatly distinguished herself by the cultivation of her intellectual faculties is an example and a marvel.

Not, surely, however, that such ought necessarily to be the case. We are no preachers of either the rights or the wrongs of women; holding, for one thing, that it is not by logic and rhetoric that much or almost anything is to be done to alter in any respect the social position which women actually occupy. That can only be done by themselves, and in other ways than by declaiming and wrangling about the changes which may be thought to be desirable. In another state of society, no doubt, man may have often taken advantage of his superior physical force to oppress the other sex; but it is mere fanaticism and insanity to imagine that there is any danger of that now. In every civilized country the weak in body, whether they be women or men, are now as much protected by the law as the strong. Among ourselves, for instance, the males who happen to be under the middle height might as reasonably pretend to be kept down by any kind of force or violence, or to be in any danger of suffering in that way, as the general body of the female population can make any such complaint. The latter may have their wrongs, but they are not of this sort. They are not wrongs in the maintenance of which the difference between the two sexes in respect of physical strength has anything to do. So much, indeed, is confessed by the very clamour that is kept up on the subject. That appeal to public opinion is a testimony that the question is

not one in the settlement of which force will or can have any part, but one which waits its decision from reason and feeling alone.

But when matters have been brought to that point, every thing is gained. A right decision of the controversy is now inevitable. It will come, if never another word should be written about the rights or wrongs of women—and perhaps all the sooner for the cessation of that din. The place that woman shall occupy in the social system, the rights she shall enjoy, the power and influence she shall exercise, will henceforth depend upon herself, upon the use that she makes of the faculties and the nature that God has given her. Even if men had any wish to control her in regard to that matter, the power of doing so is gone, or going fast. What yet remains of it is certainly neither kept up nor applied generally in any spirit of aversion to or jealousy of intellectual cultivation in woman. If in any rank of life fathers do not usually give so good an education to their daughters as to their sons, it is principally because the institutions of the country do not afford the same facilities in the one case as in the other. But that difference cannot long continue. The claims of the one sex, not to the same education, but to as good an education as the other, are no longer disputed by anybody ; and both our establishments and our habits will gradually mould themselves into conformity with the univer-

sal conviction. Then to dispute about the rights of men and women will be like disputing about the rights of the right hand and the left.

For in this way only will be really brought about the so much talked of equality of the sexes. So long as women are generally under-educated in comparison with men, there can be no equality between them. When it has become the custom for the one sex to be as well educated as the other, then there will exist only that inequality, or difference rather, between them which the Creator has established for the wisest purposes, and to destroy which, we must believe, would be alike injurious to both. Man and woman are fitted the one for the other as much by their difference as by their similarity. The parts which they have to act, the spheres in which they have to move, are as distinct in some respects as they are identical in others. Of all false social philosophies, that is the blindest and shallowest which overlooks or denies this, and would seek to improve the character and elevate the condition of women by making them, as far as possible, exchange their own proper character for that of the other sex. Whatever dispute there may be as to whether the male or female nature be the higher, morally or intellectually, there can be no doubt in any unperverted understanding about the superiority of either to any mixture of the two. An effeminate man and a masculine woman are among the strongest images

that the mind can call up of the unsuitable and repulsive.

But to make a woman learned, some will say, is to make her masculine. Is the capacity for the acquisition of knowledge, then, possessed by men only? This is really the whole question. If women as well as men are born with faculties which fit them for intellectual improvement, and for occupying themselves with literary or scientific studies, it is difficult to understand how such studies can be regarded as essentially unfeminine. As far as can be inferred from the intimations of nature, they are no more unfeminine than they are unmasculine. Circumstances may often make it inexpedient or impracticable in particular cases for women to give up any large portion of their time to such pursuits; and so they may and do in the case of many men. But, where it is otherwise, the study of science and literature would seem to be generally as suitable an occupation for the one sex as for the other. It may be that some branches are better adapted to the faculties with which men are endowed, or to the position in which they are placed; but there are probably some which are, on the other hand, more peculiarly fitted for the genius and social position of women; and even were it not so, it would make no difference. It is enough if it be admitted that there are any departments of scholarship or intellectual exertion in which women

are qualified to make any figure whatever. Whether nature has fitted them to cope with or to excel men in any branch of literature or science is not the question. The two sexes are not intended to be rivals or opponents of one another, here or anywhere else. Let the most unfavourable supposition be made, that in every kind of intellectual pursuit the most soaring female genius will still be outflown and overtopped by the highest efforts of the other sex ; it would not follow that women should wholly abandon intellectual pursuits to men. It might as reasonably be proposed to exclude all men from such pursuits except those of the first order of mental power. The pursuit of knowledge, whether by men or women, is not a race in which those only succeed who outrun all the rest ; it is not of the nature of a race at all. Those who make the least or the slowest progress have their reward, as well as those who make the greatest ; nor is the fortune of any one individual in any degree affected by that of another. Some get more, some less, all something, each according to his or her own powers and exertions. But, whatever may be the case with the highest genius in the two sexes, it is at least unquestionable that the intellectual powers and capacities of many men are surpassed by those of many women. If there be no region of literature, science, or art where female genius has not distinctly asserted its supremacy, neither perhaps

is there any, from poetry to mathematics, in which it has not already greatly distinguished itself. This it has done against all sorts of disadvantages and discouragements;—in the face of opinion and prejudice—in despite of means and facilities on the whole very inferior to those which the other sex has enjoyed. Who shall venture to assert that much more may not be done by women when they shall have been generally placed in circumstances equally favourable with those of men?

It may be admitted that there are some departments of intellectual enterprise in which men, partly from their characteristic mental and moral qualities, partly from other causes, will probably always be able to maintain their superiority. Their power of following a complex process of reasoning appears to be naturally greater than that of women; their judgment is less apt to be biassed by feeling; while at the same time their imagination, though less excitable, seems to be both stronger and more passionate. Their minds, too, like their bodies, are more capable of long-continued exertion. They are moreover thrown by circumstances, and the life they necessarily lead, much more than women can ever generally be, in the way of receiving materials for thought, as well as impulse and inspiration, from all that goes on in the outer world of human movement, activity, and contest. On the other hand, the instinct of women is truer, their

perception quicker, their sense of the appropriate and the becoming usually more correct and delicate. Whatever they do, they do for the most part both with more ease and with more grace than men. And, inasmuch as they are women and not men, they must give a variety of character which it would not otherwise possess to any literature of which their contributions form part.

But, as we have said, these are not really the considerations to which we have to look in discussing the subject of the pursuit of knowledge and intellectual cultivation by the female portion of the community. The simple ground on which such an employment of their time and faculties recommends itself is, that it is one for which they also, as well as men, are fitted by nature, and one which, to whatever extent it may be carried, is eminently calculated to promote both their own happiness and that of all with whom they may be connected. A rational being, whether man or woman, whose faculties remain through life unexercised and unimproved, can hardly be said to fulfil the end of his or her creation. Nature, indeed, is so exuberantly rich that much of what is produced in all its departments can be allowed to run to waste, and still there is no want. But that is no reason why any thing should be suffered to perish which can be preserved and turned to account; least of all the most precious of all things, mind. The nearer

society advances towards perfection, the less waste will there be anywhere, and especially here. Among the lower animals, to whom the succession of generations brings no improvement, every individual, generally speaking, that comes into existence attains the completest use that circumstances permit of all the faculties and capacities with which it is endowed; progressive man will not have reached his highest point of civilization till the same affirmation may be made with regard to every individual of the human species. This view may perhaps be considered to furnish the best measure of civilization.

It is true that human beings have many other things to attend to in this world besides the acquisition of knowledge, and among them some even of higher importance than that. But the more that knowledge is cultivated and diffused, the less will be the danger that any of these other things shall be neglected. With regard also to the pursuit of knowledge by women, it is not to be denied that learned women have often been very absurd persons. This, however, has obviously been a consequence only of the rarity of female learning, which has given a sort of singularity and awkwardness to the position of a woman so distinguished, and has at the same time led her to overestimate herself and her acquirements; so that, rightly considered, it is an argument for making learning more common

among women. If there were as many learned women as there are learned men, the former would no more seem prodigies, either in their own eyes or in those of other people, than the latter. Superior learning and mental cultivation, indeed, have not universally produced real superiority of character either in women or in men. But that is only to say that knowledge alone will not do every thing. Nobody has ever pretended that it will. Yet, although it will not of itself convert folly into wisdom either in man or woman, we believe it to be at least equally little chargeable with ever having made any one of either sex a fool who would not have been rather more of one without it. Even of the remarkably learned women who have illustrated various countries and ages, the vast majority will be found to have been in all other things as well as in erudition the ornaments and glories of their sex.

However, profound erudition must, from the nature of things, always continue to be rare; and, although in the course of our illustrations we shall have occasion to notice several instances of extraordinary distinction acquired by women even in the highest walks of learning and science, that is not what we would propose as a general aim. Such instances are rather for admiration than for general imitation. They show what has been achieved in some cases, but not what may be ac-

complished in all. They are proofs of the power and memorials of the triumphs of female genius, rather than guiding examples; like the far away stars in the sky of night, which are beautiful to look at, and demonstrate the immensity of the universe, but lend little useful light to the steps of the traveller. All that we seek to show is, that some measure of mental cultivation is as attainable by women as by men in almost any circumstances; and that many paths, at least, of intellectual enterprise are as open to the one sex as to the other. The particular departments of science, or literature, or art, that are ordinarily most eligible for women, may be different from those that would in similar circumstances be selected by men; but that there is anything unfeminine in intellectual pursuits generally it is impossible to believe. It cannot be that that instruction and exercise of the mental faculties which is universally acknowledged to refine the one sex should have the opposite effect upon the other—that, if it be true of man, it should not be true of woman also, that

— *ingenuas didicisse fideliter artes
Emollit mores, nec sinit esse feros.*

What mind soe'er hath liberal learning drained,
There gentler thoughts are born, all ruder passions reined.

CHAPTER I.

Controversy about the Capacity of Women—Female Speculative Writers—Margaret Duchess of Newcastle.

WE are not going to write either a general history of women, or a history of remarkable women, or of great women, or even of women who have attained a literary celebrity. The last subject in particular has employed many pens. A learned German scholar, John Christian Wolf, in his edition of the Remains of the Greek Poetesses, 4to., Hamburg, 1734, gives a list of works about literary women in a closely printed note which extends over about half a dozen of his spacious pages, and may contain perhaps a hundred and thirty or a hundred and forty titles. In another publication, his fragments of the Greek Female Writers in Prose, 4to. Hamburg, 1735, the same erudite and laborious writer has given us a catalogue of all the women recorded to have distinguished themselves in literature or art from the earliest times down to the sixth century of the Christian era, which fills above two hundred pages. Such a list made complete to the present day would certainly present some thousands of names.

The newspapers have recently announced the death at Padua of a Count Leopold Ferri, leaving a library entirely composed of works written by female authors amounting to 32,000 volumes.

A complete history of literary women, therefore, would be a formidable undertaking. The difficulty would not lie in the deficiency of materials. Many such volumes as we propose to produce on the present occasion might be easily filled with such a subject.

Nor shall we, enter into the dispute as to what the position of the female intellect is in reference to that of the other sex, whether inferior upon the whole, or superior, or merely on a level. Among the ancients one of the weightiest authorities, Aristotle, has described woman as only an imperfect man, and assigned her as such the highest place in the class of Deviations,—that is, in plain English, Monsters! But, on the other hand, Plutarch has left a treatise the express object of which is to prove that the female nature is in all respects on an equality with the male. In modern times the question has been largely and fiercely debated; and a succession of female writers especially have presented themselves before the world as assertors and champions some of the equality, some of the supremacy, of their sex. The names of a few of the literary women who have employed their pens on so appropriate a theme may not unfitly stand at the head of our examples.

Among the works of a learned Italian lady, and celebrated poetess, of the latter part of the sixteenth century, Modesta Pozzo, or as the French transform the name, Modeste Dupuis, or, as she calls herself poetically, Fonte-Moderata, is an elaborate treatise in prose, entitled 'Dei Meriti delle Donne' (of the Merits of Women), in which she maintains that women are at least equal in understanding and capacity to men. In the same age a learned French lady, Marie de Romieu, published a discourse in which she endeavoured to make out the superiority of her own sex. The same strain was taken up by Lucrezia Marinella in a celebrated work printed in 4to. at Venice in 1601, 'La Nobiltà e l' Eccellenza delle Donne, con Difetti e Mancamenti degli Huomini' (The Nobility and Excellence of Women, with the Imperfections and Defects of Men). About the same time, or not long after, Marie de Gournay, the adopted daughter of Montaigne, not carrying the argument to quite so high a pitch, wrote a short dissertation in vindication of the mental equality of the two sexes ('De l'Egalité des Hommes et des Femmes'). In 1665, however, the Demoiselle Jacqueline Guillaume again insisted upon the superiority of women in a work published in 8vo. at Paris, with the title of 'Les Dames Illustres,' &c. (Illustrious Ladies, where, by good and strong reasons, it is proved that the feminine sex surpasses the masc"

line in every manner of way). Some authorities mention also a Marie-Anne Guillaume, who in 1668 published at Paris a discourse entitled 'Que le Sexe Féminin vaut mieux que le Masculin' (That the Feminine Sex is superior to the Masculine): but this is perhaps only an inaccurate account of the treatise by the Demoiselle Jacqueline.

The same doctrine, we may add, has been maintained, in earnest or in jest, by male pens too. An octavo volume published at Paris in 1643, with the title, 'La Femme Généreuse, qui monstre,' &c. (The High-minded Woman, who shows that her sex is more noble, endowed with a better political genius, more intellectual, more virtuous, and more economical than that of men), although affecting to be the work of a female writer, is most probably by a man. The author designates himself, or herself, by the letters L. S. D. L. L. There was printed at Upsala, in Sweden, in 1650, an Italian treatise entitled 'La Donna migliore dell' Huomo, Paradosso' (Woman superior to Man, a Paradox), which is stated to have been composed by a writer of the name of Giacomo del Pozzo. In 1673 there appeared at Paris a little work entitled 'De l'Egalité des deux Sexes,' &c. (Of the Equality of the two Sexes, a Moral and Physical Discourse, in which is seen the importance of ridding one's self of prejudices), the author of which long remained concealed, but is now known to have been François Poullain de la

Barre, who was brought up as a French ecclesiastic, but in the latter part of his life went over to Calvinism. Two years afterwards he produced, also anonymously, what professed to be an answer to his own work, under the title of 'De l'Excellence des Hommes contre l'Egalité des Sexes' (Of the Superiority of Men, in opposition to the doctrine of the Equality of the Sexes); but, according to Bayle, when this latter treatise is properly examined, we find that the author has no intention of refuting his former work, but that his real object is indirectly to confirm the position therein maintained. Bayle speaks of a third edition of the work (meaning apparently the 'De l'Egalité') as having appeared in 1691, and also of a Third Part of it as having been published in 1692.* We do not know who may have been the writer, or writers, of three English treatises upon this subject which were published at London in the earlier part of the last century:—'Woman not inferior to Man; or, A Short and Modest Vindication of the Natural Right of the Fair Sex to a perfect Equality of Power, Dignity, and Esteem with the Men; by Sophia, a Person of Quality,' 1739, and second edition, 1740;—'Man Superior to Woman; or, a Vindication of Man's Natural Right of Sovereign Authority over the Woman; containing a Plain Refutation of the Fal-

* Dictionnaire, *Marinella*, note B.

lacious Arguments of *Sophia*, &c.; by a Gentleman;’ 1739;—and ‘Woman’s Superior Excellence over Man; or, a Reply to the Author of a late treatise entitled *Man Superior to Woman*, &c.; by *Sophia*;’ 1740. The war is carried on by two publishers at least, if not by two authors; the two pamphlets on the female side being printed for John Hawkins, at the Falcon in St. Paul’s Churchyard; that in defence of the superiority of the male sex for T. Cooper, at the Globe in Paternoster Row. We do not know whether it was one of the former, of which a French translation (executed by Philippe-Florent de Puisieux) was published anonymously at Paris in 1750, with the title of ‘*La Femme n’est pas inférieure à l’Homme.*’

Other works of a similar description published in the last and the preceding century might no doubt be discovered; and everybody is aware of the racket that has been kept up on this subject in our own day, and ever since the breaking out of the French Revolution. But perhaps the gospel of the rights of woman has never yet been preached in modern times in such lofty and comprehensive terms as when it was first proclaimed by the clever charlatan Henry Cornelius Agrippa, in his ‘*Declamatio de Nobilitate et Præcellentia Fœminei Sexus*’ (Declamation on the Nobility and Pre-eminence of the Female Sex), written by him in 1509 to curry favour with the Princess Margaret of Austria, and

published in 1529;* or by the learned lunatic William Postellus† in his treatise entitled ‘Les très merveilleuses Victoires des Femmes du Monde,’ &c. (The most marvellous Victories of the Women of this World, and how they ought in reason to command the World), published at Paris in 1553, and in his other still more extraordinary work ‘De Orbis Terræ Concordia,’ &c. (Respecting the Concord of the whole Earth, and the Last Nativity of the Mediator), in which he announces himself to be the Mediator of Women, and declares Christ to be only that of Men! Even of this, however, we have something like a modern revival or modification in the *Free Woman* of Saint-Simonianism.

Yet one learned woman at least is to be found in the age most remarkable for female learning protesting against the pretensions put forth for her sex. Anna Maria Schurmann, who was born at Cologne in 1607, and was a prodigy both of erudition and ingenuity, published in 1648 a dissertation ‘De Ingenii Muliebris ad Doctrinam et Meliores Literas Aptitudine’ (On the Aptitude of the Female Intellect for Learning and Literature), in which she argues against both the superiority asserted by Lu-

* An anonymous French translation of this performance, now known to be by a M. Arnaudin, was published at Paris in 1713, with the title of ‘De l’Excellence des Femmes au-dessus des Hommes.’

† See ‘Pursuit of Knowledge,’ First Part, ii. p. 8.

crezia Marinella, and the equality claimed by Mademoiselle de Gournay. Any such notions as those of the former writer, she finds, she says, if not unsuitable to the modesty which becomes the sex, at least offensive to her own sense of delicacy and propriety; and, while admitting the wit and elegance of the disquisition of Mademoiselle de Gournay, she objects to her more moderate conclusions likewise, as opposed to the unanimous testimony of the wisest thinkers in all ages.

It would certainly be better that the attempt to settle the question by argument, or declamation, about mere capabilities should be suspended till women have actually achieved something more in literature or science than they have yet done. Whatever may be the cause, the fact at present is that no literary work of the first class has ever yet been produced by a woman, and that the name of a woman, except, it may be, once or twice in connection with some simple matter of observation, does not occur in the whole history of science. It is the same in regard to art. Neither in painting, in sculpture, nor in music (the last a branch in which women have enjoyed the advantages of education much more generally than men, and for which their physical adaptation would seem to be greater), does any production of female genius exist that is of first-rate or even of any very high order of excellence.

The only department of literature in which

women have done much that is of any considerable value is that of poetry and fiction. It is in that only that they have as yet produced much, or we may almost say anything, which lives or promises to live, and can be accounted a real addition to the wealth of the language in which it is written. The only female classics in any tongue are poetesses and novel-writers; and even of these all Greek and Roman antiquity affords us only one, Sappho, of whom but a few fragments remain; while in modern literature we are reduced, in seeking to extend the enumeration, to some three or four writers still living or only recently deceased, with a hope rather than an assurance that posterity will ratify the verdict of their own day. No existing collection of the works of what are called the English Poets, for instance, contains, as far as we remember, a single female name; we should almost as soon look for a woman in the Lives of the British Admirals. The English Poetesses are kept in collections by themselves; and their writings are hardly recognised as forming any portion of our national poetry. This, indeed, is sufficiently unjust and absurd, considering the mediocrity of a good many of the male writers who have been admitted into the list of English Poets; nevertheless it is true that no poetical work of a very high class has yet been produced among us by a woman. Our poetesses have been at the best all only minor r

If, however, we do not ask for works of established fame and of the highest order, we shall find that there is hardly any department of either literature or science in which women have not distinguished themselves, and shown as much capacity to excel as the generality of the other sex. The list of the great works which have been produced since the birth of literature is not a very long one; if we were to exclude works of mere information, which are preserved simply by their utility, and many of which are always liable to be superseded by other compilations more skilfully executed or better adapted to a new age, the writings in all the languages of Europe, ancient and modern, of which it may be predicted that the world will never willingly let them die, might be comprised in a few hundred volumes. No wonder, therefore, though few or none of them should be found in the library of the Count Leopold Ferri. But any such collection would still, notwithstanding, be very various in respect of the departments of learning and speculation which it embraced, and would contain many sensible, useful, attractive, ingenious, and even brilliant books, and many which had excited as much attention in their day as any contemporary productions.

The region in literature nearest to that of fiction and poetry is that of philosophical speculation, including metaphysics, ethics, and theology; and

here too, accordingly, women have in every age made a considerable figure. Many women of antiquity are enumerated among the philosophers; Menage in a little work upon the subject ('*Historia Mulierum Philosopharum*') has collected the names of sixty-five of them, nearly all Greek, and the greater number Pythagoreans. But their names are nearly all that remains of them; their writings have almost wholly perished. Several women have appeared among the lights of the Christian religion both in early and recent times; and since the revival of letters many female intellects have been devoted to the study of mental philosophy, and a considerable number of persons of that sex have distinguished themselves in every country of Europe by their writings on metaphysical or ethical subjects.

The holy Roman widow Marcella, the friend of St. Jerome, in the latter part of the fourth century, is said to have been so learned in the Scriptures that people came from all parts to consult her as one of the greatest doctors of the church. In more recent times women have frequently appeared as public teachers of theology or philosophy. Thus, it is related of Dorothea Bucca, who was born at Bologna early in the fifteenth century, that after having had the degree of Doctor publicly conferred upon her by the university of her native city, she was in the year 1436 appointed to a professor's

chair in the same university, from which she long delivered lectures upon philosophy with great acceptance to hearers collected from all parts of Europe. So also we are told of Laura Cereta, who was born at Brescia in 1469, that at the age of seventeen she maintained public disputations on philosophy, and afterwards officiated as a professor for seven years with great reputation. Another learned Italian lady of those times, Fedele Cassandra, who was born at Venice about 1465, is recorded to have on one occasion disputed publicly at Padua both on philosophy and theology, and, although opposed by some of the most distinguished doctors of the age, to have come off in triumph from every encounter. A Latin oration with which she concluded the display was sent to the press; and she afterwards repeatedly lectured on philosophy in the university of Padua to crowded audiences and with the greatest applause. Cassandra, who was a person of remarkable general talent, and who added to her erudition and eloquence all the ordinary accomplishments of her sex, especially eminent skill in music, is said to have lived to the year 1567, or to the age of a hundred and two. She had married a physician of Vicenza, whom, however, she lost in 1521; and she spent the latter part of her life in a convent of the Nuns Hospitallers of St. Domenic at Venice, of which she was eventually elected superior. A volume of her Letters,

accompanied by the oration she delivered at Padua, was printed at Paris, under the care of Philip Thomassin, in 1636. A more celebrated Venetian lady of a later age, Lucrezia Elena Cornaro Piscopia, who was born in 1646, and was the daughter of Giovanni Baptista Cornaro, Procurator of St. Marc (the officer next in dignity to the Doge), after having acquired in her early years so rare a knowledge of Latin, Greek, and Hebrew, as to be able, it is asserted, to write all of these languages with as much facility and purity as if each of them had been her native tongue, and having besides made herself mistress of French, Spanish, and Romaic (or modern Greek), as also of mathematics and music, applied herself to philosophy and theology with the same success that had marked her other studies; and was on the 25th of June, 1678, solemnly created a Mistress of Arts, by the University of Padua, the ceremony taking place in the Cathedral Church, in consequence, as the entry of the reception in the Register of the University declares, of the ordinary academic hall being insufficient to contain the immense concourse that attended. It is said that she would have been made a Doctor of Divinity, had not the Cardinal Barbarigo, who was then Bishop of Padua, resisted that proposition. Elena Cornaro died in 1684, at the age of thirty-eight. She was not more distinguished for her extraordinary talents and ac-

quirements than for her piety and amiability of disposition. To quote one instance more of academic recognition of such attainments in a female, Johanna Gallien, the wife of the great Grecian Daniel Wyttenbach, was created a Doctor of Philosophy, by the University of Marping, in Germany, so recently as in the year 1827. She had gained considerable reputation by several works which she had published.

We pass over the names of many other women distinguished in the annals of the Roman Catholic Church as founders of new religious orders or establishments. Many of these have been mere enthusiasts, without any literary acquirement; but others have been persons of considerable talent and learning. Such, for example, were Marie-Angélique and Catherine-Agnes, the sisters of the famous Antoine Arnauld, and their niece Angélique, all celebrated in the history of the Convent of Port Royal, of which the first and last were abbesses and the second coadjutrix. Marie-Angélique, who was born in 1590, and died in 1661, was the author of the reformed discipline which altogether changed the character of the establishment in the beginning of the seventeenth century; her sister, who lived till 1671, was an able writer, and published two little religious works, 'Le Chapelet Secret du Saint Sacrament,' and 'L'Image de la Religieuse Parfaite et Imparfaite.' Angélique, who survived till 1684,

was also noted for her literary talents and acquirements.

Other eminent French female philosophical and theological writers of the seventeenth century were **Madame Jean Marie Bouvière de la Mothe Guyon**, the celebrated founder of Quietism, who wrote many books in support or explanation of her peculiar system;—**Madame Marie-Jacqueline Bouette de Ble-mur**, authoress of the collection of Lives of the Saints called the Benedictine Year ('L'Année Benedictine'), and of many other pious works;—**Jeanne de Schomberg, Duchesse de Liancour**, renowned for the conversion of the Duke her husband by the patient exertions of eighteen years, which, however, were followed and rewarded to both by twice that term of a prolonged union, and for every noble quality of head and heart, who died in 1674, leaving among her papers a little treatise of practical morality, addressed to her grand-daughter, the Princess de Marcillac, which was published in 1698, under the title of 'Réglement donné par une dame de haute qualité à Mad. . . ., sa petite-fille, pour sa conduite et pour celle de sa Maison;—**Mademoiselle de Saint-Quentin**, who published towards the close of the century a treatise on the Possibility of the Resurrection of the Body, with an answer to the objections which have been made to that doctrine;—**Mademoiselle Feuillet**, who lived about the same time, and wrote among other works one entitled

‘*Concordance des Prophéties avec l’Evangile,*’ with the object of demonstrating the truth of Christianity from the agreement of its doctrines and mysteries with the prophecies of the Old Testament.

Other French women who distinguished themselves in that age by their attachment to metaphysical or theological studies, though they published no books, were Anne de Parthenai, who married Antoine de Pons, Comte de Marennnes, and who was eminent not only for her learning in theology, her researches in which ended in her leaving the Church of Rome and becoming a Calvinist, but also for her knowledge of the Greek and Latin languages, and her musical talent; Madame Bonnevant, who is noted as one of the followers of the philosophy of Des Cartes; and Marie Dupré, who on the same account was surnamed the Cartesian, and who was besides a mistress of the Latin and Greek languages, as well as of the Italian, a correspondent of many of the learned men of that day, and a writer of verses, some of which have been printed.

Another great female Cartesian was Elizabeth of Bohemia, the eldest daughter of the unfortunate Elector Palatine Frederic V. and the Princess Elizabeth of Great Britain. To this high-born lady, who died Abbess of Hervorden, in Westphalia, in 1680, Des Cartes addressed his ‘*Principia Philosophiæ*’ in an elaborate dedication, a portion of which it is worth our while to translate. He sets out by

saying that the writings he had previously published had brought him one most valued reward, in that she had deigned to peruse them, and that through them he had been admitted to her acquaintance, and had found her to be possessed of such endowments as that in his opinion she ought, for the good of the human race, to be held up as an example to all time. It would not become his character, he proceeds to observe, either to indulge in flattery or to affirm aught of the truth of which he was not perfectly convinced, in that place especially, in which he was about to attempt to lay the foundations of all truth. But of her Highness he declares he can assert with confidence that she possesses both a genius the most perspicacious, and the utmost solicitude for the attainment of truth. "Neither the avocations of the palace," he goes on, "nor the customary education, which condemns young women to ignorance, have been able to prevent you from investigating all good arts and sciences. Of all of them you have in an extraordinarily short space of time acquired a profound and accurate knowledge. But, for myself, I have a peculiar and still greater proof of the incomparable perspicacity of your judgment, in this fact, that you are the only person I have ever yet found by whom the treatises already published by me have all been perfectly understood. For to most other readers, even the most ingenious and learned, they seem

very obscure. It is almost always the case that those who are versed in metaphysics turn away with disgust from any geometrical speculations, and that those who have applied themselves to geometry do not comprehend what I have written respecting the Primary Philosophy; yours alone I have found to be an understanding to which all things are equally clear, and therefore I rightly style it incomparable." He then eulogizes in equally strong terms the beauty of her moral nature, especially that wonderful benignity and mildness blended with majesty which shone in all her actions, and which, harassed as she had been by the perpetual persecutions of fortune, had never been perverted nor impaired. This quality, he concludes by avowing, had so won his heart that he did not more desire to have the name and reputation of a philosopher than he did to be known to all men as the most devoted admirer of her Highness.

The niece of the Abbess of Hervorden, Sophia Charlotte, the second wife of Frederic I. of Prussia, and the only daughter of Ernest Augustus, Elector of Hanover (the father of George I. of England), inherited a large portion of the talent which almost every member of the Stuart family exhibited, through her mother Sophia, who was the youngest of the daughters of the Elector Palatine Frederic V., and was reputed one of the most accomplished princesses in Europe. The Queen of

Prussia added an acquaintance with scholastic divinity and other profound branches of learning to a perfect command of all the principal languages of Europe and every usual accomplishment of her sex. The title which she acquired, however, of the Female Philosopher, better expresses the extent of her capacity and knowledge, by which she astonished Leibnitz, than it does her disposition, which was diffident and retiring, and averse from all exhibition of her extraordinary attainments. She died in 1705, in her thirty-seventh year. At her court and under her superintendence was brought up her near relation, Carolina Wilhelmina Dorothea, daughter of John Frederic, Marquis of Brandenburg-Anspach, who afterwards became the wife of George II. King of England. Queen Caroline, besides being a munificent patron of learning, was herself a highly-accomplished princess, and especially took great interest in the discussion of metaphysical and theological questions. When Princess of Wales, she maintained a correspondence with Leibnitz, on both mental and physical philosophy; and, having engaged him and Dr. Samuel Clarke in a controversy on the abstruse subject of the reconciliation of the freedom of the human will with the foreknowledge of the Deity, had all the papers that passed between them submitted to her as they were written. They were afterwards collected, and published in 1717, with a dedication to her Royal Highness. Leibnitz

was by this time dead ; but Clarke is asserted to have often declared his admiration of the sagacity and judgment which the Princess had shown in her observations upon the several arguments. Bishops Hoadley, Hare, and Sherlocke were among the other learned divines with whom she was fond of conversing and corresponding, sometimes, it is said, not a little perplexing them by the questions she asked. "Her levees," says Archdeacon Coxe, "were a strange picture of the motley character and manners of a queen and a learned woman. She received company while she was at her toilet ; prayers, and sometimes a sermon, were read ; learned men and divines were intermixed with courtiers and ladies of the household ; the conversation turned on metaphysical subjects, blended with repartees, sallies of mirth, and the tittle-tattle of a drawing room. She had a happy turn for conversation, and a readiness in adapting her discourse to the persons with whom she talked ; possessed peculiar talents for mirth and humour ; excelled in mimicry, and was fond of displaying it ; was pleased with making a repartee herself, and with hearing it from others."

The famous Margaret Duchess of Newcastle may be reckoned among our English female writers on philosophical subjects, though also noted for her poetical and dramatic writings. She has herself given us an account of her life and character in one of her works entitled 'Nature's Pictures drawn

by *Fancy's Pencil to the Life,* which was published at London, in a folio volume, in 1656. She was the youngest daughter of Sir Charles Lucas, a gentleman of ancient family and good estate, and was born at Colchester, in Essex, towards the close of the reign of James I. Her father died soon after she came into the world, leaving a family of three sons and five daughters to the care of his widow. "As for my breeding," the Duchess writes, "it was according to my birth, and the nature of my sex; for my birth was not lost in my breeding; for, as my sisters were or had been bred, so was I, in plenty, or rather with superfluity; likewise we were bred virtuously, modestly, civilly, honourably, and on honest principles; as for plenty, we had not only for necessity, conveniency, and decency, but for delight and pleasure to a superfluity. . . . As for our garments, my mother did not only delight to see us neat and cleanly, fine and gay, but rich and costly; maintaining us to the height of her estate, but not beyond it; for we were so far from being in debt before these wars, as we were rather beforehand with the world, buying all with ready money, not on the score. . . . 'Tis true my mother might have increased her daughters' portions by a thrifty sparing; yet she chose to bestow it on our breeding, honest pleasures, and harmless delights, out of an opinion that, if she bred us with needy necessity, it might chance to create in us sharking qualities.

mean thoughts, and base actions, which she knew my father, as well as herself, did abhor. Likewise we were bred tenderly; for my mother naturally did strive to please and delight her children, not to cross and torment them, terrifying them with threats or lashing them with slavish whips; but, instead of threats, reason was used to persuade us, and, instead of lashes, the deformities of vice were discovered, and the graces and virtues were presented unto us." Every one, too, was separately waited upon; and Lady Lucas made all her servants pay the same respect to her children, even when very young, as to herself. Nor were the children suffered to have any familiarity with the servants, but were made to demean themselves towards them with a humble civility, as the servants with a dutiful respect to them. "As for tutors," continues the Duchess, "although we had for all sorts of virtues, as singing, dancing, playing on music, reading, writing, working, and the like, yet we were not kept strictly thereto; they were rather for formality than benefit; for my mother cared not so much for our dancing and fiddling, singing, and prating of several languages, as that we should be bred virtuously, modestly, civilly, honourably, and on honest principles." It is evident from her Grace's writings that the literary part of her early education had been somewhat neglected, and that her natural abilities had scarcely been done justice to by the

cultivation her mind had received in some respects. Most of her defects and eccentricities as a writer are probably to be attributed to her imperfect scholarship.

She gives an interesting account of the manner of life of her brothers and sisters after they grew up and before their means were all swept away by the war between the King and the Parliament, which, as she says, felled down their houses like a whirlwind, and in which two of her three brothers perished, fighting on the royal side. Although three of her sisters were married, they all continued usually to spend the summer with their mother at her house in the country, where their pastimes were to read, work, walk, and discourse with one another. During the other half of the year, again, when they and also their brothers were in London, although they lived of course in their several separate houses, "yet for the most part they met every day, feasting each other like Job's children." "Their customs were in winter," she adds, "to go sometimes to plays, or to ride in their coaches about the streets, to see the concourse and recourse of people; and in the spring time to visit the Spring Garden, Hyde-Park, and the like places; and sometimes they would have music and sup in barges upon the water. These harmless recreations they would pass their time away with; for I observed they did seldom make visits, nor never

went abroad with strangers in their company, but only themselves in a flock together, agreeing so well that there seemed but one mind amongst them."

As for herself, she tells us, she was at this time so bashful when she was out of her mother's, brothers', and sisters' sight, whose presence used to give her confidence, thinking she could not do amiss while any one of them was by, that she was afraid to go from them in case she should ignorantly wander out of the ways of honour, or not know how to behave herself. Yet, hearing that the Queen, after the Court had retired to Oxford, had not the same number of maids of honour she was used to have, she asked and prevailed upon her mother to allow her to go and offer herself for one. When the Queen left England she accompanied her Majesty, and it was at Paris, in or about the year 1645, that she met and was married to the Marquis, afterwards Duke, of Newcastle, whom the war, and the loss of the battle of Marston Moor, where he had shared the command with Prince Rupert, had also made an exile and a pauper. She was his second wife. It is said that in the first years of their union they were sometimes reduced to such straits as to be obliged to pawn their clothes for a dinner. After two or three years they left Paris, and went to live at Antwerp, as a more suitable place for their ruined fortunes. "But," says the

Marchioness, "after we had remained some time therein, we grew extremely necessitated, tradesmen being there not so rich as to trust my lord for so much or so long as those of France; yet they were so civil, kind, and charitable, as to trust him for as much as they were able; but at last necessity enforced me to return into England to seek for relief." She remained in England for about a year and a half; and then, having obtained some assistance from her friends, she returned to Antwerp, where her husband and she continued to reside till the restoration of the royal family restored them also to their native country and their estates. Newcastle, whose losses in the royal cause his wife in one of her works calculates to have amounted to nearly three quarters of a million sterling, was made a Duke in 1664, and lived till 1676, attaining the advanced age of eighty-four; the Duchess, who must have been his junior by more than thirty years, died in January, 1674.

She had taken to writing at a very early age. In one of her publications she speaks of having written some poetical and philosophical books before she was twelve years old. Her first published works, however, were composed during her long exile and amid the privations and troubles of the earlier portion of her married life. One of her books, 'The World's Olio,' she states in her autobiography, was mostly written before she made her

visit to England; and during that visit, she says, she wrote a book of Poems, and her little book called 'Philosophical Fancies,' to which last, however, she made large additions after her return to Antwerp. It was at Antwerp that she wrote her volume entitled 'Nature's Pictures,' which is partly in prose and partly in verse, and in which, as already mentioned, is contained her autobiographical sketch, or what she calls 'A True Relation of my Birth, Breeding, and Life.' "Heaven," she says, describing her situation here, "hitherto hath kept us, and, though fortune hath been cross, yet we do submit, and are both content with what is and cannot be mended, and are so prepared that the worst of fortunes shall not afflict our minds so as to make us unhappy, howsoever it doth pinch our lives with poverty; for, if tranquillity lives in an honest mind, the mind lives in peace, although the body suffer; but patience hath armed us, and misery hath tried us, and finds us fortune-proof."

Both she and her husband spent much of the rest of their days in writing; and the account she gives of their occupations in exile may serve almost equally well for a description of their manner of living, or at least of her own, to the last. "He," she says, "recreates himself with his pen, writing what his wit dictates to him; but I pass my time rather with scribbling than writing—with words than wit. Not that I speak much, because I am

addicted to contemplation, unless I am with my lord ; yet then I rather attentively listen to what he says than impatiently speak. Yet when I am writing, and [imagining] sad feigned stories, or serious humours, or melancholy passions, I am forced many times to express them with the tongue before I can write them with the pen, by reason those thoughts that are sad, serious, and melancholy are apt to contract, and to draw too much back, which oppression doth, as it were, overpower or smother the conception in the brain ; but, when some of those thoughts are set out in words, they give the rest more liberty to place themselves in a more methodical order, marching more regularly with my pen on the ground of white paper." Her Grace's exposition of the principle or rationale of the matter is not particularly luminous ; but perhaps some of our fair readers, of overteeming brain, might find the practice here described a useful one in the process of composition. It may be compared with a rule announced by a recent writer as a very important discovery of his own in the art of studying any book ;—namely, "to go through every sentence, or, if it be an unusually long one, every member of it, *at one breath.*"* The Duchess, however, did not find her method all-potential. "But," she goes on, "my letters

* See '*Self-Formation*,' vol. i. pp. 112 *et seq.*

seem rather as a ragged rout than a well-armed body ; for, the brain being quicker in creating than the hand in writing or the memory in retaining, many fancies are lost by reason they oftentimes outrun the pen ; where I, to keep speed in the race, write so fast as I stay not so long as to write my letters plain, insomuch as some have taken my handwriting for some strange character ; and, being accustomed so to do, I cannot now write plain when I strive to do my best. Indeed, my ordinary handwriting is so bad as few can read it so as to write it fair for the press. But, however, that little wit I have, it delights me to scribble it out and disperse it about ; for, I being addicted from my childhood to contemplation rather than conversation, to solitariness rather than society, to melancholy rather than mirth, to write with the pen than to work with a needle,—passing my time with harmless fancies, their company being pleasing, their conversation innocent, in which I take such pleasure as I neglect my health, for it is as great a grief to leave their society as a joy to be in their company—my only trouble is, lest my brain should grow barren, or that the rod of my fancies should become insipid, withering into a dull stupidity for want of maturing subjects to write on. For, I being of a lazy nature, and not of an active disposition, as some are, that love to journey from town to town, from place to place, from house to

house, delighting in variety of company, making still one where the greatest number is; likewise in playing at cards, or any other games, in which I neither have practised nor have any skill therein; as for dancing, although it be a graceful art, and becometh unmarried persons well, yet for those that are married it is too light an action, disagreeing with the gravity thereof; and, for revelling, I am of too dull a nature to make one in a merry society; as for feasting, it would neither agree with my humour nor constitution, for my diet is for the most part sparing, as a little boiled chicken or the like, my drink most commonly water; for, though I have an indifferent good appetite, yet I do often fast, out of an opinion that, if I should eat much, and exercise little, which I do, only walking a slow pace in my chamber, whilst my thoughts run apace in my brain, so that the motions of my mind hinder the active exercises of my body; for should I dance, or run, or walk apace, I should dance my thoughts out of measure, run my fancies out of breath, and tread out the feet of my numbers."

It is needless to continue the transcription in any hope that the sentence will come to a regular end; but the artless and amiable writer goes on to inform us that, because she would not bury herself altogether from the sight of the world, she sometimes made a tour in her coach about the

streets of the town—which, like most cities in Europe, for all she can hear, “hath such like recreations for the effeminate sex ;” although, for her part, she says, she would rather sit at home and write, or walk about in her chamber and contemplate. But she held it necessary sometimes to appear abroad. “Besides,” she adds, “I do find that several objects do bring new materials for my thoughts and fancies to build upon. Yet I must say this in behalf of my thoughts, that I never found them idle ; for, if the senses bring no work in, they will work of themselves, like silk-worms that spin out of their own bowels.” Reverting now to the course of her past life, she says, very finely, “I have been honourably born and nobly matched ; I have been bred to elevated thoughts, not to a dejected spirit ; my life hath been ruled with honesty, attended by modesty, and directed by truth ;” and then, repeating that from her childhood she had been given to contemplation, she thus further describes her natural disposition and early habits :—“I would walk two or three hours, and never rest, in a musing, considering, contemplating humour, reasoning with myself of everything my senses did present ; but, when I was in the company of my natural friends, I was very attentive of what they said or did ; but, for strangers, I regarded not much what they said, but many times I did observe their actions, whereupon my reason

as judge, and my thoughts as accusers or excusers, or approvers and commendars, did plead or appeal to accuse or complain thereto. Also I never took delight in closets, or cabinets of toys, but in the variety of fine clothes, and such toys as only were to adorn my person. Likewise I had a natural stupidity towards the learning of any other language than my native tongue; for I could sooner and with more facility understand the sense than remember the words, and for want of such memory makes me so unlearned in foreign languages as I am." She was not, she intimates, very fond even of reading; it was writing only that she delighted in; yet she would rather read than employ herself in anything else, except writing. "But," she adds, "my serious study could not be much, by reason I took great delight in attiring, fine dressing, and fashions, especially such fashions as I did invent myself, not taking that pleasure in such fashions as were invented by others; also I did dislike any should follow my fashions, for I always took delight in a singularity, even in accoutrements of habits." Finally, she delineates her moral character with the same frankness and naïveté; describing herself as more apt to weep than to laugh—not, however, that she does often either the one or the other; tender-hearted; given to love with constancy, yet not with fondness; grateful; chaste; seldom angry, but, when she is so,

very angry, though easily pacified; not given to jealousy; not spiteful, envious, or malicious; yet prone to emulation, so as to wish herself to be the exactest of nature's works, her chain of destiny the strongest, her mind the peaceablest, her life the pleasantest, her death the easiest, and that she might be the greatest saint in heaven; proud, not in the sense of being self-conceited, or inclined to slight or condemn others, but as scorning to do a base or mean act, and disdaining rude or unworthy persons; very valiant and counting life nothing if her friends were in danger, or if honour should bid her die, but in other cases the veriest coward in nature, as, for instance, upon the sea, or in the presence of thieves, of fire, or the like, the shooting of a gun, although but a pop-gun, causing her to start and stop her ears, and a sword held up against her, though in jest, making her afraid; neither covetous nor prodigal, but of the two inclining to be the latter; "yet," she concludes, "I shall never be so prodigal as to impoverish my friends, or go beyond the limits or facility of our estate; and, though I desire to appear to the best advantage whilst I live in the views of the public world, yet I would most willingly exclude myself so as never to see the face of any creature, but my lord, as long as I live, enclosing myself like an anchorite, wearing a frieze gown tied with a chord about my waist."

The printed works of "The thrice noble, illustrious, and excellent Princess," the Duchess of Newcastle, as she styles herself on her own title-pages, fill about a dozen folio volumes. Pope, in the 'Dunciad,' has placed the entire set in the library of Bays among the books that

—— on outside merit but presume,
Or serve (like other fools) to fill a room.

"There, stamped with arms," he says, "Newcastle shines complete;" and in a note we are told that her Grace's folios "were usually adorned with gilded covers, and had her coat of arms upon them." Horace Walpole also has spoken in his usual contemptuous way both of the Duchess and her husband, who, it is to be remembered, was, as well as his wife, a writer of books, being the author of two treatises on the management of horses, besides four comedies and several short poetical pieces. In their own day, however, both, the lady more especially, were not a little admired. To the unimaginative Pepys, indeed, she appears to have been a subject only of curiosity, wonder, and perplexity, from which he found no other way of relieving himself, except by his common expedient of determining to believe that what he could not understand was not worth understanding. But even his repeated and anxious notices of her show how much she occupied the public attention, as well as

his own, in spite of himself. Having gone one night to see the play of 'The Humorous Lovers,' which he supposes to be hers, he describes it as the most silly thing that ever came upon a stage; but, though it made him sick to see it, he adds, he yet would not but have seen it, that he might the better understand her. 'The Humorous Lovers,' in point of fact, was written not by the Duchess, but by her husband. None of her Grace's plays, we believe, were ever acted. A few days after, on the 11th of April, 1667, we find the eager sightsee-er making his way with all the rest of the world to Whitehall, in the hope of seeing the Duchess, who was expected that night to make a visit to the Queen, the King having been the day before to pay his respects to her Grace, who had recently come to town. "The whole story of this lady," the excited diarist writes upon this occasion, "is a romance, and all she does is romantic. Her footmen in velvet coats, and herself in an antique dress, as they say; and was the other day at her own play, 'The Humorous Lovers;' the most ridiculous thing that ever was wrote, but yet she and her lord mightily pleased with it; and she at the end made her respects to the players from her box, and did give them thanks. There is as much expectation of her coming to court, that so people may come to see her, as if it were the Queen of Sweden; but I lost my labour, for she did not come this night." On the 26th of

the same month he caught a glimpse of her, for the first time, as she drove along, "with her coaches and footmen all in velvet; with her velvet cap, her hair about her ears; many black patches, because of pimples about her mouth; naked necked, without anything about it, and a black just-au-corps." He confesses that she seemed to him a very comely woman; "but," he adds, "I hope to see more of her on May-day." On May-day, however, when Sir William Penn took him in his coach to the Park for that purpose, he still failed to get a satisfactory view of her. "That which we," he says, "and almost all went for was to see my Lady Newcastle; which we could not, she being followed and crowded upon by coaches all the way she went, that nobody could come near her; only I could see she was in a large black coach adorned with silver instead of gold, and so white curtains, and everything black and white, and herself in her cap." Ten days afterwards we have him again upon the same chase. "Drove," he records, "hard towards Clerkenwell, thinking to have overtaken my Lady Newcastle, whom I saw before us in her coach, with a hundred boys and girls running looking upon her; but I could not; and so she got home before I could come up to her. But I will get a time to see her." He saw her at last, on the 30th of the same month, at a meeting of the Royal Society, to which, at her own desire, she had been invited—though not till

after much debate *pro* and *con*, according to Pepys—and at which a crowd of company had assembled to meet her. He was not enchanted. “The Duchess,” he coldly reports, “hath been a good comely woman; but her dress so antic, and her deportment so ordinary, that I do not like her at all, nor did I hear her say anything that was worth hearing, but that she was full of admiration, all admiration. Several fine experiments were shown her of colours, loadstones, microscopes, and of liquors; among others, of one that did, while she was there, turn a piece of roasted mutton into pure blood, which was very rare. . . . After they had shown her many experiments, and she cried still she was full of admiration, she departed, being led out and in by several lords that were there; among others, Lord George Barkeley and Earl of Carlisle, and a very pretty young man, the Duke of Somerset.”

In short, the literary Duchess was an entirely unintelligible phenomenon to Pepys. But against his dislike or indifference we may place the testimony of a remarkable volume printed in 1678, ‘A Collection of Letters and Poems, written by several Persons of Honour and Learning, upon divers important Subjects, to the late Duke and Duchess of Newcastle.’ Granger, who quotes it in his *Biographical History*, describes it as a very scarce folio of 182 pages, filled with a continued panegyric

on the Duke and Duchess, especially her Grace, to which, he says, he knows no flattery, ancient or modern, that is in any degree comparable, unless perhaps the deification of Augustus, and the erection of altars to him, in his lifetime. Language, certainly, could not go beyond the terms in which her Grace is here addressed, and her writings spoken of, by some of the most learned and venerable personages of that day. More ample extracts than those given by Granger may be read in the second edition of the *Biographia Britannica*, to which they were communicated by George Steevens. Colleges and universities, both at home and abroad, vie with one another, and with bishops, eminent clergymen, and other individuals, in the extravagance of their admiration. The rector of the University of Leyden declares her to be deservedly styled the chief of women. The University of Cambridge not only affirms that all the learned women of former ages if they were to come to life again would recognise her as their superior on bended knees, but adds that it and the rest of the world may now throw aside whatever of Greek and Latin eloquence has been wont to engage their attention, and henceforth rest contented with her wisdom alone. In another address the vice-chancellor and senate exclaim:—"Most excellent Princess, you have unspeakably obliged us all, but not in one respect alone; for, whenever we find our-

selves non-plussed in our studies, we repair to you as to our oracle: if we be to speak, you dictate to us; if we knock at Apollo's door, you alone open to us; if we compose an history, you are the remembrancer; if we be confounded and puzzled among the philosophers, you disentangle us, and assoil all our difficulties." In the same strain the students of Trinity College inform her Grace that they mean to dedicate to her memory an epitaph running as follows:—"To Margaret the First, Princess of Philosophers, who hath dispelled errors, appeased the difference of opinions, and restored peace to learning's commonwealth." And, to quote only one passage more, Dr. Thomas Barlow, master of Queen's College, Oxford, afterwards Bishop of Lincoln, having expressed his astonishment that a person so illustrious and eminent both for place and parts should deign to look upon "so inconsiderable and impertinent a thing in black" as himself, expresses his belief that, whereas in a manuscript treatise which he has seen it is attempted to show by sundry reasons that women excel men, very little hitherto to the satisfaction of his own sex, her Grace will probably prove the best argument in the world to convert them from their infidelity. Dr. Henry More the Platonist, Sir Kenelm Digby, Etheridge the dramatist, and the philosopher Hobbes, are all also among her Grace's encomiasts.

The titles of her works are, 'The World's Olio' (which, however, no one of her biographers appears to have seen, or to be able to tell whether it is in prose or in verse); 'Nature's Pictures;' 'Orations of Divers Sorts;' 'Philosophical and Physical Opinions;' 'Observations upon Experimental Philosophy;' 'Philosophical Letters;' 'Poems and Fancies;' 'Two Hundred and Eleven Sociable Letters;' Two Volumes of 'Plays,' twenty-seven in all; and 'The Life of the Thrice Noble, High, and Puissant Prince, William Cavendish, Duke, Marquis, and Earl of Newcastle,' &c. (her husband). Of this last volume, which was published in 1667, there is also a Latin translation, which was published at London in the following year. The others were all printed between 1662 and 1668, except 'Nature's Pictures,' which appeared, as already mentioned, in 1656, and 'The World's Olio,' which seems to have been a still earlier publication.

Pepys, whose wonted gallantry so entirely forsakes him in the case of the Duchess, allows his dislike and contempt to be raised to the point of indignation by her biography of her husband. He read the book in March, 1668, and describes it as "the ridiculous History of my Lord Newcastle, wrote by his wife; which shows her to be a mad, conceited, ridiculous woman, and he an ass to suffer her to write what she writes to him and of him." One would almost suppose that the excitable Secre-

tary to the Admiralty had received some unrecorded slight from her Grace, or that he imagined his own glory to be in some way or other interfered with by hers. At this moment the success of a speech which he had made a few days before at the bar of the House of Commons had elevated him to a height in his own estimation from which he was disposed to look upon all man and woman kind as his inferiors. Nothing that the Duchess may have written of her husband can well go beyond what he has recorded of himself in reference to this wonderful speech. "Up betimes," he journalizes on the following day, "and with Sir D. Gauden to Sir W. Coventry's chamber; where the first word he said to me was, 'Good-morrow, Mr. Pepys, that must be Speaker of the Parliament-house;' and did protest I had got honour for ever in parliament. He said that his brother, that sat by him, admires me; and another gentleman said that I could not get less than 1000*l.* a year if I would put on a gown and plead at the Chancery-bar. But, what pleases me most, he tells me that the Solicitor-General did protest that he thought I spoke the best of any man in England." And so on he goes for several pages; reporting, among other things, that many lords and parliament men told him in the presence of the king that they never heard such a speech and one so delivered in their lives; that one courtier afterwards swore to him that he had told his Majesty that he

thought Mr. Pepys was a match for the Solicitor-General himself; that in Westminster Hall he met Mr. G. Montagu, "who," he says, "came up to me and kissed me, and told me that he had often heretofore kissed my hands, but now he would kiss my lips; protesting that I was another Cicero, and said all the world said the same of me." And all this and much more he appears to have drunk in with the most perfect credence and self-satisfaction. He prays God to make him thankful; but does not drop a syllable expressive of any doubt as to his having deserved all that was said of him. In this state of mind, he was, we may suppose, in no humour for sympathizing with the attempt of the enthusiastic Duchess to make out the greatest man of the age to be her horsebreaking lord.

And it is not to be denied that the publication of this Life of himself by his wife was a singular proceeding on the part of the Duke. It could not be but that it should draw down upon both parties much ridicule from many other people as well as from Pepys, who at all events had the grace to keep his elaborate record of his own praises for his private enjoyment, or contented himself with making posterity his confidant, and did not impatiently and unblushingly unfold it before the eyes of his contemporaries. But to the Duke and Duchess, in truth, in their secluded way of life, their contemporaries stood in nearly the same relation as posterity. Sequestered

in their mansion at Welbeck, in Derbyshire, from which they made a descent together upon London perhaps once in the seven years, to be gazed upon for a few weeks as they moved about in their fantastic habits and equipages like beings dropped from another sphere, they were almost as far removed from the people of their own day as from those of another era. And, with all the absurdity and extravagance that there may have been in their mutual admiration, there is something too in so fond an attachment, maintained for so long a course of years, and throughout every vicissitude of fortune, that is both beautiful and respectable. Pepys gives us the one side of the picture; the other is given by another contemporary, Clarendon, who, in his *Life*, after mentioning that he knew them at Antwerp, speaks of them in the following terms:—"There was the Marquis of Newcastle, who, having married a young lady, confined himself most to her company, and lived as retired as his ruined condition in England obliged him to; yet with honour and decency, and with much respect paid him by all men, as well foreigners as those of his own country." They not only appear to have been a very happy couple, but, whatever harmless vanity they may have shown in some minor points, to have both borne severe and protracted adversity with much composure and dignity, and also to have demeaned themselves in their subsequent prosperity very becomingly in all essential

respects. And, if ever man or woman was devoted to literature and intellectual pursuits, it certainly was her Grace of Newcastle. Writing was, in every variety of external circumstances, the highest enjoyment and almost the sole occupation of her life.

Her defects as a writer, it has been already observed, are in great part to be traced to her imperfect literary education; but, although she had very dim views on the subject of the grammatical arrangement of words, and wanted acquired information of every kind, her natural powers of mind were far from being of a common order. She was not without considerable ingenuity and fancy; and her general mental activity was wonderful. The most confidential and complete account that she has given us of her literary habits is probably in a long epistle prefixed to her *Life*, of the Duke, and addressed to himself, a great part of which Mr. D'Israeli has quoted in one of the articles of his 'Curiosities of Literature.' She begins by noticing an imputation which it seems had been levelled at her by the malice of some spiteful tongues, that she was not the true authoress of the writings published as hers; "for," she observes, "your Grace remembers well that those books I put out first to the judgment of this censorious age were accounted not to be written by a woman, but that somebody else had writ and published them in my name; by which your Lordship was moved to

prefix an epistle before one of them in my vindication, wherein you assure the world, upon your honour, that what was written and printed in my name was my own. And I have also made known that your Lordship was my only tutor, in declaring to me what you had found and observed by your own experience. For I, being young when your Lordship married me, could not have much knowledge of the world; but it pleased God to command his servant Nature to endue me with a poetical and philosophical genius, even from my birth, for I did write some books in that kind before I was twelve years of age, which for want of good method and order I would never divulge." "But," she proceeds, "though the world would not believe that these conceptions and fancies which I writ were my own, but transcended my capacity, yet they found fault that they were defective for want of learning; and, on the other side, they said I had plucked feathers out of the universities: which was a very preposterous judgment. Truly, my Lord, I confess that, for want of scholarship, I could not express myself so well as otherwise I might have done in those philosophical writings I published first; but, after I was returned with your Lordship into my native country, and led a retired country life, I applied myself to the reading of philosophical authors, on purpose to learn those names and words of art that are used in schools; which at first were

so hard to me that I could not understand them, but was fain to guess at the sense of them by the whole context, and so writ them down as I found them in those authors; at which my readers did wonder, and thought it impossible that a woman could have so much learning and understanding in terms of art and scholastical expressions." But, although thus found fault with by some for having too little learning, by others for having too much, like the man in the fable, who was equally blamed whether he made his ass carry himself and his son or allowed it to proceed at its ease while they trudged behind it, till he resolved to drown the beast at the next bridge, she is not, she says, so passionate as to burn her writings on account of the various humours of mankind. "As for my being the true and only authoress of them," she goes on, "your Lordship knows best; and my attending servants are witness that I have had none but my own thoughts, fancies, and speculations to assist me; and as soon as I set them down I send them to those that are to transcribe them and fit them for the press; whereof since there have been several, and amongst them such as only could write a good hand, but neither understood orthography nor had any learning (I being then in banishment, with your Lordship, and not able to maintain learned secretaries), which hath been a great disadvantage to my poor works, and the cause that they have

been printed so false and so full of errors; for, besides that I want also skill in scholarship and true writing, I did many times not peruse the copies that were transcribed, lest they should disturb my following conceptions; by which neglect, as I said, many errors are slipped into my works, which yet, I hope, learned and impartial men will soon rectify, and look more upon the sense than carp at words." She goes on to observe that she has been a student even from her childhood, and that ever since her marriage she has lived for the most part a strict and retired life, conversing with few, so that her enemies cannot know much about her. And she concludes, very characteristically, as follows:—"Indeed, my Lord, I value not the censures of this age, but am rather proud of them; for it shows that my actions are more than ordinary, and, according to the old proverb, it is better to be envied than pitied; for I know well that it is merely out of spite and malice, whereof this present age is so full that none can escape them, and they'll make no doubt to stain even your Lordship's loyal, noble, and heroic actions, as well as they do mine; though yours have been of war and fighting, mine of contemplating and writing; yours were performed publicly in the field, mine privately in my closet; yours had many thousand eye-witnesses, mine none but my waiting-maids. But the great God, that hath hitherto blessed both your Grace and me, will,

I question not, preserve both our fames to after ages."

In the same strain are many passages in the pre-faces and other extraneous matter interspersed in the first volume of her Plays, printed in 1662. For example, in one place she observes;—"I am lazy and inactive to any other employments, and had rather sit still and do nothing than have my thoughts obstructed or disturbed from their usual contemplations with noise or company, or any other action or employment but writing. For writing is as pencilling thoughts, and I take as much delight as painters who draw men and other creatures." In another;—"As for the niceties of rules, forms, and terms, I renounce, and protest that, if I did understand and know them strictly, as I do not, I would not follow them; and, if any dislike my writings for the want of these rules, forms, and terms, let him not read them; for I had rather that my writings should be unread than be read by such pedantical scholastic persons." And elsewhere she exclaims;—"I imagine all those who have read my former books will say that I have writ enough, unless they were better. But, say what you will, it pleaseth me; and, since my delights are harmless, I will satisfy my humour.

"For, had my brain as many fancies in 't
To fill the world, I 'd put them all in print.
No matter whether they be well express'd;
My will is done—that pleases woman best."

Much of this is no doubt absurd and ridiculous enough: and the works composed upon so wayward a principle—plays, poems, and philosophical speculations—have, in falling into utter oblivion, or coming to be no longer looked into or remembered except as curiosities, only encountered their natural and inevitable fate. Yet, although her books may be forgotten, the writer herself still deserves to be held in honour as an illustrious example both of literary ardour and devotion, and of much besides that soared far above the aspirations and pursuits of an ordinary woman. Eccentric and fantastic as she was, too, in some of her outward ways, she was at heart both natural and thoroughly English. “As French cooks,” she has herself said, in her unsophisticated manner, “are accounted the best for corporal meats, so the Greeks and Latins for poetical meats; but I am neither a Greek nor a Latin cook; I cannot dress or cook after their fashions or fancies; I never was bound apprentice to learning; I am as ignorant of their arts and meats as of their persons and nations. I am like a plain, cleanly English cook-maid, that dresses meat rather wholesomely than luxuriously, a roast capon without lard, a shoulder of mutton with a sauce of capers and olives, a piece of boiled beef and turnips, and, for a dessert, a plain apple-tart or a pear-pie.” Charles Lamb felt what a soul of good was in her, when his friend, as he records, insisted, in spite of
and adjurations to forbear, upon carrying off

from his library “ the Letters of that princely woman, the thrice noble Margaret Newcastle; ” and, worst of all, transported the precious volume to the Gallican land—

“ Unworthy land to harbour such a sweetness,
 A virtue in which all ennobling thoughts dwelt,
 Pure thoughts, kind thoughts, high thoughts, her sex's
 wonder ! ”*

* *Essays of Elia; First Series.*



CHAPTER II.

Other Female Theological and Philosophical Writers.

KEEPING for a little longer to the region of literature in which female talent has perhaps most distinguished itself by what can properly be considered the pursuit of knowledge, we will now enumerate some others of our countrywomen who have been most noted for their writings on theology or philosophy, or for their attachment to those studies.

Contemporary with the Duchess of Newcastle was Dorothy Lady Pakington, daughter of Thomas first Lord Coventry, the Lord Keeper, and wife of Sir John Pakington, Bart. Lady Pakington, who was born in or near London about the middle of the reign of James I., and lived till 1679, is generally supposed to have been the writer of the celebrated manual of Christian morals, 'The Whole Duty of Man,' which was first published in 1657, and has since gone through innumerable editions. The grounds on which the work is assigned to her may be found stated at great length in Ballard's 'Memoirs of Learned Ladies.' And, upon the supposition that she wrote 'The Whole Duty of Man,' we must also give Lady Pakington the credit of

having written the other works declared to be by the same author; viz. 'The Causes of the Decay of Christian Piety,' 'The Gentleman's Calling,' 'The Lady's Calling,' 'The Government of the Tongue,' 'The Art of Contention,' and 'The Lively Oracles given to us; or, The Christian's Birthright and Duty in the Custody and Use of the Holy Scriptures.' All these works are distinguished by great clearness of style, by force of thought, and in some parts by considerable learning. We may remark, by the bye, that the claim of Lady Pakington to the authorship of these works is strongly confirmed by a circumstance which has escaped Ballard; the pains, we mean, that Bishop Fell, by whom most of them were first published in 1684, takes in his Preface to the collection to avoid any expression which would indicate the sex of the author. He has recourse to all sorts of indirect and round-about phraseology for that purpose. We may at least infer from this with the greatest probability that the writer was a woman; which will get rid of the strongest objection that has been made against their assignment to Lady Pakington. That her ladyship was esteemed by those to whom she was best known, and who were best qualified to judge, to be quite competent to write them, may sufficiently appear from the testimony of the learned Dr. Hickes, who in the Preface to his great work on the Northern Languages (*Thesaurus Linguarum Septentrionalium*), after expressing himself in terms

which almost imply that he knew her to be the author of 'The Whole Duty of Man,' adds (as the passage has been translated by Ballard) :—"Hammond, Morley, Fell, and Thomas, those eminently learned men, averred she was as great an adept in the Sacred Scriptures as themselves were, and as well versed in divinity, and in all those weighty and useful notions relating to Duty which have been recommended and handed down to us either by profane or Christian philosophers. I have heard also she was so far from being unacquainted with the antiquities of her own country, that she almost knew as much as the greatest proficients in that kind of knowledge. Nor is this to be much wondered at, since in her youth she had the most excellently learned Sir Norton Knatchbull, Bart., for her tutor and preceptor ; and, after she was married, the famous Hammond, and others his contemporaries, very celebrated men, for her companions and instructors." Dr. Hammond, the celebrated author of the 'Practical Catechism' and other theological works, resided in Sir John Pakington's house of Westwood, near Droitwich in Worcestershire, for several years during the Interregnum.

To a date a little later belongs a young lady of very remarkable attainments, although it does not appear that any of her writings have been printed, Anne Baynard, who was the only child of Dr. Edward Baynard, a physician of London. She was born, according to Jeremy Collier, in his *Great*

Historical Dictionary, at Preston, in Lancashire, and died at Barnes, in Surrey (where she lies buried), in June, 1697, in the twenty-third year of her age (her epitaph as quoted by Ballard says in her twenty-fifth year). Collier describes her as "not only well skilled in the learned languages, but in all manner of learning and philosophy, without vanity or affectation." "Her words," he adds, "were few, well chosen, and expressive; she was seldom seen to smile, being rather of a reserved and stoical disposition, which sect of philosophers she most affected, their doctrine in most points seeming agreeable to her natural temper; for she never read or spoke of them but with a sort of delight and pleasingness in her countenance. She had a great contempt of the world, especially of the finery and gaiety of life. She had a great regard and veneration for the sacred name of God, and made it the whole business of her life to promote his honour and glory; and the great end of her study was to encounter atheists and libertines, as may be seen in some severe satires written in the Latin tongue, in which language she had a great readiness and fluency of expression." Ballard supplies us with some extracts from her funeral sermon, preached in the parish church of Barnes by the Rev. John Prude, which further illustrate her acquirements and character. "As for learning," says Mr. Prude, "whether it be to know and understand natural causes and events; to know the

courses of the sun, moon, and stars; the qualities of herbs and plants; to be acquainted with the demonstrable verities of the mathematics; the study of philosophy; the writings of the ancients, and that in their own proper language, without the help of an interpreter; . . . these things she was not only conversant in, but mistress of; and that to such a degree that very few of her sex did ever arrive at. She had from her infancy been trained up in the knowledge of these things, and had made a great progress therein; and even in her green years, at the age of twenty-three, was arrived to the knowledge of a bearded philosopher. But that which is most our wonder is, that one so young, of an infirm constitution and the tenderest sex, not accustomed to the advantages of the philosophic schools, should in the hard knotty arguments of metaphysical learning be a most nervous and subtle disputant." She was, we are further told, well acquainted with the New Testament in the original, and took great pains to perfect her knowledge of the Greek language, principally with the view of reading St. Chrysostom. That she actually attained any facility in reading Greek, however, is not asserted. She composed many things, Mr. Prude goes on to state, in the Latin tongue, "wherein," he says, "it does appear she had a beauty in her style, as well as in her countenance; and, if they shall be made public, [they] will be the admiration, as well as the entertainment, of the thinking part of mankind. She

had indeed a vast and comprehensive knowledge, a large and exalted mind, a strong and capacious memory, still coveting more and more knowledge; and in this particular alone she would often say, *It was a sin to be contented with a little.*" He then, after dilating upon her piety, her charity, and her other Christian graces and virtues, reports the following words, not unsuitable to be quoted here on their own account, as taken down from her lips while she lay on her death-bed, ready to bid farewell to the earth:—"I desire that all young people may be exhorted to the practice of virtue, and to increase their knowledge by the study of philosophy, and more especially to read the great book of nature, wherein they may see the wisdom and power of the great Creator, in the order of the universe and in the production and preservation of all things. It will fix in their minds a love to so much perfection, frame a divine idea and an awful regard of God, which will heighten devotion, and lower the spirit of pride, and give a habit and disposition to His service; it will make us tremble at folly and profaneness, and command reverence and prostration to His great and holy name. That women are capable of such improvements, which will better their judgments and understandings, is past all doubt; would they but set to it in earnest, and spend but half of that time in study and thinking, which they do in visits, vanity, and folly. 'Twould in-

roduce a composure of mind, and lay a sound basis and groundwork for wisdom and knowledge, by which they would be better enabled to serve God and help their neighbours."

Another example hardly to be passed over under this head is that of the famous Grace Lady Gethin, who was the daughter of Sir George Norton, of Abbots Leigh, in the county of Somerset, Bart., and the wife of Sir Richard Gethin, Bart., of Gethin Grott, in Ireland, and who was born in 1676, and, dying in October, 1697, in her twenty-first year, lies buried in the south aisle of Westminster Abbey, where a marble monument represents her in a kneeling posture between two angels, with a book in her right hand. This book is probably intended for a volume which was printed soon after her death with the title of 'Reliquiæ Gethinianæ; or, some Remains of the most ingenious and excellent lady, Grace Lady Gethin, lately deceased: being a collection of choice discourses, pleasant apophthegms, and witty sentences, written by her for the most part by way of essay and at spare hours.' The volume, which is one of great rarity, is in quarto, and has her ladyship's picture fronting the title. But the literary reputation of Lady Gethin has of late years been almost dissipated by the discovery of Mr. D'Israeli that the "choice discourses," &c., of which this publication is made up, are chiefly transcriptions from

the essays of Bacon, Owen Feltham, Francis Osborne, and other writers.* It seems to be very doubtful if the volume really contains any thing of Lady Gethin's own. It is amusing enough, after the state of the case has been thus explained, to find the learned editor of the *Reliquiæ* apologising for the imperfections of the pieces he is giving to the world as having been written by her ladyship "for the most part in haste," and as being "her first conceptions and overflowings of her luxuriant fancy, noted with her pencil at spare hours or as she was dressing; . . . and set down just as they came into her mind." And for such "private undigested thoughts, and first notions hastily set down," of a young woman of twenty, did the wise public at the time mistake some of the most elaborate compositions of Bacon; nor did any one of a succession of writers of reputation, by whom the praises of Lady Gethin were sounded for more than a century, detect or suspect the blunder. They probably, indeed, in speaking of the *Reliquiæ* merely copied from and repeated one another, without ever examining the volume itself; but its reception at first, as Mr. D'Israeli remarks, seems to prove that Bacon's Essays were not then much read. One of the persons whom it most struck seems to have been Congreve, the dramatist; there

* See 'Curiosities of Literature,' First Series.

are two poetical tributes of his to Lady Gethin, one prefixed to the *Reliquiæ*, another published in one of the volumes of 'Miscellany Poems' originally edited by Dryden. In the former he speaks as if he had been personally acquainted with her ladyship: "I," he says,

— "here assert, if any thing 's amiss,
It can be only the compiler's fault,
Who has ill-dressed the charming author's thought:
That was all right; her beauteous looks were joined
To a no less admired, excelling mind."

It is probable, both from this testimony and from what is said by the editor of the *Reliquiæ*, that Lady Gethin had attracted much attention during her short life by talents and acquirements, and by a love of reading and study, not often manifested by one of her sex and age.

Frances Lady Norton, the mother of Lady Gethin, is the author of two books; the first entitled 'The Applause of Virtue, in four parts, consisting of several Divine and Moral Essays towards the obtaining of true Virtue;' the other, 'Memento Mori, or Meditations on Death;' both published at London, in 4to., in 1705. These works are said to show her to have been well read in the most eminent of the primitive Fathers and also in the philosophical writers of antiquity, and of course to have been well acquainted with both the classic tongues. Lady Norton, whose family name ap-

pears to have been Freke, after the death of her first husband married secondly a Colonel Ambrose Norton, and thirdly a Mr. Jones; and she was still living at an advanced age about the year 1720.

Other examples of English female theologians are the following. Anna Lady Halket was the daughter of Mr. Robert Murray, who had been preceptor to Charles I., and died provost of Eton College in 1623. She was born at London in January 1622; in 1656 was married to Sir James Halket; and, after living a wife for fourteen years and for twice that term a widow, died in 1699. She had been carefully instructed in her early years in all the ordinary branches of female education; but theology was throughout her life her favourite subject of study. At her death she left about twenty large folio and quarto volumes of manuscript Meditations on portions of Scripture and other pious compositions; a few of which were printed, in quarto, at Edinburgh, in 1701. Damaris Lady Masham, the daughter of Cudworth, the great author of 'The Intellectual System of the Universe,' and the friend of John Locke, was born at Cambridge in 1658, became the second wife of Sir Francis Masham, of Oates, in the county of Essex, Bart., and died, three years after Locke, in 1708. Lady Masham, who was distinguished for her learning, as well as her general powers of mind, is the author of 'A Discourse concerning the

Love of God,' published in 1696, and of 'Occasional Thoughts in reference to a Virtuous or Christian Life,' published in 1705. Mrs. Susannah Hopton was the daughter of a Staffordshire gentleman of the name of Harvey, and was born in 1627; married Richard Hopton, Esq., of Kington, in Herefordshire, barrister at law, by whom she was left a widow in 1696; and survived till 1709. No particular care, we are told, had been taken to improve her excellent talents by an education worthy of them, and she frequently lamented in after life that she had not been better instructed in her youth; but her own industry and application made up to a great extent for the neglect of those by whom she had been brought up. Her chief study was theology, and her friend Dr. Hickes declares that she had "attained to a skill in that sacred science not much inferior to that of the best divines." In her earlier years she had been drawn over to the Church of Rome by the persuasions of a priest of the name of Turberville; but, not, as it would seem, feeling quite satisfied, she soon after proceeded to study the controversy between the two churches, and the result was her return to Protestantism. She made herself, Hickes assures us, as perfect in the controversy as English writers on both sides could make her. "I have," he says, "above twenty Popish authors, which she left me, and some of them with marginal notes in her own

hand." After her reconversion she vindicated the step she had taken in a long and able letter addressed to Turberville, which was published by Hickes in 1710 in the second volume of his 'Controversial Letters.' She also prepared an edition, accommodated to the doctrines of the Church of England, of the old Roman Catholic manual called *Devotions in the ancient way of Offices*, to which she gave the title of 'Daily Devotions, consisting of Thanksgivings, Confessions, and Prayers, by an humble Penitent,' which was published under the superintendance of Hickes in 1673; and she is the author of 'An Hexameron, or Meditations on the Six Days of the Creation,' and of 'Meditations on the Life of Christ,' which were published, along with a new edition of her 'Devotions,' by the Rev. N. Spinckes, in 1717. Another female devotional writer of this age was Elizabeth, the second wife of Bishop Burnet, who was born in 1661, and was the eldest daughter of Sir Richard Blake. She had been first married at the age of seventeen to Robert Berkeley, Esq., of Spetchley, in the county of Worcester, who died in 1693; she became the wife of the bishop in 1700; and she died in 1709. Mrs. Burnet is the author of 'A Method of Devotion, or Rules for Holy and Devout Living,' of which two editions were published in her lifetime. She had no knowledge of the learned languages, or, as far as appears, of any language but her own; but she

had been an eager reader of the Scriptures and of English theological works from a very early age, and had in this way attained extensive knowledge in that region of inquiry. It is stated that, especially while she lived in the country during her first marriage, she used to spend the greater part of her leisure in devotion and reading, and, even when she amused herself with any female work, used generally to have some one to read to her. When her poor neighbours, also, came to visit her, which she encouraged them to do, she would frequently read good books to them. Mary Lady Chudleigh was born in 1656, and was the daughter of Richard Lee, Esq., of Winslade, in Devonshire, and the wife of Sir George Chudleigh, of Ashton, in the same county, Bart. She also, as well as Mrs. Burnet, knew only her native tongue; but in that she was a great reader from an early age. Her writings are partly in prose, partly in verse; and they embrace philosophical as well as religious subjects. Her printed works are 'The Ladies' Defence, a Poem;' 'Poems on several occasions,' and 'Essays upon several subjects;' several others are said to be preserved in manuscript. Lady Chudleigh died in 1710.

One of the most active and distinguished among the female writers of the close of the seventeenth and the earlier portion of the last century was Mary Astell. Her life is given at considerable length by

Ballard; and some additional particulars may be gathered from an article about her in the second edition of the *Biographia Britannica*. She was the daughter of a merchant of Newcastle, and was born there about the year 1668. "She was," says Ballard, "very genteelly educated, and taught all the accomplishments which are usually learned by young gentlewomen of her station; and, although she proceeded no farther in the languages at that time than the learning of the French tongue, yet she afterwards gained some knowledge in the Latin. And, having a piercing wit, a solid judgment, and tenacious memory, she made herself a complete mistress of everything she attempted to learn with the greatest ease imaginable." An uncle who was a clergyman undertook the office of her preceptor in higher studies; and under his tuition, we are told, she made a considerable progress in philosophy, mathematics, and logic. At about the age of twenty she left her native place, and, coming up to the neighbourhood of the metropolis, established herself at Chelsea, where she spent the remainder of her life. What means of living she had is not stated; but from a remark afterwards made it may be inferred that her pecuniary circumstances were rather straitened. It is probable, however, that she had some secure income, however small—perhaps derived from her father, who may have died before she came to London—and that she was not

entirely dependent upon her pen, by which indeed we are not informed that she ever earned anything. Her first publication, which like all her subsequent ones was anonymous, was entitled 'A Serious Proposal to the Ladies, for the Advancement of their true and greatest Interest.' It seems to have appeared about 1693 or 1694, and to have attracted considerable attention. She here argued that the cause of most feminine vices was ignorance: "ignorance," she says, "and a narrow education lay the foundation of vice, and imitation and custom rear it up." Soon after the publication of this tract she entered into an epistolary correspondence with the famous Platonist, the Reverend John Norris, upon some doubts and scruples that had been awakened in her mind on the subject of the Love of God by the perusal of his recently published 'Practical Discourses upon several divine Subjects;' and her letters were thought so highly of by Norris that he solicited her consent to give them to the world along with his own; and the entire correspondence accordingly appeared in 1695, with the title of 'Letters concerning the Love of God between the Author of *The Proposal to the Ladies* and Mr. John Norris; wherein his late discourse, showing that it ought to be entire and exclusive of all other loves, is cleared and justified.' His new connexion, however, seems to have lost Norris an earlier female friend, Lady Masham, already men-

tioned, to whom he had a few years before inscribed one of his works, but who now answered his present publication in 'A Discourse concerning the Love of God,' written, it is understood, under the inspection of her new male friend Mr. Locke. The gentlemen, we believe, took no further part in the controversy; but Miss Astell, as we shall presently find, returned to it some years afterwards. Meanwhile in 1696 she published a 'Second Part' of her 'Serious Proposal to the Ladies;' and in the following year a new edition of both Parts together. The two treatises are affirmed to have produced a general and marked improvement upon the countrywomen of the fair writer. "These books," says Ballard, "contributed not a little towards awakening their minds, and lessening their esteem for those trifling amusements which steal away too much of their time; and towards putting them upon employing their faculties the right way, in the pursuit of useful knowledge. Nay, the scheme given in her proposal seemed so reasonable, and wrought so far upon a certain great lady, that she had designed to give ten thousand pounds towards erecting a sort of college for the education and improvement of the female sex; and as a retreat for those ladies who, nauseating the parade of the world, might here find a happy recess from the noise and hurry of it. But, this design coming to the ears of Bishop Burnet, he immediately

went to that lady, and so powerfully remonstrated against it, telling her it would look like preparing a way for Popish *Orders*, that it would be reputed a Nunnery, &c., that he utterly frustrated that noble design." The great lady is, of course, Queen Anne. This projected female college is the subject of a very daring piece of ridicule by Swift in the 32nd No. of the *Tatler* (published in June 1709), in which Mrs. Astell figures under the name of Madonella. She is introduced again under the same name in the 63rd No.

Ballard assigns to Mrs. Astell a piece called 'An Essay in Defence of the Female Sex; in a Letter to a Lady, written by a Lady,' first published in 1696, and frequently reprinted; but the writer of the article in the *Biographia Britannica* questions its being by her. There is an air of levity in it, he observes, unlike the general strain of her writings; and some of the sentiments appear to be contradictory to those she has elsewhere advanced. Mrs. Astell, however, had high notions about both the capacities and the rights of women, which she has put forward without reserve in several of her works.

For some years after this she appears to have employed herself in reading and study, and to have written or at least published nothing. When she saw any one coming to call upon her, Ballard relates, whom she knew to be incapable of discoursing

upon any useful subject, she would look out at her window, and, jestingly telling them herself that Mrs. Astell was not at home, would not suffer them to intrude upon her. "At this time," he adds, "she acquired a more complete knowledge of many classic authors. The heathen writers which she esteemed most were Xenophon, Plato, Hierocles, Tully, Seneca, Epictetus, and Marcus Antoninus." All these writers, we suppose, she must have read in English or French translations.

Her next book was entitled 'Reflections on Marriage,' and was published in 1700. "Some people," says Ballard, "think she has carried her arguments with regard to the birthrights and privileges of her sex a little too far, and that there is too much warmth of temper discovered in this treatise. But, if those persons had known the motive which induced her to write that tract, it might possibly have abated very much of their censure." And then he tells us in a foot-note, with much naïveté, that this motive, as he has been informed, "was her disappointment in a marriage contract with an eminent clergyman." Such a mischance, Ballard apparently thinks, might well drive a literary lady a little furious. It was not long, he proceeds to inform us, before she came to understand that her book did not please some very nice palates; whereupon she published in 1705 a second edition of it, with a long Preface in answer to the objectors. Both book and preface,

according to her biographer, are written with a vast deal of wit and sharpness ; they make, he says, " perhaps the strongest defence that ever yet appeared in print of the rights and abilities of the fair sex."

Mrs. Astell, however, had already engaged in a sterner war. " About this time," continues Ballard, " observing the pernicious artifices of the sectaries, she, to her lasting honour, courageously and successfully attacked them on all sides." First she fell upon Dr. Davenant, the political economist, in a quarto tract, which she published in 1704, and called 'Moderation truly stated ; or, a Review of a late pamphlet entitled *Moderation a Virtue.*' Both this tract and the accompanying preface " will be," says Ballard, " a lasting testimony of her being admirably well versed in our constitution both in church and state ; a rare accomplishment in a woman ; but perhaps the less to be wondered at in that reign, when the supreme government of both was committed to a female hand." Davenant replied in a new edition of his pamphlet, to which he now gave the title of 'Moderation *still* a Virtue.' To this she immediately published a rejoinder, in the form of a *Postscript* to her former answer. Finally, in the same year, 1704, turning round upon a second description of imperfect sympathizers with the established constitution, she came out with another quarto polemical brochure, entitled 'A fair Way with the Dissenters and their Patrons ; not writ by

Mr. Lesley, or any other furious Jacobite, whether clergyman or layman, but by a very Moderate Person and Dutiful Subject to the Queen.'

These publications were followed up the next year by what is accounted her most elaborate performance, a treatise entitled 'The Christian Religion, as professed by a Daughter of the Church of England.' In the composition of this work she declares, "she consulted no divine, nor any other man; scarce any book, except the Bible; being willing to follow the thread of her own thoughts." It was here that she again attacked Lady Masham and Locke, as well as Archbishop Tillotson and other Low Church writers. She had also the year before published an examination of a Thirtieth of January Sermon of Dr. Kennet's, under the title of 'An Impartial Enquiry into the Causes of Rebellion and Civil War in this Kingdom, and Vindication of the Royal Martyr;' but of this publication Ballard had never been able to procure a sight.

With her work on the Christian Religion Mrs. Astell's literary career terminated. The rest of her life is stated to have been chiefly employed in the practice of the duties of religion. Ballard had been told that for several years before her death "she constantly walked from Chelsea to St. Martin's Church every Sunday, never regarding the inclemency or unseasonableness of the weather, purely to hear a celebrated preacher, whom she much ad-

mired for his excellent practical divinity." This is said to have been Dr. Trapp, the blank verse translator of Virgil, who held the evening lectureship at St. Martin's-in-the-Fields, and was much celebrated both for his high church doctrines and his oratorical delivery. Mrs. Astell's own practical theology would seem to have had a good deal of an ascetic character. "In abstinence," her biographer affirms, "few or none ever surpassed her; for she would live like a hermit, for a considerable time together, upon a crust of bread and water, with a little small beer. And at the time of her highest living, when she was at home, she very rarely ate any dinner till night; and then it was by the strictest rules of temperance." Yet this severity of discipline, it is asserted, was accompanied with no sourness or moroseness of temper; on the contrary, her conversation is described as having been "highly entertaining and innocently facetious." A somewhat different representation of her is given in a letter of Bishop Atterbury's, in which he relates that he had lately happened to dine with her, when she spoke to him of a sermon against Hoadley he had preached a short time before, and requested a perusal of it, which he let her have. She had since returned the sermon with a sheet of remarks, which the bishop transmits to his friend, remarking that he takes them to be of an extraordinary character, considering they had come from the pen of a woman.

“There is not an expression,” he adds, “that carries the least air of her sex from the beginning to the end of it. She attacks me very home, you see, and artfully enough, under a pretence of taking my part against other divines, who are in Hoadley’s measures. Had she as much good breeding as good sense, she would be perfect; but she has not the most decent manner of insinuating what she means, but is now and then a little offensive and shocking in her expressions; which I wonder at, because a civil turn of words is what her sex is always mistress of. She, I think, is wanting in it. But her sensible and rational way of writing makes amends for that defect. I dread to engage her.”

It appears, however, that Mrs. Astell lived a good deal in the world, and among her friends were some of the most fashionable personages of the time. She was particularly intimate with Lady Mary Wortley Montagu; and it is now known that the ‘Preface by a Lady’ signed M. A., and dated 1724, which was published with the first edition of Lady Mary’s Letters in 1763, and ascribed by the editor to a lady of quality, was written by Mrs. Astell. Lady Louisa Stuart, who has communicated this fact in her ‘Introductory Anecdotes’ prefixed to Lord Wharcliffe’s edition of Lady Mary’s Works published in 1836, has added a spirited sketch of Mrs. Astell, in the course of which she says:—“She triumphed in Lady Mary’s talents as proofs of what it was her

first wish to demonstrate, namely, the mental equality of the sexes, if not the superiority of woman to man. Many a tract have the worms long ago eaten, or the pastry-cooks demolished, in which she laid down this doctrine; exposing the injustice and tyranny of one sex, and maintaining the capacity of the other, if allowed fair play, for the highest attainments. But, like most people who are bent upon establishing a theory which they know others will controvert, and suspect they may laugh at, she often wrote herself into a passion as she went on, and made more free with the words jackanapes, puppy, booby, and blockhead, than we should think becoming in a fair and elegant authoress at present." She had been styled by the first editor of *Lady Mary's Letters* "the fair and elegant Prefacer;" but she was, according to *Lady Louisa*, "as far from fair and elegant as any old schoolmaster of her time; in outward form, indeed, rather ill-favoured and forbidding, and of a humour to have repulsed the compliment roughly had it been paid her while she lived; for she regarded such common-place phrases as insults in disguise, impertinently offered by men through a secret persuasion that all women were fools." Her friendship for *Lady Mary* appears to have been ardent to enthusiasm, notwithstanding the difference of their characters and opinions on some of the most important points. One day, after a serious discussion of some religious

question, Mrs. Astell, who, as usual, had been pursuing the argument very eagerly, paused, and then, fixing her eyes on her friend, said with impressive earnestness :—" My days are numbered ; I am old ; —that you know ; but I now tell you in confidence I have a mortal disease which must soon bring me to the grave. I go hence, I humbly trust in Christ, to a state of happiness ; and, if departed spirits be permitted to visit those whom they have loved on earth, remember I make you a solemn promise that mine shall appear to you, and confirm the truth of all I have been saying." Mrs. Astell died of a cancer a few weeks after this, in May 1731 ; but Lady Mary declared that the threatened apparition never came.

The last of these English female theological or philosophical writers that we shall mention is Mrs. Catherine Cockburn, perhaps one of the ablest of them all. Her father, whose name was Trotter, was a native of Scotland, and a commander in the navy ; and she was born at London in 1679. In her youth she is said to have been distinguished by her personal attractions. Her father died when she was very young ; and her mother, who was nearly related to more than one Scotch noble family, was left in very narrow circumstances. Catherine began to show remarkable talent or vivacity of mind at a very early age. It is told that while she was still a mere child she one day

surprised a company of her friends by some extemporaneous verses on an incident which had just happened in the street; when her uncle, who chanced to be present, remarked how delighted her father would have been if he had been alive. Captain Trotter—who is said, by the bye, to have been personally known to and in high favour with both Charles II. and his brother James, and to have been commonly called *Honest David*—had, it seems, been fond of poetry. His kind encouragement, however, appears to have been all that her uncle, who was also a commander in the navy, could give her of help. It is affirmed that she had no teacher even in learning to write; but perhaps this may merely mean that in her eagerness she acquired that accomplishment by herself before the usual time when a teacher would have been provided for her—not that her mother was unable to afford her one. It is added that she also made herself in the same way mistress of the French language. She then learned Latin, with some assistance while she was studying the grammar; as she had likewise in logic, which was another of her early acquisitions.

Her first literary attempts were in verse. One poem, which she is stated to have written when she was only fourteen, is printed among her works. It is certain that in 1695, when she was only in her
enteenth year, she appeared as a dramatic

writer; a tragedy written by her, entitled 'Agnes de Castro,' having been brought out with success at the Theatre Royal in that year, and printed the following. This was followed by a second tragedy, entitled 'Fatal Friendship,' which was performed at the new theatre in Lincoln's Inn Fields in 1698, and printed the same year. She had before this time made the acquaintance of Congreve by some verses addressed to him on his 'Mourning Bride,' which he acknowledged in terms expressive of much gratification; and other names eminent in literature, among the number that of Farquhar the comic dramatist, were now added to the list of the friends and admirers of the young poetess. In 1701 Miss Trotter took part in the composition of a tribute of commemorative verse published under the title of 'The Nine Muses; or poems written by so many ladies upon the death of the late famous John Dryden, Esq.' And the same year she produced two more dramatic pieces—a comedy called 'Love at a Loss;' and a tragedy called 'The Unhappy Penitent.'

These juvenile productions had probably all of them great defects; but the authoress of three tragedies and a comedy, all both printed and acted before she had reached the age of two and twenty, was at any rate no common phenomenon. And she had also, it seems, already been long a diligent student of metaphysics; besides having, while yet,

as we gather, only entering her teens, ventured so far into the maze of theological speculation and controversy as to have been induced to leave the Church of England in which she had been educated and to profess herself a Roman Catholic, as she still continued to do. The first fruit of her philosophical studies appeared in May 1702, when she published anonymously a defence of 'Locke's Essay on the Human Understanding,' in reply to an attack upon it which was afterwards known to have proceeded from the learned and eloquent Dr. Thomas Burnet, of the Charter House. Miss Trotter's performance was addressed to Locke, who was greatly pleased with it, and as soon as he discovered the author wrote to her in the most flattering terms. "You have herein not only vanquished my adversary, but reduced me also absolutely under your power," said the delighted philosopher. From this date, with the exception of a few occasional pieces in verse, and a fifth dramatic attempt in the form of a tragedy on the story of Gustavus Vasa under the title of 'The Revolution of Sweden,' which she produced in 1706, and which does not appear to have had much success, Miss Trotter kept to the new line upon which she had entered thus auspiciously. Soon after this, too, she changed her original name for another. About the beginning of 1707 she returned to the Church of England; towards the close of that year

she published 'A Discourse concerning a Guide in Controversies, in Two Letters, written to one of the Church of Rome by a person lately converted from that communion;' and in the beginning of the next year she married the Rev. Mr. Cockburn, a clergyman of the establishment.

Mr. Cockburn is said to have been a man of learning and talent; but he never was fortunate in obtaining much preferment, and throughout the remainder of her life Mrs. Cockburn had both the cares of a family to occupy her time and thoughts, and very straitened circumstances to struggle with. Soon after their marriage her husband obtained the donative of Nayland in Suffolk; whence in no long time he removed to the curacy of St. Dunstan's in the West, London; but this he was obliged to quit on the accession of George I. in 1714 in consequence of objecting to take the oath of abjuration; and for the next ten or twelve years he was reduced to serve as an assistant teacher of Latin in an academy in Chancery Lane. In 1726, however, he brought himself to consent to take the oath; upon which he obtained the situation of minister of an episcopal congregation at Aberdeen in Scotland. To this was added soon after the living of Long Horseley, near Morpeth, in Northumberland, a preferment of small value, to which he was presented by the Lord Chancellor King, to whom Mrs. Cockburn had been made known many years

before by Locke; but after he had held the two livings for about ten years, he was called upon by the bishop to reside upon that in England, the consequence of which was that he was obliged to resign his appointment at Aberdeen. During all this time Mrs. Cockburn found little leisure even for reading, and still less for writing. It must have been a strange privation to one previously so much occupied with literature as she had been. She describes how she was situated in an interesting passage of a letter which she afterwards wrote with the object of introducing herself to Pope, but which she never actually sent: "You had but just begun to dawn upon the world," she there says, "when I retired from it. Being married in 1708, I bid adieu to the Muses, and so wholly gave myself up to the cares of a family, and the education of my children, that I scarcely knew whether there was any such thing as books, plays, or poems stirring in Great Britain. However, after some years, your 'Essay on Criticism' and 'Rape of the Lock' broke in upon me. I rejoiced that so bright a genius was rising on our isle; but thought no more about you, till my young family was grown up to have less need of my assistance; and, beginning to have some taste of polite literature, my inclination revived with my leisure to inquire after what had been most celebrated in that kind. I then read your Homer." It was not

till 1726, after she had been married, and thus divorced from literature, for eighteen years, that she resumed her pen, and once more came forward as the defender of Locke, in a published 'Letter to Dr. Holdsworth,' a Fellow of St. John's College, Oxford, who had preached a sermon, which he afterwards printed, professing to examine and answer "the cavils, false reasonings, and false interpretations of Scripture, of Mr. Locke and others, against the resurrection of the same body." And, when Holdsworth returned to the subject the following year in a 'Defence of the Doctrine of the Resurrection of the same Body,' Mrs. Cockburn drew up in reply 'A Vindication of Mr. Locke's Christian Principles from the Injurious Imputations of Dr. Holdsworth;' but for this she could find no publisher, and it remained in manuscript till it was given to the world by Dr. Birch in his edition of her collected works published in 1751.

From the date of her husband's resumption of his profession, and their removal to Aberdeen, their circumstances were considerably easier, and, her family having grown up, she had probably rather more leisure; but her literary pursuits were still much interrupted and carried on in the midst of many difficulties. In October 1732 we find her writing to her niece from Aberdeen;—"Sundays being privileged from the needle, I have found time of late to read three short pamphlets in answer

to 'Christianity as Old as the Creation,' by Dr. Burnet, which they say are the best that have been written on a subject that has for some time employed all pens and heads." The author of the three answers to Tindal's famous work here mentioned, a Dr. Thomas Burnet, was no connexion either of the bishop or of the Master of the Charter House.

The only literary performance which Mrs. Cockburn appears to have produced during her residence in Scotland is a 'Poem occasioned by the Busts [of Newton, Locke, and Clarke] set up in the Queen's Hermitage,' which may extend to above a hundred lines, and which is dated from Aberdeen, in August 1732, but was first printed in the *Gentleman's Magazine* for May 1737. She here laments her relegation from her native country, the obscurest corner of which she intimates that she would prefer to the northern clime in which it seemed to be ordained that the remainder of her years should be spent.

With these feelings, her return to England seems to have been like a recommencement of existence to her, or the awakening from a state of torpor. In the last stage of her life, notwithstanding broken health and some sharp sorrow, her intellectual and literary activity emulated what she had displayed at the outset of her career. In 1739 she boldly set out upon what we may call a voyage

round the world of metaphysics in 'Remarks upon some writers in the Controversy concerning the Foundation of Moral Duty and Moral Obligation; particularly the translator of Archbishop King's *Origin of Moral Evil* [Dr. Edmund Law, afterwards Bishop of Carlisle], and the Author of the *Divine Legation of Moses* [Warburton]; to which are prefixed some Cursory Thoughts on the Controversies concerning Necessary Existence, the Reality and Infinity of Space, the Extension and Place of Spirits, and on Dr. Watts's notion of Substance.' This piece, however, which was inscribed "with the utmost deference to Alexander Pope, Esq., by an admirer of his moral character," was not printed till the year 1743, when it was given to the world, without the name of the writer, in the *History of the Works of the Learned* (a monthly critical publication of that day) for August. Mrs. Cockburn here adopted Dr. Clarke's theory of the foundations of morality, namely, that the distinctions between virtue and vice are not created by the declarations or even by the will of the Deity, but arise out of eternal and immutable relations and essential differences of things. Meanwhile we find her still only able to snatch a little time for study now and then from household occupations and cares. In one of her letters written in 1740 she observes that her principal time for reading and writing was in the long winter evenings,

when her eyes did not serve her to sew by candle-light. In the summer, she says, she is so much employed at her needle that she reads little, and writes less. In 1743 she sustained a heavy blow in the death of a daughter. In a letter to her niece some time after this bereavement she writes ;—

“The unexpected loss of my poor child, who was so useful to me, and had been almost all her life with me, was indeed a severe affliction. She was a long time every moment in my thoughts. Whatever I turned my mind to, she mingled with it: all that I found in books was some way or other applied to her; and still there is not a day but she is frequently the subject of my reflections; nor do I endeavour to divert them from her, but make the best use I can of them. I sometimes imagine that I have now a nearer interest in another state than I had; and please myself with the hopes of joining her spirit there, and finding her rejoicing in her early escape from the evils of this world. Sometimes I consider how graciously Providence often makes our disappointments and crosses in one kind turn to our advantage in another.” Her strength had also by this time been much worn down by frequent attacks of asthma, to which she had been subject for many years. In November of the following year she again writes to her niece;—

“I have very little prospect of tolerable health for any continuance. My cough returned the begin-

ning of September, and held me about two months ; but is now succeeded by such a difficulty of breathing, that I do not know which is most grievous ; but between them I am reduced to great weakness." Yet she was at this time engaged upon a new metaphysical work, which proved to be the most elaborate and able of all her literary performances, her 'Remarks upon the Principles and Reasonings of Dr. Rutherford's Essay on the Nature and Obligations of Virtue, in Vindication of the Contrary Principles and Reasonings enforced in the writings of the late Dr. Samuel Clarke.' The Reverend Dr. Thomas Rutherford, whose 'Essay' appeared in 1744, had therein maintained the doctrine that the test and essence of virtue was its tendency to promote the good, properly understood, whether of the agent or others ;—in other words, was utility in the largest sense. When her tract was finished Mrs. Cockburn sent it to Warburton, whose theory on the subject of it was different both from Rutherford's and her own, and against whose views one of her previous works, as we have seen, had been in part directed. Warburton held that the distinction between virtue and vice was constituted by the arbitrary will, or pleasure, of the Deity. Notwithstanding this difference of opinion, however, he not only admitted the merit of the present work in the frankest and most cordial terms, styling it in a letter to the authoress "the

strongest and clearest piece of metaphysics that ever was written,"—but took upon himself the charge of finding a publisher for it; and when it appeared in 1747 it was introduced by a Preface from the pen of Warburton, in which he almost reiterated these strong expressions, declaring it to contain "all the clearness of expression, the strength of reason, the precision of logic, and attachment to truth, which makes books of this nature really useful to the common cause of virtue and religion," and describing Rutherford's female antagonist as having, "seconded by a fine genius, and infinite superiority in reasoning, given so thorough a confutation" of the Reverend Doctor's "exclusive, exterminating system, as is rarely to be met with in controversies on these subjects."

This work appears to have attracted much more notice than anything that Mrs. Cockburn had previously done. So general an interest was excited both by the intrinsic merits of the book, and by the sex, age, and circumstances of the writer, that she was induced by the advice of her friends to set about the preparation of a complete collection of her writings with the view of publishing it by subscription. But this task she did not live to see accomplished. The infirmities of age now pressed heavily upon one arrived at the verge of three score years and ten, with a frame debilitated by long disease. In August 1748 she

writes to her niece:—"There are about nine months in the year in which I am unable to write to my nearest friends, or on the most important business; much less can I apply myself to abstruse speculations." She continued, however, to take a lively interest in the subjects that had long so much occupied her mind. To a clergyman, who appears to have been desirous of discussing with her the great question of the essence or foundations of morality, she writes in March of this same year:—"Whenever your affairs will allow you to favour me with a personal conference, I shall esteem it a great obligation, as the advantage must be wholly on my side; for you will be much disappointed, sir, if you expect to encounter an able disputant. My companionable capacity (if I may so speak) has entirely left me; readiness of thought and expression, so necessary to conversation, are no more; but I can still hear with attention, and consider with impartiality, nor am I yet too old to learn. Your candour will give allowances for the decays of age, and the illnesses that have for some years attended it." At last in January 1749 she lost her husband, who appears to have been about a year older than herself; and this stroke probably shortened her own existence, which terminated on the 11th of May in the same year.

The history of Mrs. Cockburn's literary career is very peculiar in several respects. The first thing

that strikes us is the early age at which she acquired her first distinction in literature; and equally remarkable is the advanced period of life at which she made her most successful attempt as a writer. Then there is the wide diversity between the line of writing in which she began and that with which she ended, and the singular contrast between her earliest and her latest reputation; for, although the region of philosophical speculation may in one view be said to lie contiguous to that of poetry and fiction, as affording something of the same sort of mental exercise, yet the faculties which are called into exercise are very different in the one from what they are in the other, and nothing is rarer certainly than for a writer of either sex to commence as a dramatist and finish as a metaphysician. But the strangest singularity of all in Mrs. Cockburn's case is the long period of entire abstinence from authorship, and almost complete abstraction, indeed, from study and books, and every form of literary occupation or enjoyment, which separated like a gulf the commencing from the concluding portion of her literary career. First we have some eight or nine years of very active writing and publishing, and of apparently fast extending intercourse among the most distinguished literati of the day; then a sudden retirement from the world of letters, followed by about twenty years of obscurity and oblivion; then a resumption of the literary character, and its main-

tenance for twenty years more, with the recovery at last of a wider and higher celebrity than ever. So in one of our uncertain English days will a bright morning be sometimes suddenly overcast, and yet the wind and the rain be succeeded by a sunny afternoon or evening, all the balmier and more beautiful for the rough weather that has intervened. This ingenious and meritorious woman may be said to have created for herself a second life after her first was spent and gone. At an age when most people, especially after so long and wearing a struggle as she had undergone, would have been well contented with repose and insignificance, she determined still to try to make up for the time she had unavoidably lost, and succeeded in doing so. Her writings may be forgotten, and may never have been of much real value; but her example at least is worth remembering. Let others, who may at any time be situated as she was for so many years, take encouragement from the course and event of her fortunes. Never to despair is one of the best and highest lessons that any history can teach to man or woman; and it is also cheering and sustaining to learn how much work, especially of an intellectual kind, has often been done by an earnest will even in the closing period of life.

We can hardly quit this part of our subject without mentioning the greatest female name in philosophical speculation of more recent times.

perhaps of any time, that of Madame de Staël—sometimes spoken of, indeed, as having been at once the most illustrious literary woman on record, and the most brilliant of all the writers of her own age of either sex. But, although in a history of women of genius she would necessarily occupy a large space, she belongs to our present subject no farther than as an example of the extraordinary success which has been actually attained in literature by a female intellect. Her sex was the only difficulty that she had to overcome in her pursuit of knowledge or mental cultivation; and in her case even that could hardly be said to be a difficulty. The circumstance of her being a woman proved to her, perhaps, throughout her literary career, rather an advantage upon the whole than the contrary. It certainly at least tended to augment rather than to diminish the attention that her writings attracted, if it did not help to heighten the admiration that they excited. Nor had she to break through any impediments interposed by her sex even in her original application to study and literature. She was trained to that career from her childhood by the care and the example of a literary mother. The early history of that mother, though a far less distinguished person, is more to our present purpose. “The personal attractions of Mademoiselle Susan Curchod,” writes the historian Gibbon in 1789 or 1790 of a passage in his life then more than thirty years gone by,

“were embellished by the virtues and talents of the mind. Her fortune was humble, but her family was respectable. Her mother, a native of France, had preferred her religion to her country. The profession of her father did not extinguish the moderation and philosophy of his temper, and he lived, content with a small salary and laborious duty, in the obscure lot of minister of Crassy, in the mountains that separate the Pays de Vand from the county of Burgundy. In the solitude of a sequestered village he bestowed a liberal, and even learned, education on his only daughter. She surpassed his hopes by her proficiency in the sciences and languages; and, in her short visits to some relations at Lausanne, the wit, the beauty, and erudition of Mademoiselle Curchod were the theme of universal applause. The report of such a prodigy awakened my curiosity; I saw and loved. I found her learned without pedantry, lively in conversation, pure in sentiment, and elegant in manners; and the first sudden emotion was fortified by the habits and knowledge of a more familiar acquaintance. She permitted me to make her two or three visits at her father's house. I passed some happy days there, in the mountains of Burgundy, and her parents honourably encouraged the connexion. In a calm retirement the gay vanity of youth no longer fluttered in her bosom; she listened to the voice of truth and passion, and I might presume to b

that I had made some impression on a virtuous heart. At Crassy and Lausanne I indulged my dream of felicity; but on my return to England I soon discovered that my father would not hear of this strange alliance, and that without his consent I was myself destitute and helpless. After a painful struggle I yielded to my fate; I sighed as a lover, I obeyed as a son; my wound was insensibly healed by time, absence, and the habits of a new life. My cure was accelerated by a faithful report of the tranquillity and cheerfulness of the lady herself, and my love subsided in friendship and esteem. The minister of Crassy soon afterwards died; his stipend died with him; his daughter retired to Geneva, where, by teaching young ladies, she earned a hard subsistence for herself and her mother; but in her lowest distress she maintained a spotless reputation and a dignified behaviour." In course of time Mademoiselle Curchod became the wife of a countryman of her own, with whose name some years afterwards all Europe was to ring. James Necker, who was the son of a professor of law in the University of Geneva, set out in life as clerk in a Paris banking-house, but soon raised himself by his steadiness and his talents to an independent position, and by continuing his exertions was enabled to retire from business in possession of an ample fortune at the age of forty. His marriage with Mademoiselle Curchod had taken place several years before

this ; their celebrated daughter, who was their only child, was born at Paris in 1768. Madame Necker was not looked upon by the world in general as a very brilliant woman ; rather the reverse, indeed—partly, it may have been, in revenge for the boundless admiration with which she was always regarded and spoken of by her husband ; but, although it was only to him that she was either an oracle or a wit, she was certainly by no means destitute either of talent of a certain sort or of good sense. She gave to the world two literary works during her lifetime ; one upon Divorce, another upon Precipitate Interments ; and five volumes of her ‘*Mélanges*,’ or *Miscellanies*, were published by her husband after her death. She survived till 1796 ; Necker himself till 1804. Their daughter, who was named Anne Louise Germaine, and who was married to the Baron de Staël-Holstein, the Swedish ambassador at the French court, in 1786, had been educated with extraordinary care, and early evinced remarkable talent ; but, although she had previously written some slight dramatic pieces, the first of her productions which excited much attention was her ‘*Letters on the Works and Character of Rousseau*,’ which were published in 1788. This was followed by several political pamphlets in the course of the next ten or twelve years. But the work that first made her generally known over Europe as a writer was her novel of ‘*Delphine*,’ which appeared in

1803. It is curious, however, to observe how inadequate was still the estimate formed of her talents in quarters that accorded a very different reception to her subsequent works. The Edinburgh Reviewers began an article on 'Delphine' with—"This dismal trash, which has nearly dislocated the jaws of every critic among us with gaping," and ended by declaring that the badness of the principles of the book was corrected only by the badness of the style, and that the authoress would have been very guilty if she had not been very dull. The work, whatever may be thought of its morality, of which Madame de Staël herself afterwards published a defence or explanation, is unquestionably written with great power. It was followed in 1807 by her other novel of 'Corinne,' which raised her reputation to a still higher point. In noticing 'Corinne,' which it praised warmly for "the imagination, the feeling, and the eloquence displayed in it," the 'Edinburgh Review' almost retracted what it had said even about the principles of 'Delphine,' observing that the censure which had been directed against some of the former writings of the authoress for their immoral tendency had been bestowed "perhaps without due consideration." From this time to her death Madame de Staël kept her place in the front rank of European literature. Her 'Germany' (originally printed in 1810, but suppressed by the French Government) appeared in 1813; her 'Re-

reflections upon Suicide' the same year; her 'Considerations on the French Revolution' in 1818, after her death, which took place in July of the year preceding. In their article on this last work the Edinburgh Reviewers describe the deceased authoress as the most brilliant writer that had appeared in their days,—as the most powerful writer that her country had produced since the time of Voltaire and Rousseau,—and as "the greatest writer, of a woman, that any time or any country has produced;" and they add that in her various works, they do not hesitate to say, "there are more original and profound observations—more new images—greater sagacity combined with higher imagination—and more of the true philosophy of the passions, the politics, and the literature of her contemporaries"—than in any other author they can remember. There is a good deal here, no doubt, of the enthusiastic and unmeasured generosity of a declamation uttered as it were over the grave; but if, after due allowance has been made on that account, the ascent to this sublime height of panegyric from the contempt expressed fifteen years before for the dulness and the dismal trash of 'Delphine' may be taken as any tolerable representation of the progress of opinion in England on the subject of Madame de Staël in that space—and we should be disposed to think that it may—it is an instructive and encouraging instance of how surely true merit in a writer will

come to make itself be felt in the long run, however it may fail to be perceived at its first appearance. Genius has often, in truth, to create that state of the public mind which is required for its appreciation,—as the morning light may have to unseal the eyelids upon which it falls before it can be discerned.

CHAPTER III.

Female Critics—Letter-writers—Historians—Orators—Jurists—Medical Practitioners—Physiologists—Naturalists—Mathematicians—Astronomers.

THERE are several departments of literature in which it might seem that women were naturally fitted to excel at least quite as much as in philosophical or theological speculation, and yet to which their contributions have been comparatively very limited. Such are some branches of the *Belles Lettres*. It might be expected, for instance, that we should find numbers of female critics in every literary age. Yet, neither in the extensive field of verbal and grammatical criticism (including hermeneutics, or the science of interpretation, and philology as distinguished from the mere knowledge of languages), nor in that of rhetorical and æsthetic criticism, have women done almost anything. No woman has compiled either a dictionary or a grammar of her own or of any other language which is in any repute. The only work of this class, produced by a woman, that we recollect in our own literature is Mrs. Piozzi's very slight performance entitled 'British Synonymy, or an Attempt at regulating

the Choice of Words in Familiar Conversation,' published in 1794. Of the vast number of critical commentaries that exist upon the classics of ancient and modern literature, scarcely any have been executed by women: none, certainly, that are generally known, if we except two or three by Madame Dacier, and they are far from being of first-rate character. Even of translations pretending to anything of a learned or critical character we have very few by women; there are some by Madame Dacier; Lady Bacon's translation of Bishop Jewel's Apology for the Church of England from the Latin, Miss Carter's Epictetus from the Greek, and Miss Elizabeth Smith's Book of Job from the Hebrew are almost the only English ones that can be said to have attained an established reputation. There are also indeed Miss Elstob's and Miss Gurney's translations from the Anglo-Saxon, those of Miss Brooke from the Irish, and those of Mrs. Grant of Laggan from the Gaelic, all deserving of mention as attempts in this line out of the beaten track; and there are Lady Guest's Mabinogion from the Welsh, and Mrs. Austin's various translations from the German, which are in all respects among the most creditable performances of living female learning and talent. Nor indeed has the language many first-rate or even good translations to boast of altogether; translations of the highest order are rare in any

language; translation of one kind is the easiest of literary performances, of another is one of the most difficult; still, it seems strange that so little upon the whole should have been done or attempted by women in this way—that of all the English translations we possess, good, bad, and indifferent, of the works of the Greek and Roman writers, we should be indebted to a woman for that of Epictetus alone. Upon the philosophy of criticism no work which lives or is read has ever been written by a woman. Even in the present day, with all its comparative abundance and activity of female talent, it is a rare thing for a striking article in a review to be contributed by a woman. By far the most remarkable books of a critical kind that have proceeded from any female writer are Madame de Staël's 'Germany' and her previous work on Literature as connected with Social Institutions ('De la Littérature considérée dans ses Rapports avec les Institutions Sociales'). Almost the only English critical works written by women that have ever had any celebrity are Mrs. Lennox's 'Shakespeare Illustrated,' and Mrs. Montagu's 'Essay on the Writings and Genius of Shakespeare;' both performances of little worth, which a great subject and the circumstances of the writers (the one very poor, the other very rich) for a while kept buoyant, but which have long sunk into neglect and oblivion.

Another kind of writing in which it might be expected that many women would be found to have distinguished themselves is the Epistolary. Yet the only very celebrated Letters of women are those of Madame de Sévigné and of Lady Mary Wortley Montagu. Of all our English female writers Lady Mary had perhaps the most robust intellect, the one endowed with most of masculine vigour, yet remaining still essentially and in all its qualities that of a woman. In her, and perhaps in her alone, instinct and intuition assume the certainty and comprehensiveness of reasoning. Yet she writes with as much liveliness as if she could not reason at all. If we are ever to have any more letters equal to those of Lady Mary Wortley Montagu there is no pen from which we should sooner expect them than from that of her granddaughter, Lady Louisa Stuart, still surviving among us at the age of ninety, who is understood to have all her life kept up an active correspondence with an extensive circle of friends, and who ten years ago surprised and delighted the world with a detailed memoir of Lady Mary, written with all the freshness and vivacity of five-and-twenty, and in all respects worthy of Lady Mary herself.

But, perhaps, among all the great departments of literature the one in which women have done and attempted the least is that of History. No historical work by a woman has come down to us

from the ancient world ; although Tacitus in his *Annals* quotes the *Commentaries* of the younger Agrippina (the mother of Nero), which contained her own life and the history of her family, and Pamphila, a lady according to some of Egyptian descent, who lived in the same age, the earlier part of the first century of the Christian era, is said to have written several histories in the Greek language, of which various accounts are given, and Zenobia, the famous Queen of Palmyra, in the latter part of the third century, is spoken of as having written, also in Greek, an epitome of the history of Egypt and the East. The most celebrated historical work which has proceeded from a female pen is the ' *Alexiad* ' of Anna Comnena, who lived towards the close of the eleventh century. She was the daughter of the Emperor Alexius Comnenus I., and the ' *Alexiad*,' which is written in Greek and extends to fifteen books, is a history of the reign of her father. " *Conscious*," says Gibbon, " of the just suspicion of her readers, the Princess Anna Comnena repeatedly protests, that, besides her personal knowledge, she had searched the discourse and writings of the most respectable veterans ; that, after an interval of thirty years, forgotten by, and forgetful of, the world, her mournful solitude was inaccessible to hope or fear ; and that truth, the naked perfect truth, was more dear and sacred than the memory of her parent. Yet, instead of the

simplicity of style and narrative which wins our belief, an elaborate affectation of rhetoric and science betrays in every page the vanity of a female author." The 'Alexiad,' however, though chargeable with a good deal of inaccuracy or indistinctness unconnected with the natural partialities of the writer, has preserved some curious and important facts; and the composition, though rather ambitious, is generally spirited and sometimes eloquent. In modern times, many women have left valuable materials for history in memoirs or sketches of the transactions and events of their own day, or of those in which themselves or their near connexions have been concerned, in most instances written without any view to publication and not published till long afterwards; such as Christina of Pisa, Louisa of Savoy, Margaret of Valois, Marie de Longueville Duchess of Nemours, Madame de Motteville, Mademoiselle de Montpensier, Madame de la Fayette, Madame de Caylus, Madame de Staal, Madame Roland, Madame Campan, Madame de Sapinaud, Madame de Larochejacquelein, among the French, and Mrs. Hutchinson among ourselves; but modern literature contains no history, properly so called, written by a woman which has become a standard work. The most aspiring female attempt that we have in this line is probably Mrs. Macaulay's History of England from the accession of James I. to the Restoration,

in five volumes quarto,—which has now, however, become waste paper.

On the other hand, women have made some figure in various kinds of intellectual exertion or enterprise from which it might be thought that their sex would have almost excluded them, or for which they would seem to have little natural vocation. Several women, for instance, have distinguished themselves in public oratory. Hortensia, the daughter of the great Roman orator Hortensius, is celebrated for a speech which she delivered before the triumviri Antony, Octavius, and Lepidus, in the century before the birth of Christ, against a decree which had been issued to compel a large number of wealthy Roman ladies to declare the amount of their property for the purposes of taxation, and which was successful in rescuing the greater part of them. It would appear from Quintilian that the speech was afterwards published. In the fifteenth century a Venetian lady, Isotta Nogarola, a member of a family illustrious for many remarkable examples of female talent, is recorded to have pronounced several discourses before Popes Nicholas V. and Pius II., and was reputed the greatest orator of her day. She also delivered public lectures on the New Testament and the works of St. Augustine and St. Jerome. Isotta Nogarola, who was held in high esteem by Cardinal Bessarion, died in 1466 at the age of

thirty-eight. We have already mentioned the public exhibitions of her countrywoman Fedele Cassandra before the University of Padua in the latter part of the same century. In the next century Francesca, the daughter of the learned Antonio of Lebrixa, or Lebrijo (called in Latin Antonius Nebrissensis), the restorer of learning in Spain, was an accomplished rhetorician; and used to occupy her father's chair in the University of Alcala whenever illness or any other cause made it inconvenient for him to lecture himself. Olympia Fulvia Morata, who was born at Ferrara in 1526, is celebrated both for her learning and her extraordinary powers of extemporaneous eloquence. Having become a Protestant, she soon after married a young German physician, Andrew Grunther, and they left Italy and settled at Schweinfurt in 1548; but they were almost immediately driven thence by the entrance into the place of the imperial troops, and for some years they wandered about Germany in great distress, till at last in 1554 the Elector Palatine appointed Grunther professor of Physic and his wife professor of Greek in the University of Heidelberg. By this time, however, the health of Olympia was ruined, and she died the next year at the early age of twenty-nine. A collection of her writings, consisting of Letters, Dialogues, Latin Orations, and Greek Poems, was published by Celio Secondo Curione at Basil in

1558. In the earlier part of the next century Julienne Morelle, a native of Barcelona, is affirmed to have held public disputations at Lyons on several theses in philosophy when she was only twelve years old. Besides being such a prodigy of precocity, she is said to have known fourteen languages, and to have been also well acquainted both with law and with music. She became a Dominican nun in 1610, and died in the convent of Saint Praxedes at Avignon in 1653. In the latter part of the same century Veronica Maleguzzi, the daughter of a nobleman of Reggio, published, besides other works both in prose and verse, two philosophical theses which she had maintained in public disputation at Parma, and in one of which she had the honour of having for her opponent the Cardinal Charles Roffelt. She afterwards retired into the Convent of the Visitation at Modena, and there spent her last days in great sanctity. Several religious women, both foreign and English, have figured as preachers in different ages. Thus, in the earlier part of the sixteenth century Isabella de Roseres, otherwise called Isabella de Joie, a Spanish lady, is related to have preached in the Cathedral of Barcelona with immense applause, and, having afterwards come to Rome, to have exhibited there in the same way with such effect as to convert a considerable number of Jews.

Among more recent instances of this sort we shall mention only that of a Mrs. Aubin, who appears to have flourished in the last century. Her story, as told in the dictionaries, is, that she was the daughter of a French officer, but was born in London, and that, being without even the personal attractions by which she might have had a chance of gaining a husband, when she was left destitute she had no other resource but her pen, which she first employed in producing several anonymous pamphlets, and then in writing a novel or romance to which she put her name, and which at first attracted some attention, owing probably to the sex of the author. When she brought out a continuation of it, however, the attempt met with so little encouragement that the poor woman soon relinquished it in vexation and disgust. Cured in this way by misfortune and suffering of love of the world, she now, we are told, gave herself up to the love of God, and from writing novels turned to the writing of sermons. Her scheme would appear to have been to sell her sermons in manuscript to clergymen; but clergymen desirous of such assistance were not to be found in sufficient number; upon which she resolved to set up her own pulpit and preach them herself. The novelty of the thing for a time attracted great crowds, and Mrs. Aubin was making more money than she had done

by any of her previous speculations; but she had only begun to enjoy her good fortune when she was taken ill and died.*

The thorny science of the law has also been a female study. The Roman Hortensia, who has just been mentioned, seems to have been rather an eloquent pleader than a learned lawyer; but several Italian ladies of the middle ages are renowned as jurists. The great glossator, Francis Accorso, or Accursius, who was professor of law at Bologna in the end of the twelfth and beginning of the thirteenth century, is said to have had a daughter who read lectures on the same science in the same university. To nearly the same age belongs another learned Italian lady, Bettisia Gozzadina, who was born at Bologna, where her family was noble, in 1209, and, after having made such progress in general scholarship that at the age of twenty-three she pronounced an eloquent funeral oration in Latin of her own composition in the principal church of her native city, applied herself to the study of law, had the degree of Doctor conferred upon her by the university, and at last in 1239 was appointed to one of the juridical chairs, which she continued to occupy till her death ten years after, acquiring great reputation by her lec-

* Dictionnaire Historique des Femmes Célèbres; 3 tomes; Paris, 1769.

tures, and also by the works which she published—all of which, however, have been long universally forgotten. Another great Bolognese light of the law, Joannes Andreæ, who, after being forty-five years a professor in the university there, died in 1348, had two daughters, who both became celebrated lawyers. Both were married to eminent canonists: the elder, Bettina, or Bitina, to Giovanni di Santo Georgio, who held a professorship first at Bologna and subsequently at Padua; the younger, called Novella, to Giovanni Calderini, a nobleman of Bologna, by the head of whose house Joannes Andreæ, who was of illegitimate birth, had been long before adopted, in consequence of which he assumed the family name, and both his daughters came to be designated Calderini or Calderina. The former is said to have been in the habit of taking her husband's place at Padua, the latter that of her father at Bologna, whenever it was inconvenient for the learned professors to appear; and both are reported to have always given great satisfaction on such occasions. One is not surprised, indeed, to learn that such a substitution now and then was rather popular among the students.

Even the remaining learned faculty of Medicine has had its female students, as well as Divinity and Law. Indeed in very early times, and also in the middle ages, medicine and surgery were professed by women as commonly as by men. The classical

reader will remember the fabulous Medea and her sister Anguitia. Female practitioners of the healing art are of constant occurrence in the romances of chivalry—not unfrequently occasioning an incident like what happened to the famous Tristram, as the story is told by Scott:—

“No art the poison might withstand ;
 No medicine could be found,
 Till lovely Isolde’s lily hand
 Had probed the rankling wound.
 With gentle hand and soothing tongue
 She bore the leech’s part ;
 And, while she o’er his sick-bed hung,
 He paid her with his heart.”

Nor were such functions discharged only by high-born ladies living in courts and castles ; the treatment of diseases, and especially the cure of wounds, formed, in those times of continual bloodshed and bone-breaking, an important part of the occupation and duty of the members of every female religious community—as it still is, indeed, in Roman Catholic countries, of those of certain orders. Two of the most famous female doctors of the twelfth century were Margaret and Pontia, the nieces of Peter the Venerable, Abbot of Clugni, who were Benedictine nuns of Marcigni. Even in England a considerable part of the medical practice in the country was in the hands of females down to a comparatively recent date. In an act of parliame

passed in 1543, for the purpose of keeping within due bounds the recently incorporated Physicians and Surgeons, it is declared that "the most part of the persons of the said craft of Surgeons have small cunning, yet they will take great sums of money, and do little therefore, and by reason thereof they do oftentimes impair and hurt their patients rather than do them good"—and that ever since their establishment the said "company and fellowship of Surgeons of London, minding only their own lucre, and nothing the profit or ease of the diseased or patient, have sued, troubled, and vexed divers honest persons, *as well men as women*, whom God hath endued with the knowledge of the nature, kind, and operation of certain herbs, roots, and waters, and the using and ministering of them to such as been pained with customable diseases, as women's breasts being sore, a pin and the web in the eye, uncomes of hands, burnings, scaldings, sore mouths, &c." And liberty is given to every subject of the king having knowledge and experience of the nature of herbs, &c., to continue to undertake the treatment of wounds, tumours, and all common diseases, as before. In the succeeding century the learned and pious Lady Halket, who has been already mentioned, was especially noted for her knowledge of and practical skill in medicine. "Next to the studies of divinity," says Ballard, "she seems to have taken most delight in

those of physic and surgery, in which she was no mean proficient; nay, some of the best physicians in the kingdom did not think themselves slighted when persons of the greatest quality did consult her in their distempers, even while they attended them as their ordinary physicians. Many from England, Holland, and the remotest parts of the kingdom, who wanted not the advice and help of skilful physicians, have sent to her for things of her preparing; and many, whose diseases have proved obstinate under all the methods of physicians, have at length, by the physician's own advice, been recommended and sent to her care, and have been recovered by her." And women, it appears, are still sometimes made Doctors of Medicine. The newspapers the other day, in announcing that Madame Hahnemann, the widow of the founder of Homeopathy, had been condemned by the Correctional Tribunal at Paris to pay a fine of a hundred francs for acting illegally as a medical practitioner, stated that she pleaded in defence that she had received a doctor's diploma from a university in Pennsylvania.

Physiology and the various natural sciences have also a few female names to boast of. An American lady has lately published a clever exposition of a new theory of the circulation of the blood. The dictionaries give an account of a Donna Oliva Sabuco de Nantes, a native of Alcaraz in Spain,

who lived in the latter part of the sixteenth century, and excited great attention in her day by a new physiological and medical system, founded upon the principle that the body is not nourished by the blood but by the white matter occupying the cavity of the nervous tissues, which she considered to be derived from the brain, and that the vitiation of this vital dew, as she called it, is the cause of almost all diseases. Her notions, in vindication of which she published several works, are said to have been eagerly and extensively taken up in England. Among the writers of some distinction in Natural History is a German lady, Maria Sibylla Merian, who was born at Francfort in 1647, and was the daughter of Matthew Merian, an engraver, of Dutch descent or birth, by whom when young she was placed under the tuition of Abraham Mignon, or Minjon, the celebrated flower and fruit painter, with a view to her being educated for the profession of an artist. She had early indicated a talent for painting, and under Mignon's instructions she in a remarkably short time learned to draw fruits, flowers, shells, and insects with great exactness, delicacy, and beauty. Aspiring, however, to something beyond this ocular and manual faculty, she applied herself also to the study both of natural history and of the Latin language. When she grew up she married Adrian Graaf, a painter and architect of Nuremberg; but

she still industriously continued her studies; and in 1679 she published the First Part, and in 1683 the Second Part, in Dutch, of a 'History of the Insects of Europe.' In 1698 she undertook a voyage to Surinam, for the purpose of making drawings of the numerous insects of that country from nature, all of which that she could obtain specimens of she painted during a stay of two months. Her drawings, which on her return she presented to the magistrates of Amsterdam, are still preserved in the stadt-house of that city. In 1705 she published in Latin a 'Dissertation on the Insects of Surinam,' accompanied by copperplates of great beauty. Both these works used to be held in great estimation. A French translation of the former was published at Amsterdam in 1730; and a second edition of the latter, with a French translation, at the Hague in 1726. The ingenious authoress died in 1717, leaving two daughters, one of whom, Dorothea, added a Third Part to her mother's 'History of the Insects of Europe.' The great '*Historia Conchyliorum*' (or History of Shells) of the English naturalist Dr. Martin Lister, published in Five Parts, making one volume folio, between 1685 and 1693, a work of the highest reputation, is composed simply of a series of plates, the designs for which were all executed by Lister's daughters under his superintendence and direction. In Botany, again, we may mention the names of

Elizabeth Blackwell, the author of a work entitled 'A Curious Herbarium,' published in 1739; and of Elizabeth Christina von Linné, one of the daughters of the illustrious Swedish naturalist, who discovered the luminous property of the flower of the *Tropæolum* (*Nasturtium* or *Cress*), of which an account was sent by her to the Royal Academy of Sciences of Stockholm. In another department we find the *Athenæum* of the 27th of March in the present year announcing, on the authority of a correspondent, the death, at Lyme Regis, at the age of forty-seven, of Mary Anning, who is described as "of European fame as a discoverer of fossils—more particularly those of the *Ichthyosaurus*, *Plesiosaurus*, *Pterodactyle*, and many fish in the blue lias of that locality." "Born a dull infant," the notice proceeds, "she was taken by her nurse, while yet in arms, to an exhibition of equestrian performances in a field. A sudden shower caused this woman and many others to seek for shelter beneath a tree, where they were struck dead by a flash of lightning. Some one took the infant Mary Anning from among the group of dead, and put her into warm water; upon which she revived, and was ever after a lively girl." This is something far beyond the electric telegraph. The great *Ichthyosaurus* now in the British Museum, it seems, was purchased by Mr. Hawkins from Miss Anning.

But, what one would not expect, the mechanical and mathematical sciences are those in which women have most distinguished themselves. Our own old literary historians, oddly enough, have chosen to attribute the invention of the art of fortification to a woman, Cambra, the daughter of King Belinus, who is made to have been the brother of the famous Brennus, the Gallic invader of Rome nearly four centuries before the birth of Christ. The scientific pretensions of the Princess Cambra, however, are somewhat out of date; and it will be sufficient if we select a few examples from the period that has elapsed since the revival of letters, without troubling ourselves with what may have happened before their birth.

The first instance we shall mention is that of Madame Jeanne Dumée, who lived in the latter part of the seventeenth century, and is said to have written a work on the Copernican System—'Entretiens sur l'Opinion de Copernic touchant la Mobilité de la Terre'—which is much praised for the clearness of its explanations. It is very doubtful, however, if this work was ever printed; no copy of it has been seen in recent times; and all the old notices of it appear to be taken from an article about it in the *Journal des Savans* for 1680, which may very possibly have been prepared from the perusal or inspection of the manuscript. That article would seem at any rate to establish

the fact that the work had actually been written. Some of the accounts state that it was printed at Paris and in quarto. It is related that Madame Dumée, who was a native of Paris, had been left a widow at the youthful age of seventeen, her husband, who was a military officer, having been killed at the head of his company in Germany, and that she then dedicated the rest of her days to the study of astronomy. It does not appear to be known how old she was when she published or wrote her book, or when she was born, or when she died.

Maria Cunitz, the authoress of a book of astronomical tables entitled 'Urania Propitia' published at Oels in Silesia in 1650, and at Francfort in 1651, was born at Schweidnitz in that country about the beginning of the seventeenth century. She had received a learned education, including the ancient and modern languages and medicine, as well as the mathematics; but when she grew up she devoted herself chiefly to astronomy and astrology. About the year 1630 she married a M. de Lewen, a countryman of her own, who had been her tutor in mathematical science; and the two appear to have henceforward pursued their studies together. The object of the book of astronomical tables was to get rid of the use of logarithms in employing the tables published by Kepler, by far the best then existing; and its preparation was at least a work of great labour. After it had been

begun M. Lewen and his wife were forced to quit Schweidnitz by the Thirty Years' War, and it was completed in a Polish convent, into which they were received. In a Preface Lewen states that it is entirely the work of his wife, with the exception only of a few corrections made by himself. All that is further known of Maria Cunitz is that she was still alive in 1669.

But the greatest number of scientific ladies, and also the most celebrated names, belong to the eighteenth century. At the head of the list stands Gabrielle-Emilie le Tonnelier de Breteuil, Marquise du Châtellet, the French translator of Newton's *Principia*. She was the daughter of the Baron de Breteuil, was born in 1706, and was married to the Marquis du Chastellet, or Châtellet, when very young. Voltaire became acquainted with her in 1733, and he has described what he found her to be in the Memoir which he has left us of a part of his life. Her father, he says, had caused her to be taught Latin, and she knew that language as well as Madame Dacier. She had by heart the finest passages of Horace, Virgil, and Lucretius; all the philosophical writings of Cicero were familiar to her. But her predominating taste was for the mathematics and metaphysics. There had rarely been united in any one more correctness of judgment with more taste and ardour for the acquisition of knowledge. Nor was she for all

the less attached to the world and to all the amusements proper to her age and sex. Yet she had given up everything to go and bury herself in an old dilapidated château, situated in a barren and wretched country, on the borders of Champagne and Lorraine. She had, however, made this country house, at Cirey, an agreeable retreat for study and philosophical intercourse. Pleasant gardens, with which the marchioness had embellished it, a good collection of philosophical instruments which Voltaire formed, and an extensive library, enabled Maupertuis, John Bernoulli, and other distinguished literary and scientific visitors, who sometimes came to spend a few weeks or months, both to enjoy themselves and to pass their time not unprofitably. Voltaire resided here for about six years. He taught the marchioness English, and, he says, at the end of three months she knew the language as well as himself, and was equally able to read Locke, Newton, and Pope. Italian she acquired with the same facility; Voltaire and she read several of the Italian poets together; and when Francesco Algarotti came to Cirey to finish his work entitled 'Newtonianismo per le Dame' (Newtonianism for the Ladies), she was able to converse with him in his own tongue, and to give him many valuable suggestions. "We sought for nothing," continues Voltaire, "in this delicious retreat except to cultivate our understandings.

without taking any trouble to inform ourselves about what was passing in the rest of the world. Our chief attention for a long time was given to Leibnitz and Newton. Madame du Châtellet at first attached herself to Leibnitz, and gave an explanation of a part of his system in a work written with great ability, which she called 'Institutions de Physique' (Institutions of Natural Philosophy). She did not seek to decorate this philosophy with ornaments foreign to its nature; no such affectation belonged to the character of her mind, which was masculine and true. Clearness, precision, and elegance were the constituents of her style. If it has ever been found possible to give any plausibility to the notions of Leibnitz, it is in that book that it has been done." The work was published at Paris in 1740, and a second edition of it appeared at Amsterdam two years after. Madame du Châtellet's first literary attempt, however, was an Essay on the Nature and Propagation of Fire, which she had written in 1738 for a prize offered by the French Academy of Sciences. Voltaire was also a competitor on this occasion, and both his performance and that of the marchioness were very honourably mentioned in the report of the adjudicators; nor could either feel mortified when the prize was carried off by Euler. The 'Institutions de Physique' has received high commendation from the most competent authorities, as well as from

Voltaire. "This work," says the writer of the article on Madame du Châtellet in the *Penny Cyclopædia*, "is a series of letters, in which the systems of Leibnitz and of Newton (the latter then almost new in France) are explained in a familiar style, and with a degree of knowledge of the history of the several opinions, and of sound language and ideas in their discussion, which we read with surprise, remembering that they were the production of a Frenchwoman thirty years of age, written very few years after the introduction of the Newtonian philosophy into France. She takes that intermediate view between the refusal to admit the hypothesis of attraction, and the assertion of it as a primary quality of matter, from which very few who consider the subject would now dissent. At the end of this work is an epistolary discussion with M. de Mairan on the principle of *vis viva* [the vital energy], the metaphysical part of which then created much controversy." - Madame du Châtellet's great work, her translation of Newton's *Principia*, was published at Paris in 1759. The translation is accompanied by a commentary containing a popular account of the Newtonian System, investigations of various points by the continental analysis without the geometrical methods of Newton, and other subsidiary information, which is stated to have been drawn up by the Marchioness from the lessons of the eminent astronomer Clairaut,

who had been her instructor in mathematics, and by whom also both the commentary and the translation were revised and the work edited. The translation stands so high that it has been used by Delambre in his 'History of Astronomy' whenever he has to make a quotation from Newton. Madame du Châtellet had been dead for ten years when the work appeared. Her life is supposed to have been shortened by her close application in preparing it; and she died at the age of forty-three in August 1749. Although principally devoted to science, she was fond also of literature and of historical studies. It was for her that Voltaire, about the year 1740, began his celebrated 'Essai sur les Mœurs et l'Esprit des Nations,' or Universal History, which, however, was not published till 1756.

Another distinguished name belonging to the same age and country is that of Madame Lepaute; and in her case the highest scientific acquirements were crowned with all the moral virtues. Her original name was Nicole-Reine Etable de Labrière, and she was born at Paris in January 1723. From her childhood she had shown a turn or a love for the sciences; but her methodical studies seem to have commenced after her marriage with Jean-André Lepaute, the eminent Parisian chronometer or clock maker, which took place when she was five-and-twenty. Her husband was her senior by fourteen years; but, if she was his pupil at first, she

soon became his invaluable assistant, the sharer of his studies and the lightener of his labours. In Lepaute's great work, his 'Traité d'Horlogerie' (Treatise on Horology), published in 1755, there appeared a Table of the Lengths of Pendulums by his wife. Other contributions to various scientific publications followed; but Madame Lepaute's most important and memorable achievement is the part she had in the performance of the toilsome calculations for Clairaut's investigation of the perturbations of Halley's comet, the expected return of which already began to occupy the astronomical world in 1757. The story may be found told at length in an article on the comet in the *Companion to the Almanac* for 1835. The investigation was proposed to Clairaut by Lalande; but Clairaut declined undertaking it alone, on which Lalande offered to take upon himself all the astronomical part of the calculations. For this purpose he obtained the co-operation of Madame Lepaute, who was well known both to him and Clairaut. "During six months," says Lalande, "we calculated from morning till night, sometimes even at meals; the consequence of which was, that I contracted an illness which changed my constitution for the remainder of my life. The assistance rendered by Madame Lepaute was such, that without her we never could have dared to undertake this enormous labour, where it was necessary to calculate for every

degree, and for 150 years, the distance and force of each of the two planets [Jupiter and Saturn] with respect to the comet." It had at first been thought that it would be enough to calculate the action of Jupiter; but it soon appeared that it would be necessary to examine that of Saturn also; and even when Clairaut at last announced that the comet would, according to the calculations, arrive at its perihelion, or point nearest to the sun, on the 13th of April 1759, he intimated that the imperfection of the method might occasion an error as great as a month, and also that its movement might be still further affected by the existence of some undiscovered planet more distant from the sun than Saturn. The discovery of the planet Uranus afterwards verified this conjecture. In point of fact, the comet came to its perihelion on the 13th of March 1759, and it was first seen on the 25th of the preceding December. Clairaut in the account which he published in the following year (*Théorie du Mouvement des Comètes*) suppressed all mention of Madame Lepaute, in subservience, Lalande afterwards stated, to the jealousy of another lady, to whom he was attached; but in his letters written to Lalande while the calculations were going on he had admitted her services in the frankest terms; speaking of her as the learned calculatress ("la savante calculatrice"), and remarking that her ardour was surprising. She afterwards assisted Lalande in other calculations,

till her application so much weakened her sight as to oblige her to desist. The close of Madame Lepaute's history is interesting and affecting. Her husband having fallen into a state of mental imbecility, as well as bodily illness, she watched over him for seven long years with a tenderness and patience which nothing could wear out or tire, till she sank at last under her fatigues in December 1788, leaving M. Lepaute, who was now too ill to perceive his loss, to follow her to the tomb after an interval of about four months.

An Italian lady who was the contemporary of Madame du Châtellet and Madame Lepaute, but who survived them both, was perhaps a person of higher scientific genius and acquirements than either. Maria Gaetana Agnesi, indeed, would be a prodigy even without her sex being taken into account. She was born at Milan in 1718. Some accounts speak of her father as having been a tradesman; and he may have been in some line of business at one time of his life; at any rate he came to be a professor in the university of Bologna. In 1738, when Maria Agnesi was only twenty, there was published at Milan a collection in Latin of nearly two hundred philosophical propositions embracing every branch of both natural and moral science, which it was declared on the title-page she had been in the habit of explaining extemporaneously, and defending from objections in frequent

disputations held at her own house in the presence of learned men of the highest eminence. And it appears from the Preface that a number of the theses had been in circulation for some time. One of them, the Third, is to the following effect :—“ That the weaker sex has done its part well in every department of philosophy it is impossible to deny ; for, besides the seventy women, or thereby, remarkable for their learning whom Menage enumerates, we know that there have been many others in every age who have attained the greatest distinction in philosophical studies. It appears therefore that the female mind too has been adapted by Nature for every kind of science and learning ; so that those deal somewhat unjustly with women who would altogether exclude them from intellectual pursuits, the more especially inasmuch as their taking a part in such pursuits would be not only harmless but of eminent utility both privately and publicly.” The Latin is flowing and luminous, and certainly in all respects much above the average of modern Latin. It would seem to have been shortly after the appearance of this publication, or about the year 1740, that the Signorina Agnesi was seen by a French gentleman, the President De Bosses, who has given an account of her in his ‘Letters on Italy.’ He describes himself as having been taken to her father’s house at Milan, where he found her seated under a canopy, with her sister by her side.

and about thirty people, many of them foreigners from different parts of Europe, forming a circle around them. Maria appeared to be about eighteen or twenty, and, although she could hardly be called handsome, she had a fine complexion, and an air of great simplicity, softness, and feminine delicacy. "I had conceived," he says, "when I went to this conversation party, that it was only to converse with this young lady in the usual way, though on learned subjects; but, instead of this, my introducer made a fine harangue to the lady in Latin, with the formality of a college declamation. She answered with great readiness in the same language." The two then, still speaking in Latin, entered into a disputation on the origin of fountains, and on the causes of the ebbing and flowing observed in some of them resembling the tides of the sea. De Brosses declares that she spoke on this subject like an angel, and that he never heard it treated in a manner that gave him more satisfaction. His friend, the Count Belloni, then desired him to start any other subject he chose, provided it were connected with mathematics or natural philosophy. "After making the best apology I could to the lady," he continues, "for my want of sufficient skill in the Latin language to make me worthy of conversing in it with her, we entered first on the manner in which the impressions made on the senses by corporeal objects are communicated to the brain or general sensorium; and after-

wards on the propagation of light and the prismatic colours. Another of the company then discoursed with her on the transparency of bodies, and on curvilinear figures in geometry, of which last I did not understand a word." He adds,—“She spoke wonderfully well on all these subjects, though she could not have been prepared beforehand, any more than we were. She is much attached to the philosophy of Newton; and it is marvellous to see a person of her age so conversant with such abstruse subjects. Yet, however much I was surprised at the extent and depth of her knowledge, I was still more amazed to hear her speak Latin with such purity, ease, and accuracy, that I do not recollect any book in modern Latin written in so classical a style as that in which she pronounced these discourses. The conversation afterwards became general, every one speaking in the language of his own country, and she answering in the same language; for her knowledge of languages is prodigious. She told me that she was sorry that the conversation at this visit had taken so much the formal turn of an academical disputation, and that she very much disliked speaking on such subjects in numerous companies, where, for one that was amused, twenty were probably tired to death.” An important peculiarity in this case, distinguishing it from other reported wonders of a similar kind, is, that the report is to a great extent borne out by

evidence which cannot be suspected of exaggeration. In addition to the 'Propositiones Philosophicæ' published at Milan in 1738, we have a work by Maria Agnesi published in 1748 at Bologna, her 'Instituzioni Analitiche ad uso della Gioventù Italiana' (Analytical Institutions for the use of the Italian Youth), in two volumes quarto. This has been lately described by Professor de Morgan as "a well-matured treatise on Algebra and the Differential and Integral Calculus, inferior to none of its day in knowledge and arrangement, and showing marks of great learning and some originality."* Long ago the eminent Italian mathematician Frisi publicly designated it as certainly the greatest work which had up to that day come from the pen of a woman. And such it will probably be allowed still to be, at least in the region of science, if we except only 'The Mechanism of the Heavens' and 'The Connection of the Physical Sciences' by our distinguished living countrywoman Mrs. Somerville. A translation of a portion of the 'Instituzioni Analitiche' was inserted by the French mathematician Bossut in a course of Mathematics which he published in 1775, as the best treatise he could present to his readers on the elements of the Differential and Integral Calculus; and a complete English translation of the work,

* Biographical Dictionary of the Society for the Diffusion of Useful Knowledge.

which had been made long before by the Rev. John Colson, Lucasian professor of mathematics at Cambridge, the commentator on Newton's Fluxions, was published in two volumes quarto in 1801, at the expense of Baron Maseres, under the inspection of the Rev. John Hellins. In 1750 the father of Maria Agnesi, who by this time at least was become a professor at Bologna, obtained the Pope's permission that his daughter should occupy his chair during an illness under which he was then labouring; but she appears to have officiated in this capacity only as her father's substitute and during his life-time. De Brosses mentions his having heard ten years before that she intended to go into a convent and take the veil, "not," he says, "from want of fortune, for she is rich, but from a religious and devout turn of mind, which disposes her to shun the pleasures and vanities of the world." This early wish she carried into effect after her father's death by retiring into a convent of Blue Nuns at Milan, where she passed the rest of her life, and where she died in her eighty-first year on the 9th of January 1799.

At the same time with Maria Agnesi there existed at Bologna another learned and scientific lady of whom nearly as extraordinary things are told, Maria Caterina Bassi. She was a native of Bologna, having been born there in 1711. Her father, who was a Doctor of Laws, gave her

learned education, and she showed from her earliest years the strongest passion for reading and study. Such was the progress she made that on the 17th of April 1732, when she was in her twenty-first year, she in the presence of the cardinals Lambertini and Grimaldi maintained a philosophical thesis in public disputation against seven celebrated professors, replying to all their objections in the most elegant Latin, so as to draw forth the applauses of all the assembly. On the 12th of May following the university conferred upon her the degree of Doctor of Philosophy; and two collections of laudatory verses were soon after published at Bologna in celebration of the event. The same year the Senate appointed her to a chair in the university, with a respectable salary, and liberty to lecture on any subject in the faculty of philosophy that she might prefer. She selected natural philosophy, to which, it seems, and to the connected studies of algebra and geometry, her genius was most inclined. Yet we are told she by no means neglected literature; she was an excellent Greek scholar, and had written, it is said, an epic poem in her own language on the Italian wars of the seventeenth century, which, however, has not been printed. When she was first appointed to her professorship a medal was struck in her honour, with her portrait on one side, and on the other Minerva showing herself, with a lighted lamp in

her hand, to a young girl, with the inscription *Soli cui fas vidisse Minervam* (To the only one to whom it has been permitted to behold Minerva). Signora Bassi in 1738 married Giovanni Giuseppe Veratti, a doctor of medicine, by whom she had several children; and she survived till February 1778. The following description of her is given by the writer of a letter published in one of the volumes of the *Bibliothèque Italique*:—"Her face, which is slightly pitted with the small-pox, is gentle, serious, and modest in its expression; her eyes dark and keen, but firm and composed, without any appearance of affectation or vanity; she possesses a happy memory, with a solid judgment, and a ready fancy. She spoke to me fluently in Latin for an hour, with grace and precision. She is very learned in metaphysics, but her taste draws her more towards modern physical philosophy, and especially that of the English. She appeared to me to be extremely well versed in the various scientific systems; at least she replied ably to all my questions touching vegetation, the origin of fountains, the flowing and ebbing of the sea, light, colours, sounds, the motions of the planets, and several other matters. She is at present studying the mathematics in order to put herself in a condition to read the Newtonian philosophy."* But it does not

* Article by Ginguané in *Biographie Universelle*.

appear that anything of Maria Bassi's has been published; and we have no evidence that her scientific acquirements ever came to approach those of Signora Agnesi.

One other distinguished name can scarcely be forgotten or omitted here, although its honoured and venerable possessor still lives, connecting the present with the last age. Caroline Herschel, the sister of the illustrious Sir William Herschel, was, as is well known, the associate of her brother, both in the business of observation and in that of calculation, throughout the whole of his splendid career. Four comets are enumerated as discovered by her; one on the 1st of August 1786, another on the 21st of December 1788, another on the 7th of January 1790, another on the 8th of October 1793. After the death of her brother on the 23rd of August 1822, Miss Herschel returned to his and her own native country, Hanover; and there proceeded to employ herself in drawing up a catalogue of 25,000 nebulae discovered by her brother, which she completed in 1828, and for which the Astronomical Society of London that year voted her a gold medal. The newspapers have just announced that she celebrated the ninety-seventh anniversary of her birthday on the 16th of March in the present year. On this occasion, "the king," it is stated on the authority of a letter from Hanover, "sent to compliment her; the

prince and princess royal paid her a visit, and the latter presented her with a magnificent arm-chair, the back of which had been embroidered by her royal highness; and the minister of Prussia, in the name of his sovereign, remitted to her the gold medal awarded for the extension of the sciences." Notwithstanding her advanced age and bodily infirmities, Miss Herschel, it has since been stated by her distinguished nephew, Sir John F. W. Herschel, in a letter to the *Athenæum*, is still in possession of all her faculties.



CHAPTER IV.

Female Classical Scholars.

THE number of women, like the number of men, who have more or less distinguished themselves in literature has no doubt been very much greater than that of those who have attained a name in science; yet eminently learned women have been nearly as rare as women of the highest scientific acquirements. The test of what is meant by the term scholarship must be understood to be a knowledge of the Greek language. Persons, we may remark, who have merely learned one or two modern foreign languages have no conception of what learning any ancient language is. The wide difference that there is between the two things may, to search no deeper or to go no farther, be inferred from this; that, whereas a French or an Italian book, generally speaking, never presents any passages of disputable meaning, almost every tenth sentence in any Greek or Latin author affords matter of critical controversy, and, wherever the writing is at all of an allusive character, scarcely two sentences on end are to be fully understood without the knowledge

of something else besides the meaning of the words. Hence the mass of commentary to which we may say every page of every Greek and Latin author has given birth. It would be hard to find a page of any ordinary French or Italian author that would bear a line of commentary about the meaning of any part of it. In a modern foreign language, in other words, there are no difficulties to a person possessed of a competent knowledge of the language; the ancient tongues abound in passages which are difficult or doubtful to the best scholars. But, even without taking this circumstance into account, Greek and Latin would resist the quick or easy acquisition of a familiarity with them in a way in which no living European tongue would. The living European tongues are mere dialects in comparison with these dead languages. The vocabularies of all of them are to a great extent radically the same; so are their forms of construction, with a few exceptions; above all, the general mode of expression has been moulded by the same habits of thought, and the transferences and variations of meaning which individual words undergo are regulated upon nearly the same principles, in all of them. Translate any French sentence literally into English, and the English, though not perhaps idiomatic or good, will for the most part be perfectly intelligible. Do the same with a Latin or Greek sentence of any complexity or elaboration,

and you produce for the most part apparent nonsense. A dead language is like a language spoken in another world, or by beings of a different species. The Greek language especially has little or nothing in common with any living European tongue. It is a vast continent or world lying by itself far away from all of them. Its vocabulary, its grammar, its forms of construction, its arrangement of words, its idioms and elliptical phraseologies, above all the manner in which the meaning of words in sentences is affected in it by their position and by the context, are all peculiar. It is also a language of immense extent in all respects, and of the most high-wrought refinement and complication. The number of changes which make up the complete form of a Greek verb exceeds seventeen hundred, every one having its distinct signification. In many of these modifications the root is transformed and disguised both finally and initially, in some by the conversion or obliteration of every one of its elements. Then there are above eight hundred irregular and defective verbs, most of them exhibiting numerous anomalies. The mere dialects, without an acquaintance with which the language cannot be read, make a more cumbrous and intricate body of doctrine than the entire grammar of half a dozen modern languages. In all this may be found something of an explanation of how it is that first-rate Greek scholarship is and always has been so rare.

No age since the revival of letters has produced any very great number of men who have attained to anything like a complete mastery of the Greek language. We cannot therefore expect that there should be many women upon record who have been eminent Grecians. There have been a few, however, who have by their published works, or undoubted performances, made good their claim to a very eminent place among the Greek scholars of their day.

Of these perhaps the most celebrated is Madame Dacier. She was by birth Anne Le Févre, the daughter of Tannegui Le Févre, a distinguished professor of the ancient languages in the academy or college of Saumur, and was born there in 1651. She had reached her eleventh year before the ambition to be a scholar which had for some time been growing up in her was detected or suspected. But it had already been doing its work in secret. She had a brother whom her father used to hear his lessons in the Latin grammar while she sat working at her embroidery beside them; it had never been imagined by her father that she paid any attention to what was going on, when one day, on a question being asked which the boy could not answer, she struck in on the impulse of the moment and helped him out of his difficulty. When it was determined, however, upon this, that she should have the education of a boy, she has herself stated, that, with all

her passion for learning, it was not at first without considerable vexation that she reflected on her imprudence in allowing her secret to escape her, and on her consequent forfeiture of what she considered the comparatively free and easy life she might have otherwise continued to lead. But these regrets probably did not last long. It happened, rather singularly, that to the transition she had made from the customary discipline of her own sex to that of the other she was indebted for a lover and eventually for a husband. For the associate of her Latin studies her father assigned her one of his pupils, André Dacier, who happened to be of her own age, and who already evinced as strong an appetite for classical learning as herself. Aided and urged on by one another, they made such progress both in Latin and Greek—which latter language they commenced as soon as they had mastered the rudiments of the former—as abundantly satisfied their teacher; although it may surprise those who know only what it is to learn modern languages to be told that it was not till after eight laborious years that Mademoiselle Le Fèvre was thought to be in a condition to be left to pursue her classical studies without an instructor. This she did for about five years more; and then, having lost her father in 1672, upon which event she came up to Paris, she made her first appearance as an author by the publication of an edition of the Greek poet

'Callimachus' in 1674. This performance at once established her reputation. "Among four hundred different works," said the *Journal des Savans*, in noticing it, "which the republic of letters owes to learned women, and which have been gathered together by a curious collector, there is not one of a more manly character (*de plus hardi*) than this. It is not necessary to step out of France, or even out of Paris, to discover that there are ladies who write with the utmost delicacy of style. Nor is it rare to find some who understand Latin, and who write that language with a purity worthy of ancient Rome. But Mademoiselle Le Fèvre has few companions in her study of the Greek tongue." She was immediately applied to by the Duc de Montausier, who had the charge of the education of the Dauphin, to undertake the editing of some of the Latin authors entering into the collection then in course of preparation for the use of that prince (the son of Louis the Fourteenth), and since known by the title of the Delphin Classics. With considerable reluctance, occasioned by her diffidence in her sufficiency for the task, she was induced to undertake the four historical writers, Florus, Dictys Cretensis, Aurelius Victor, and Eutropius; and she brought out the first in this same year 1674, the second in 1680, the third in 1681, the fourth in 1683. And she had besides published in 1681 a prose translation of the poems of Anacreon and

Sappho, which brought her at the time almost as much reputation for taste as she had acquired by her previous performances for learning, and of which so high an authority as Boileau has said that it must make the pen drop out of the hand of any one who might afterwards attempt to render the said poems in verse—although succeeding ages have scarcely echoed these applauses of her contemporaries.

In the beginning of the year 1688 she was married to André Dacier, who had also already distinguished himself by an edition for the use of the Dauphin of Pomponius Festus, one of the most formidable authors in the series, which was published in 1681. Their marriage, which people called that of the Greek to the Latin, seemed to increase the literary activity of each. Sometimes they worked together at the same task, but more frequently they were employed upon separate undertakings. In the same year in which she was married, and in which her Eutropius was published, Madame Dacier gave to the world a French translation of three of the Comedies of Plautus. This was followed the next year by another of two of the Comedies of Aristophanes from the Greek. In this year 1684 she was admitted a member of the Academy of the *Ricovrati* of Padua. In 1685 she and her husband, who had both been brought up in Protestantism, conformed to the established

religion. The next work upon which she engaged was a translation of Terence. She entered upon this undertaking, we are told, with so much ardour that for four months she rose every day at four in the morning, and worked hard for several hours. In this way she had in that time completed the translation of four of the six Comedies. But upon reading over what she had written, when she had suspended her labours for a short while and allowed her head to get cool, she was so dissatisfied with it that she threw the whole into the fire. For the next three months she did nothing but peruse and reperuse the original text, with the view of as it were transmuting herself into the very spirit and being of Terence. Then she began and completed a fresh translation, which was at length published in three volumes in 1688.

When the great scholar Menage two years after this published his History of the Female Philosophers of Antiquity, he dedicated it to Madame Dacier as the most learned woman then in existence, or that ever had existed—"fœminarum, quot sunt, quot fuere, doctissima." She and her husband now engaged together in a translation from the Greek of the Moral Reflections (commonly called the Meditations) of the Emperor Marcus Antoninus, which was proposed to them by the President de Harlai, and for the preparation of which they retired to his country seat of Mernil-

Montant. It was published in two volumes in 1691. From this they proceeded to a more formidable undertaking, a complete translation of Plutarch; but after translating two of the Lives Madame Dacier left her husband to go on with this task by himself. A first volume in quarto, in which were contained the two Lives translated by her, was published in 1694; the entire work, extending to eight volumes quarto, only appeared in 1721. Madame Dacier upon leaving Plutarch had turned to Homer, and had devoted herself to the production of a complete prose translation of the Iliad and the Odyssey. The Iliad was published in four volumes in 1699; the Odyssey in three volumes in 1708; the two together, revised and corrected, in 1716. Meanwhile, also, she had engaged in a dispute about the poetical character of Homer—a sort of pendant to the great controversy on the comparative merits of ancient and modern literature which had a few years before engaged so many pens both in France and England; and had published in 1714 a tract ‘On the Causes of the Corruption of Taste,’ against M. de la Motte, and in 1716 another on the same subject under the title of ‘Homer defended against the Apology of the Père Hardouin.’

In these labours Madame Dacier appears to have passed upon the whole a very happy as well as honoured life. Nor was her time by any means

altogether given up to her own studies and the service of the public. Her duties both as a wife and as a mother were performed in all respects far better than such duties are performed by the generality of women, or than they probably would have been performed by her if she had not been the learned woman that she was. Her learning made her much more of both a companion and a help-mate to her husband than she could have been without it; and it also enabled her to do her part much more ably and effectually than she otherwise could have done in the education of her children. To the latter duty much of her time and attention was devoted. A son in particular made extraordinary progress under her tuition; it is related that at ten years of age he would steal and read clandestinely the Greek authors which his mother had prohibited him from looking into as too difficult; but he died before he was quite eleven. Of two daughters, the eldest became a nun; the death of the youngest, who was a most amiable and promising girl, at the age of eighteen, almost broke her mother's heart. It has been common to speak of Madame Dacier as a mere pedant and book-worm; but she appears to have been in reality a person of warm affections, and, with all her learning, of unostentatious womanly gentleness and unaffected aversion to display. Even the excess of zeal which she was apt to show in the cause of

her favourites the ancients was anything rather than the sign of a cold or hard nature—as when once, being much pressed by a rather ungallant antagonist with the case of Sappho, she cut short the dispute by observing, with so noble an incredulity, that Sappho had many enemies. In conversation she generally avoided learned subjects, nor was there anything in her appearance or manners which distinguished her from ordinary women. And her notions and principles were altogether opposed to the assumption by women of any public functions or social position other than what they actually hold and exercise.

Madame Dacier lived to the age of sixty-nine, or till August 1720. Her husband, who was inconsolable for her loss—though he some time after made an attempt to supply her place by marrying the young Mademoiselle de Launai (afterwards Madame de Staal), who refused him—survived till September 1722.

Among the learned Englishwomen of recent times perhaps the most famous is Elizabeth Carter, the translator of Epictetus. She was born on the 16th of December 1717 at Deal, where her father, the Reverend Nicholas Carter, D.D., was Perpetual Curate. Dr. Carter gave all his children, daughters as well as sons, a learned education, teaching them himself the Latin and Greek languages. Elizabeth, however, who was the eldest daughter,

had at first very nearly driven him to relinquish his project in despair; the difficulty and slowness of her progress quite wearied out his patience; and he repeatedly entreated her to give up all thoughts of becoming a scholar. But her perseverance and resolution were more than a match for both her own want of ready apprehension and her father's discouragement. She had been accustomed to hear from her infancy that learning was the noblest of all things, except only piety and virtue; and she was determined that learned she would be, let the labour be what it might. Whether she had to struggle with slowness of memory as well as of apprehension, we are not informed; but it is probable that she had. The two defects are naturally connected, and often go together; and nature has also provided the same kind of compensation for both. What it has taken a long time to apprehend in the first instance, or to get by heart, is likely to be thoroughly understood, or not easily forgotten. The labour that has been employed upon it works it into the substance of the mind, or impresses it in indelible characters, like those chiselled in the hard porphyry. The more the resistance at first, the more the retention afterwards. The line that was difficult to cut will be equally difficult to obliterate; the material which so stubbornly withstood the edge of the workman's tool will as stubbornly withstand the abrading tooth

of time. That is, always supposing that the faculty of apprehension is only slow, not weak or deficient,—that the mind is in fact a solid and tenacious substance, not, as some minds are, a mere mass of ungrasping water or fluid mud. Whatever Miss Carter had once acquired, we are told, she never afterwards lost. It is conjectured, however, that she injured her health by her unwearied application, and probably at this time laid the foundation of those frequent and severe headaches from which she suffered throughout her life. If so, this consequence might no doubt have been easily obviated by more judicious management. One reason why it was not may have been, that she had had the misfortune to lose her mother when only about ten years old. Of all parental duties, the one which a father is the least fitted to perform alone is the superintendence of the health of his daughters. Another thing that happened to her, left as she necessarily was very much to her own guidance, was that from frequently protracting her studies during a great part of the night she contracted the habit of taking snuff, which she was never afterwards able to lay aside, though it was very disagreeable to her father. Such a misfortune, however, is hardly one which a studious young lady would be apt to fall into in the present day.

It were to be wished that we had been informed of the method that Dr. Carter followed in teaching

his daughter Greek and Latin, in both of which languages she certainly attained a distinguished proficiency. Her nephew, the Reverend Montagu Pennington, who has written her life, states that with the Greek and Latin Grammars she was almost wholly unacquainted, and that she used to say she had never learned them. "As a general science, however," he adds, "she understood grammar well, but not as taught in schools; and rather thought it ought to be a consequence of understanding the language than a handmaid to that knowledge." What we are to infer from this is perhaps nothing more than that her father did not make her get by heart the common grammar rules. The statement, however, would rather seem to imply that Dr. Carter adopted what may be called the natural method of teaching languages, being that according to which every person learns his native tongue, and dispensed altogether with a preliminary instruction in grammar. His daughter, at any rate, did not fail to acquire a familiarity with the common grammatical forms and terms. The only department of Greek or Latin scholarship, her nephew intimates, in which she ever showed any deficiency was Prosody; and even there, although not a mistress of the learning of the subject, her general habits of correctness and caution kept her from often committing a mistake.

The sum of what Mr. Pennington tells us, of

the progress and amount of her acquirements is as follows. She began with the Greek and Latin languages, and after some time proceeded to the Hebrew, in which last also the proficiency she attained is believed to have been considerable, and which she never neglected to read every day to the end of her life when in health. "With the two former she was thoroughly and intimately acquainted, especially with Greek, to which noble language she was particularly partial. She used to relate with much pleasure in her own family (for no person spoke less of herself, or of her own acquirements, in company) that Dr. Johnson had said, speaking of some celebrated scholar, that he understood Greek better than any one whom he had ever known, except Elizabeth Carter." It ought, however, to be observed that Dr. Johnson himself had no pretensions to be considered a first-rate Greek scholar. Though Miss Carter's knowledge of the language was not perhaps profoundly critical, it was probably greater than his. She learned French by being sent by her father to board for a year in the house of a M. Le Suer, a French refugee minister at Canterbury. She continued to speak French to the close of her life better than most persons who have not lived abroad. Italian, Spanish, and German she afterwards taught herself without any assistance, and she is stated to have understood all these languages thoroughly. Of German she was particu-

larly fond, and took great delight in reading it. "She began to study German," says her biographer, "when she was about twenty years of age, by desire of her father, in order to qualify herself for some place at court. Sir George Oxenden, a very intimate friend of her father, proposed this scheme, and offered to use his interest for that purpose. This her father made known to her in a very elegant as well as sensible Latin epistle, dated from Bath, November 1, 1737; in which he tells her that virtue may be preserved in every place, at court as well as in the country. The language, indeed, was soon and completely attained; but, whether she disliked the confinement of a court, or whether Sir George's interest could not procure her a desirable situation there, certain it is that the German language was of no use to her with respect to her advancement in life." "Later in life," it is added, "she learned Portuguese; in which, for want of books, she probably made no great progress. Last of all, she taught herself Arabic; but this very difficult language she never professed to understand well, although she was able to read it with the assistance of a dictionary. She made, indeed, an Arabic dictionary for herself, containing various meanings of words, and their combinations, which she found, from her own reading, to have been improperly translated, or misunderstood." Of the sciences the only two that she appears to

have studied were astronomy, in which she is stated to have made a very considerable progress, and ancient geography. "With this, indeed," says her nephew, "she was much more conversant than with modern geography, or even that of her own country, of which she had only a general, and in some cases merely a superficial knowledge; so that she was literally better acquainted with the meanderings of the Peneus, and the course of the Illissus, than she was with those of the Thames or Loire; and could give a better account of the wanderings of Ulysses and Æneas than she could of the voyages and discoveries of Cook or Bougainville." Of history, however, both ancient and modern, she had an extensive knowledge. Nor did she in the pursuit of book learning neglect the more ordinary acquirements of her sex. Besides the common branches of needlework, to which she applied herself with assiduity in early life, and which she is stated to have practised to the very last, she attempted drawing, though without much success; and she appears to have devoted much time and pains to music, in which also, however, she failed to make any considerable progress, though she was very fond of it. In addition to the spinnet, she practised playing on the German flute, a strange accomplishment, as it would now seem, for a lady.

Though cherishing from her childhood a deep

sense of religion, she was, when a young woman, we are told, not only lively, but gay. "Her cheerfulness and innocent playfulness of mind, indeed," her reverend biographer observes, "never forsook her to the very last; but those who have been long accustomed to contemplate with respect, and even reverence, the deep scholar and pious moralist, will perhaps be surprised when they are told that Mrs. Carter loved dancing, was somewhat, when very young, of a romp, and subscribed to assemblies; nay, once at least, she took a part in a play, in which the other performers were her brother and sister, some few of their young companions, and even the grave Doctor her father, who condescended to appear on their little stage and *read* the part of Cato." In one of her juvenile letters we find her talking of having the evening before danced nine hours. In another she writes—"I do not know whether I have told you that I am a subscriber to the Sandwich Assembly, with which I am greatly delighted. It was with some reluctance I went at first, but now I am so much pleased with it that I shall go as often as I can." And elsewhere her biographer says,—"High as Mrs. Carter's character was in a literary view, still she entered into all the innocent amusements proper for her station and time of life. Her presence never threw a damp over the juvenile amusements and gaieties of her young friends. She brought

with her into company no ill-timed morality, or misplaced gravity, but danced, sang, played cards, and laughed like any other young girl." She continued to like a game at cards to the end of her life; and she was "a little inclined," subjoins her nephew, "to be proud of her skill in the science of whist, which, indeed, she certainly played not ill, though she could hardly be said to excel in it." But she would never play for higher than three-penny points, in which peculiarity her friends did not refuse to indulge her.

Her habits of study in early life are thus described by her biographer:—"She was never idle. She rose very early, generally between four and five o'clock; and this custom she continued through life; her latest time of rising, when in tolerable health, being between six and seven o'clock, even to the very close of life. When young, she also sat up very late, so that her father in one of his letters commends her for having formed a resolution of going to bed not later than twelve o'clock, and desires her to adhere to it. Hence she was accustomed to use various means to keep herself awake, to the great injury of her health, for she was always very much inclined to sleep, slept soon, and very soundly, even in her chair. Besides the taking snuff, she owned that she used to bind a wet towel round her head, put a wet cloth to the pit of her stomach, and chew green tea and coffee. To

oblige her father she endeavoured to conquer the habit of taking snuff, and would not resume it without his consent. This he at length reluctantly gave, finding how much she suffered from the want of it." To make sure of awakening at the hour she wished, she usually availed herself of an alarum or some equivalent contrivance. In 1746 she herself gives an account of her manner of life in a letter to her friend Miss Talbot written from Deal, which, after the retrenchment of some rather ambitious rhetorical embellishment, superfluous for our present purpose, is as follows:—"There is a bell placed at the head of my bed, and to this is fastened a packthread and a piece of lead, which, when I am not lulled by soft zephyrs through the broken pane, is conveyed through a crevice of my window into a garden below pertaining to the sexton, who gets up between four and five, and pulls the said packthread with as much heart and good-will as if he was ringing my knell And, now I am up . . . I sit down to my several lessons as regular as a schoolboy, and lay in a stock of learning to make a figure with at breakfast My general practice about six is to take up my stick and walk, sometimes alone, and at others with a companion, whom I call in my way, and draw out half asleep When I have made myself fit to appear among human creatures, we go to breakfast, and are, as you imagined, extremely chatty; and this, and tea

in the afternoon, are the most sociable and delightful parts of the day. . . . We have a great variety of topics, in which everybody bears a part, till we get insensibly upon books; and, whenever we go beyond Latin and French, my sister and the rest walk off, and leave my father and me to finish the discourse. . . . I fancy I have a privilege for talking a vast deal over the tea-table, as I am tolerably silent the rest of the day. After breakfast every one follows their several employments. My first care is to water the pinks and roses, which are stuck in about twenty different parts of my room; and, when this task is finished, I sit down to a spinnet, which in its best state might have cost about fifteen shillings, with as much importance as if I knew how to play. After deafening myself for about half an hour with all manner of noises, I proceed to some other amusement, that employs me about the same time, for longer I seldom apply to anything; and thus, between reading, working, writing, twirling the globes, and running up and down stairs an hundred times to see where everybody is, and how they do, which furnishes me with little intervals of talk, I seldom want either business or entertainment. Of an afternoon I sometimes go out, not so often, however, as in civility I ought to do; for it is always some mortification to me not to drink tea at home. It is the fashion here for people to make

such unreasonable long visits, that before they are half over I grow so restless and corky, that I am ready to fly out of the window. About eight o'clock I visit a very agreeable family, where I have spent every evening for these fourteen years. I always return precisely at ten, beyond which time I do not desire to see the face of any living wight." Mr. Pennington adds that whenever she was living at Deal, which continued to be her principal place of residence all her life, she continued to pass the day much in the way here described even till very far advanced in years. "The spinnet, indeed, had been very long neglected, but it retained its place in her dressing-room to the day of her death; though it was then so far from being capable of deafening with its noise, that it had not a single key that would produce any sound at all. Her fondness for shrubs and flowers continued, and she used to visit them with much delight, perhaps every hour, in a small garden in the summer, and in different rooms of the house in winter. Till a very few years before she died she still took her morning walks. She was extremely fond of the prospect of the sea, and of the dry, healthy, and pleasant country in the neighbourhood of her native town."

By the people of Deal Mrs. Carter was treated with the greatest attention and respect: "the common people there," continues her nephew, "who

are for the most part bred to the sea, and rough, though not rude, in their manners, considered her presence as an honour and blessing to the town, and looked upon her almost as an object of veneration." When after her decease he had the house in which his aunt had lived altered and enlarged for his own accommodation, several of his seafaring neighbours came to him to ask him not to cut down an oak growing in a little court in front of it, which had been planted by Mrs. Carter with her own hand about thirty-five years before. Among the country people the awe inspired by her reputed acquirements gave rise to divers curious speculations respecting her. In the letter to Miss Talbot quoted above she herself speaks of the men pulling off their hats when they met her in her morning walks, and remarking to one another, with a note of admiration, that that was Parson Carter's daughter. In another letter to the same friend written some years later, from the village of Wingham, she says,— "It has yet been fair to-day, but I fear will not continue so. However, I must be cautious of uttering my conjectures here, where I already pass for more than half a witch. Mrs. — was lately told by somebody in the village that a *very cunning* gentlewoman had foretold all the bad weather we have had this summer, and likewise that there would be a worse storm before the end of it. Poor Mrs. —, from her long acquaintance with me, was far

enough from suspecting that I could be the person characterized by the name of a *cunning gentlewoman*, till, hearing this Cassandra lived at Deal, she was led into further inquiries, which fully proved the charge against me. From my foretelling a storm, it will be a mighty easy and natural transition to my raising it; so, upon the whole, it seems to be well for me, that the repeal of the Witch Act will suffer me to do it with impunity. There was just such another ridiculous story two years ago about my foretelling the high tide. I really thought there had been no such nonsense left even among the lowest of the people at present." Another report which arose at one time was that she had by some new proposition in the mathematics puzzled all the officers in his majesty's navy, and that in consequence a gentleman was sent down express by the government or the admiralty to have a conference with her on the subject. But the most extraordinary of all these fancies of the Kent people was a notion which once got into their heads that their distinguished countrywoman was going to be, or ambitious of being, returned to parliament. About the year 1740, while she was on a visit in London, one of her sisters wrote to her,—“Here's all Deal is in amazement that you want to be a Member of the Parliament House; and Mrs. —— was told it, but so strongly affirmed that it was no such thing, that she came to our house quite eager to

ask, and was quite amazed to hear 'twas so." This genuine and simple-minded admiration, however, notwithstanding the grotesque forms in which it sometimes broke out, was highly honourable both to the object of it and to the right instincts and warm hearts of the people of Kent. It was a recognition and, after its fashion, a worship even by ignorance itself of the high and beautiful that there is in mental cultivation and knowledge. And the natural and unsophisticated taste of these humble admirers was not, we see, at all shocked that the learning which they held in so much reverence should in this instance be lodged in a female mind. They only thought it on that account the more to be wondered at and the more worthy of honour.

Several pieces of English verse by Miss Carter were given to the world, though without her name, when she was only in her seventeenth year. They appeared in the fourth volume of the 'Gentleman's Magazine,' the original editor or proprietor of which, Cave, the bookseller, was an acquaintance of her father's. These and succeeding contributions of the same kind attracted a good deal of notice, and produced many compliments to the fair authoress from other writers in the magazine. It was to her connexion with Cave, also, that she was indebted for her introduction to various literary characters of that day, among whom was Samuel Johnson, whom she appears to have known very soon after he came

up to London in 1737. In 1738, the same year in which Johnson published his first work, his imitation of the Third Satire of Juvenal entitled *London*, Miss Carter published a collection of her poems in a very small quarto volume of twenty-four pages. The next year she produced a translation from the French of the attack by M. Crousaz on Pope's *Essay on Man*, celebrated for having been the means of bringing about the friendship of Pope and Warburton, and so of eventually making Warburton, who replied to Crousaz in a series of papers in the 'Republic of Letters,' a bishop. Miss Carter's translation was accompanied with a few short notes. The same year she published in two volumes duodecimo a translation from the Italian of Algarotti's 'Newtonianismo per le Dame,' under the title of 'Sir Isaac Newton's Philosophy explained for the use of the Ladies, in Six Dialogues on Light and Colours.' But her great work was her translation of Epictetus from the Greek. This was undertaken at the desire of her friends Miss Talbot and Dr. Secker, Bishop of Oxford, afterwards Archbishop of Canterbury, and was begun in the summer of 1749. The principal part of the translation, that of the *Philosophical Disquisitions* reported by Arrian, was completed in December 1752; but the preparation of an Introductory Discourse and Notes, and of translations of the *Enchiridion* and the *Fragments*, which it

had at first been intended to omit, with the necessary revision of the whole, prevented the work from being sent to the press before June 1757, and the printing was not finished till April 1758. It formed, when it appeared, a quarto volume of between five and six hundred pages. The number of copies struck off in the first instance was 1018 ; but it was found necessary to print 250 more in the following July. "It was printed," Mr. Pennington states, "by subscription, and the price was a guinea : one half to be paid at the time of subscribing, and the remainder on the delivery of the book. The number of subscribers was very great ; no less (as entered in her own copy, some of the names being in manuscript) than 1031 ; and the list of names was most respectable, comprehending a large proportion of those who were then most eminent in station as well as in literature. The first delivery to the booksellers for the respective subscribers was 650 copies. The whole expense of printing the work, including the proposals and receipts, as appears by Mr. Richardson's bill, who printed it, was only 67*l.* 7*s.* (that is, not including the 250 copies added afterwards) and, as many more copies were transcribed for, by way of compliment, than were claimed, Mrs. Carter was a gainer by the work nearly, if not quite, a thousand pounds." The work has been twice reprinted since Mrs. Carter's death in two volumes duodecimo, and once in two volumes oc-

tavo ; and it maintains its reputation as one of the most carefully and ably executed translations that we have from the ancient languages. Mrs. Carter's last production was a second collection of Poems, which appeared in a duodecimo volume in 1762, and which has likewise been several times reprinted. She also, however, some time after the death of her friend Miss Talbot in 1770, sent to the press some papers left by that accomplished person entitled 'Reflections on the Seven Days of the Week ;' to which she afterwards added two volumes of 'Essays, Poems, and other detached pieces,' by the same lady. These remains of Miss Talbot were so well received by the public that seven editions of them were demanded in the first quarter of a century after the death of the writer. Miss Catherine Talbot was the only child of Edward, second son of Dr. William Talbot, Bishop of Durham, whose eldest son, Charles, was made Lord Chancellor and Baron Talbot in 1733, and was the ancestor of the present Earl Talbot. She was born in 1721, five months after her father's decease. Her acquaintance with Miss Carter began in 1741, and they continued intimate friends and constant correspondents so long as Miss Talbot lived. She was not a Greek scholar, like Miss Carter, but she had received a very superior education in the more ordinary branches, and her natural talents were more sprightly than those of her erudite friend. She understood the French

and Italian languages perfectly, had some knowledge of Latin, and late in life had taught herself German; and she excelled both in music and in painting in water-colours. Besides a good many of Miss Talbot's letters, which are distinguished by ease, vivacity, and elegance, given by Mr. Pennington in his *Life of Miss Carter*, he afterwards published a selection from the correspondence of nearly thirty years between the two friends, which has gone through three editions. This publication (originally in two volumes quarto, afterwards in three volumes octavo) comprises also a number of Letters from Miss Carter to another distinguished friend, Mrs. Vesey, who was a daughter of Sir Thomas Vesey, Bart., Archbishop of Tuam, and was married first to William Handcock, Esq., secondly to Agmondesham Vesey, Esq., a member of the Irish House of Commons, and Comptroller and Accountant-General for Ireland. It was at her house in Clarges Street, London, that the unceremonious evening parties were held, composed of persons of both sexes, many of them eminent for talent or learning, which gave rise to the application, still in use, of the term *Bas Bleu*, or *Blue Stocking*, to denote a literary lady. "To these parties," says Mr. Pennington, "it was not difficult for any person of character to be introduced. There was no ceremony, no cards, and no supper. Even dress was so little regarded, that a foreign

gentleman, who was to go there with an acquaintance, was told in jest that it was so little necessary, that he might appear there, if he pleased, in *blue stockings*. This he understood in the literal sense; and, when he spoke of it in French, called it the *Bas Bleu Meeting*." This appears to be the true origin of the expression, which, as Mr. Pennington remarks, could not have taken its rise, as it is said in other accounts to have done, from the blue stockings worn by the learned Mr. Benjamin Stillingfleet, inasmuch as he died in 1771, long before it appears to have been employed in this peculiar sense. Miss Carter's Letters to Mrs. Vesey extend from 1763 to 1787; from which date Mrs. Vesey's infirmities incapacitated her for continuing the correspondence, although she survived in a state of both bodily and mental decay till the year 1791, when she died at the age of seventy-five. There is also a collection of Letters from Mrs. Carter to her friend Mrs. Montagu, the authoress of the 'Essay on the Writings and Genius of Shakespeare,' published by Mr. Pennington in three vols. octavo in 1817. They are described as chiefly upon literary and moral subjects, and are two hundred and ninety in number, the earliest dated in 1755, the latest in 1799. Mrs. Montagu, originally Elizabeth Robinson, a sister of the second Lord Rokeby, died at the age of seventy in August 1800. Her husband, Edward Montagu, Esq., a grandson of the first

Earl of Sandwich, whom she had married in 1742, had left her a widow in 1775. It was at her house in Portman Square that the meetings of literary and other distinguished persons took place to which the name of the Blue Stocking Club was first given, according to the version of the story which makes it to have originated in the peculiar dress of Mr. Stillingfleet.

After the death of Mrs. Vesey, Mr. Pennington states, two societies, as he calls them, upon a plan nearly similar to that which had been held in her house, and in a great measure composed of the same persons with some additions, were established by Lady Herries, wife of Sir Robert Herries, of St. James's Street, and Mrs. Hunter, wife of the celebrated John Hunter, the surgeon, and herself distinguished for her literary talents, both of whom opened their houses once a-week, on different days during the winter, for the reception of company in the evening, in the same unceremonious style introduced by Mrs. Vesey. These were also frequented by Mrs. Carter, so long as she was able to go about among her friends. "But there was another society," her biographer adds, "of a different kind, to which Mrs. Carter belonged, and of which, while her health permitted, she was a very active as well as zealous member. This was an institution for the relief of the poor, principally reduced housekeepers, in the five western parishes of the

metropolis under the jurisdiction of Westminster. It was set on foot, and wholly managed by ladies, about the year 1780, or perhaps before that time. Most of Mrs. Carter's friends belonged to it, and she was one of the original subscribers. The business was carried on by a committee for each parish, who employed persons well recommended as their agents, to make such inquiries on the spot, concerning the objects who wished for relief, as the ladies could not make in person. The meetings were held in turn at the houses of such of the subscribers as could accommodate so large a party with the least inconvenience. No persons were relieved without the strictest inquiries having been made concerning their character and real situation; and the business was conducted at separate tables with great order and regularity. Every one subscribed what they chose, and most of the ladies took at times some share of the trouble." This institution was understood still to subsist, under the name of the Ladies' Charitable Society, when Mr. Pennington published the third edition of his book in 1816, and it probably yet survives.

Mrs. Carter had the happiness of not losing her father till long after she had attained the height of her literary distinction. The good old man did not pass from the earth till the year 1774, when he had reached the patriarchal age of eighty-seven, his faculties, with the exception of his being rather

deaf, having remained unimpaired to the last. He had married a second time, but had been again left a widower, and for the last twelve years of his life he had resided with his daughter. Mrs. Carter, with all her Greek and Latin, appears to have conducted affairs in her capacity of housekeeper quite as ably and successfully as she could have done if she had known no language but her mother tongue. What she inherited from her father, with the profits of her Epictetus, and the kindness of several attached friends, placed her in very comfortable circumstances in her latter days. One of the persons with whom she had become acquainted through Mrs. Montagu was the Earl of Bath, better known as Mr. Pulteney; and when his lordship died, very rich, in 1764, it was generally expected, from the intimacy that had subsisted between them, that Mrs. Carter would be found to be remembered in his will; but he left her nothing. When, three years afterwards, however, on the death of his brother General Pulteney, the late earl's large estates fell to his nearest relation, Frances, wife of William Johnstone, Esq., who upon this took the name of his wife's family, and became afterwards, by the death of his elder brother, Sir William Pulteney, Bart., she and her husband immediately settled upon Mrs. Carter an annuity of a hundred pounds, which about three years before her death Sir William, who then alone

survived, raised to a hundred and fifty. Another annuity of a hundred pounds was also conferred upon her by Mrs. Montagu as soon as she became mistress of her large fortune by the death of her husband in 1775. When Mrs. Talbot, the mother of Miss Talbot, died in 1783, at the age of ninety-three, she left Mrs. Carter a legacy of two hundred pounds. And a few years after this, a third annuity of forty pounds was bequeathed to her by another old friend, Mrs. Underdown, whose only daughter had married Mrs. Carter's eldest brother. Some distinguished marks of respect, also, from the highest personages in the kingdom were bestowed upon the learned lady in her declining years. In 1791 she was introduced to the queen at Lord Cremorne's house at Chelsea, when her majesty conversed with her for about an hour. One of the subjects of which they talked was German literature, of which Mrs. Carter was one of the few persons in England who then knew anything. And about two years before her death she was visited in her own house at Deal by the Princess of Wales, who stayed and drank tea with her, and soon after by the Duke of Cumberland, who came before dinner and remained with her about half an hour. She had long numbered among her friends or acquaintances many of the most eminent of her contemporaries of either sex, whether for station or intellect. And although, in so pro-

tracted a life, she had necessarily seen most of those who had once been her associates descend to the grave before her, yet the reverence and warm attachment of a number of near connections attended her to the last, soothing and cheering her declining years. Of all those things "which should accompany old age," therefore, she may be accounted to have had a liberal share. She had found the pursuit of knowledge to bring length of days in the one hand, and, if not riches, yet competence and honour, in the other. Feeling this, she herself wrote to a friend on one of her latest birthdays, "I believe it, and with the deepest gratitude I ought to speak it, there are very few people who have so many reasons to be fond of life as myself; and sufficiently attached to it I am." "And yet perhaps," she went on, "there are not many to whom the thought of its being so far advanced would give less concern. In a course of travelling, though the road be ever so pleasant, and the company ever so good, one cannot help sometimes feeling that one is not at home, and looking forward to the journey's end. How thankful ought one to be that there is at least a home where all who do not wilfully take a wrong path will be sure to find that repose and security of enjoyment which in the most prosperous journey can never be found on the road."

Mrs. Carter, having left Deal for London on

the 23rd of December, 1805, arrived in Clarges Street on the following day, and died there on the 19th of February, 1806, in her eighty-ninth year.

Mrs. Carter also, it ought to be added, as well as Madame Dacier, applied her great acquirements in the education of youth. The case was rather a singular one. Her father, as he had done with all his other children, had taken upon himself the education of his youngest boy, Henry, who was designed for the church; but, after some time finding that the state of his health and spirits, and his other occupations, made the duty somewhat inconvenient, he, on the proposal of his daughter Elizabeth, resigned it to her. The instruction of her brother in Latin and Greek occupied her at the same time with her translation of Epictetus; the two works were finished together in May 1756; and the same year her pupil was entered at the university of Cambridge, where he passed his examination with great credit. "Mr. Henry Carter," observes Mr. Pennington, "is perhaps the only instance of a student at Cambridge who was indebted for his previous education to one of the other sex; and this circumstance excited no small surprise there, when it was inquired after his examination at what school he had been brought up."

A very recent instance of a female scholar re-

known for her knowledge of Greek is that of an Italian lady, Clotilde Tambroni, who was born at Bologna in 1758. She had a brother Giuseppe, who also greatly distinguished himself in literature; and nearly the same story is told of her picking up the rudiments of Greek while she sat at work in the room where her brother was heard his lessons, and of her discovering her acquisition by one day helping him when he was at fault, that is related of Madame Dacier in reference to the Latin. Her education was then intrusted by her parents to two learned Spanish Jesuits, Fathers Colomès and d'Aponte, under whose care she made such extraordinary progress as shortly after to produce a composition in verse which was recited in the academy of the *Mesticati*, and procured her admission into that society. This first attempt she soon followed up with an epithalamium in Greek on the marriage of the president of the academy, which is described as having been full of grace and fancy as well as of learning. But this appears to have been in 1792, when she was thirty-four years old; so that she was probably of a mature age when she commenced her classical studies. Various other Italian academies now eagerly enrolled her among their members; and in 1794, the senate of her native city appointed her to the Greek professorship in their university, famous for so many female professors. She held this chair till

1798, when she was dispossessed on the occupation of Italy by the French, and the establishment of the Cispadane Republic, because she would not take the oath of hatred to royalty; and, although she was some time after restored by Bonaparte, an order suppressing all the Greek chairs in the Italian universities soon came once more to displace her. From this time she led a very retired life till her death at Bologna in June, 1817. In addition to the Greek and Latin languages the Signora Tambroni understood the French, the Spanish, and the English. With reference to her knowledge of Greek, Ansse de Villosion, one of the greatest scholars of the time, declared that there were not above three men in Europe that were able to write the language as well, and not more than fifteen at the most who were able to comprehend what she wrote. Her published works consist of several odes and elegies in Greek; but she is stated to have left many other compositions in manuscript. She also carried on an extensive correspondence with the most learned of her contemporaries. Neither in this instance did the most profound learning destroy or injure any quality of mind or heart appropriate to the woman. "The Signora Tambroni," says M. de Angélis, in the *Biographie Universelle*, "had an extreme diffidence of herself; and, although she wrote much, very few of her writings have been published. Her

morals were as pure as her manners were amiable. Her heart, closed against vulgar passions, readily opened to generous sentiments; and nothing could equal her gratitude towards the learned persons who had superintended her education. She was especially attached to Father d'Aponte, whom she never quitted so long as he lived, and to whose memory after he died she erected, at her own expense, a modest tomb in the Carthusian monastery at Bologna."

CHAPTER V.

Miss Elizabeth Smith.

WE know nothing more touching or beautiful in the whole range of female biography than the history of a lady of our own country, and almost of our own time, who made extraordinary attainments in languages at an early age, and without any instructor, Elizabeth Smith. It has been told by her friend Miss Harriet Bowdler, in a little volume first published in 1808, under the title of 'Fragments in Prose and Verse by a Young Lady lately deceased; with an Account of her Life and Character.' Rare intellectual powers were united in this instance with the charm of personal grace, and with all that is noblest and loveliest in the moral nature of woman; and no one will say that whatever would have otherwise shone forth in her of what is most attractive and most attaching was not heightened by her eager pursuit of knowledge and her remarkable literary acquirements. She was taken away when she had hardly passed the morning of life; but a morning so bright and sweet was worth far more, both to herself, and even to those

to whom she was most dear, than the longest day of an ordinary existence.

She was born in December 1776, at a place called Burnhall, in the neighbourhood of Durham. Her family was in easy circumstances, and she had several brothers and sisters. The following account is given of Elizabeth's childhood in a letter written to a friend some time after her death by her intelligent and strong-minded mother :—" At a very early age she discovered that love of reading, and that close application to whatever she engaged in, which marked her character through life. She was accustomed, when only three years old, to leave an elder brother and younger sister to play and amuse themselves, whilst she eagerly seized on such books as a nursery library commonly affords, and made herself mistress of their contents. At four years of age she read extremely well. What in others is usually the effect of education and habit seemed born with her ; from a very babe the utmost regularity was observable in all her actions ; whatever she did was well done, and with an apparent reflection far beyond her years." Up to this time her mother had been her only teacher ; nor had she ever another except a young lady whom family misfortunes had reduced to the necessity of earning her bread, and whom at the early age of sixteen, when her own education was very imperfect, Mrs. Smith engaged rather to be a

companion to her children than their governess. She was, however, a person of superior abilities, and she proved herself very efficient in the latter capacity to the extent of her acquirements. She was with them for eighteen months, from the beginning of 1783 to the middle of 1784, while they resided in Suffolk, whither Mrs. Smith had been induced to remove with her family, at the solicitation of a blind and otherwise infirm rich relation, who desired to have her near him; on his death they returned to Burnhall, when the mother again took the instruction of the children into her own hands. During the following winter, she says, Elizabeth made an uncommon progress in music. In June 1785, they removed to a place called Piercefield in the county of Brecknock; on which their young governess returned to them, and continued with them three years longer. By her the children were taught French, and what little Italian she herself understood.

Miss Bowdler first saw Elizabeth in the summer of 1789, when she was in her thirteenth year. "Her extreme timidity," says that lady, "made it difficult to draw her into conversation; but even then I saw many proofs of very uncommon talents. We were frequently together during the three following years; either at Piercefield, where Mr. and Mrs. Smith then resided, or at Bath, where Miss Smith and her sisters were often with us.

At that time Elizabeth astonished us by the facility with which she acquired information on every subject. She excelled in everything that she attempted. Music, Dancing, Drawing, and Perspective were then her chief pursuits, and she succeeded in all; but, even at that early age, her greatest pleasure seemed to be reading, which she would pursue with unwearied attention during so many hours that I often endeavoured to draw her away from her books, as I feared that such close application might injure her health. She was then well acquainted with the French and Italian languages, and had made considerable progress in the study of geometry, and some other branches of the mathematics."


According to Mrs. Smith it was the visit paid by Miss Bowdler, who was accompanied by her mother, to Piercefield in 1789 that awoke in Elizabeth what became ultimately her chief passion in connexion with the pursuit of knowledge. "I always thought," she observes in the letter already referred to, "that Elizabeth was first induced to apply herself to the study of the learned languages by accidentally hearing that the late Mrs. Bowdler acquired some knowledge of Hebrew and Greek purposely to read the Holy Scriptures in the original languages. In the summer of 1789 this most excellent woman, with her youngest daughter, spent a month at Piercefield, and I have reason to

hail it as one of the happiest months of my life. . . . From the above-mentioned visit I date the turn of study which Elizabeth ever after pursued, and which, I firmly believe, the amiable conduct of our guests first led her to delight in."

In a second letter to the same friend Mrs. Smith continues:—"At the age of thirteen Elizabeth became a sort of governess to her younger sisters, for I then parted with the only one I ever had; and from that time the progress she made in acquiring languages, both ancient and modern, was most rapid. This degree of information, so unusual in a woman, occasioned no confusion in her well-regulated mind. She was a living library; but locked up except to a chosen few. Her talents were like 'bales unopened to the sun,' and, from a want of communication, were not as beneficial to others as they might have been, for her dread of being called a learned lady caused such an excess of modest reserve as perhaps formed the greatest defect in her character."

From her earliest years she was extremely fond of poetry; and her biographer has given some verses in the Spenserian stanza composed by her in June 1792, and another lyrical piece dated in December of the same year. Both are remarkable compositions for a girl not yet sixteen. In May of this year she had formed a strong attachment to a Miss H——, who had accompanied Miss Bowdler

on a visit to Piercefield ; and an active correspondence followed between the two young friends. A letter which she writes to Miss H—— in July begins with an account of some attempts she had been making to effect the quadrature of the circle. But she adds that there are many things she prefers to mathematics. “ At the head of them,” she proceeds, “ stands poetry. I thought some parts of Tasso extremely fine. Dante I have not read. At present I am engaged in an argument with my dear Miss Bowdler concerning Ossian. I support him against all other poets.” And then she enters upon an elaborate vindication of this preference, which may have been symptomatic, indeed, of an immature taste, but was nevertheless at least equally indicative at her age of an imaginative and poetical temperament. The same thing was strongly shown about the same date by a love of antiquarian speculation and research, which led her to persuade herself that she had discovered in a wood on the Piercefield property the traces of the old Castle of Builth, near to which Llewellyn ap Gryffydd, the last sovereign Prince of Wales, is said to have been slain in December 1282. The lyrical piece mentioned above professes to be the translation of a Welsh poem on this event, recently dug up on the spot ; and among her papers were found a great number of extracts from Camden, the Monasticon, Strabo, Carte’s History of England, and



other works, made apparently with the view of supporting her theory, or aiding her inquiries on the subject.

Mr. Smith, it appears, had invested his property in a banking concern; and when many of the banks in the West of England were brought down on the breaking out of the war with France in the beginning of the year 1793, the one in which he was a partner was among the number. The ruin that came down upon the unhappy family was sudden and complete. On the 3rd of March Elizabeth writes to Miss Bowdler,—“Last night, after my mother wrote to you, we were informed by a friend that there was an execution against my father. At ten o'clock at night ——— came to take possession of the house. It was secured, so that they could not enter; but you may imagine the horror of our situation in that night of storms.” The next day was Sunday, in consequence of which they had to watch only till twelve at night; and on Monday, when they were preparing to leave, a temporary gleam of comfort was afforded by the arrival of Mr. Smith's attorney from London with money to satisfy the claim on which the execution had been taken out. It was now that the letter to Miss Bowdler was written. “There is to be a meeting of creditors to-morrow,” it went on to say, “who are to have an exact statement of all the concerns of the Bank. My mother supported herself won-

derfully last night, but to-day she was quite exhausted, till this news revived her a little. . . . We shall all, I hope, bear whatever happens with fortitude. Above all, my beloved friend, I entreat you not to be uneasy, for I trust all will be well. My only apprehension has been for my mother, and I confess it has been hard work to appear cheerful, when I saw her agitated to the greatest degree, and knew I could in no way be of the least use; but she showed great resolution whenever it was necessary. . . . The servants have behaved nobly, and she has had all the comfort that friends can give." Miss Bowdler hastened to Piercefield on the following day. "Afflictions so nobly supported," she writes, "made the sufferers objects of envy rather than pity. A change of fortune so sudden and so unexpected was a great trial, but it was received in a manner to command the respect of all who witnessed it. I had long seen and admired Mrs. Smith in the situation in which she seemed peculiarly formed to shine; in one of the finest places in England, surrounded by her lovely children, with all the elegant comforts of affluence, and delighting her happy guests by the fascinating charms of her conversation. Through all the misfortunes which marked the period of which I am now speaking, I can with truth say of Mrs. Smith, what she says of her beloved daughter, that I do not recollect a single instance of a mur-

mur having escaped her on account of the loss of fortune." Mrs. Smith's words are, in the letter last quoted,—“When a reverse of fortune drove us from Piercefield, my daughter had just entered her seventeenth year, an age at which she might have been supposed to have lamented deeply many consequent privations. . . . I do not recollect a single instance of a murmur having escaped her, or the least expression of regret at what she had lost; on the contrary, she always appeared contented; and, particularly after our fixing at C——, it seemed as if the place and mode of life were such as she preferred, and in which she was most happy.”

On the family leaving Piercefield, the young ladies went in the first instance to reside with Miss Bowdler and her mother, with whom they spent seven or eight months, in and near Bath. They all drew, Miss Bowdler states, extremely well; and she adds—“Elizabeth was completely mistress of perspective. Her musical talents were very uncommon; she played remarkably well both on the piano-forte and harp, but she had lost her instruments. The library, of which she so well knew the value, was gone. Always averse to large parties, and with no taste for dissipation, she readily agreed to a plan of employment proposed by my mother, and we entered on a regular course of history, both ancient and modern. At other times we studied Shake-

spere, Milton, and some other English poets, as well as the Italians. We took long walks, and often drew from nature. We read with great attention the whole of the New Testament, Secker's Lectures on the Catechism, and several other books on the same important subjects. After my mother retired to rest, we usually studied the stars, and read Bonnycastle's Astronomy; which reminds me of the following circumstance. Elizabeth told me one evening that she did not perfectly understand what is said in Bonnycastle of Kepler's celebrated calculation, by which he discovered that the squares of the periods of the planets are in proportion to the cubes of their distances. She wanted to know how to make use of this rule, but I confessed my inability to assist her. When I came down to breakfast at nine the next morning, I found her with a folio sheet of paper almost covered with figures; and I discovered that she rose as soon as it was light, and, by means of Bonnycastle's Arithmetic, had learned to extract the cube root [it probably was only to raise numbers to the cube or third power, in arithmetic a much easier operation, and one which would have served the present purpose equally well], and had afterwards calculated the periods and distances of several planets, so as clearly to show the accuracy of Kepler's rule and the method of employing it. In such pursuits as I have mentioned I could accompany her; but in others

she had a much better assistant in our mutual friend Miss H——, who, fortunately for us, spent four months in our neighbourhood, and was the companion of our studies and our pleasures. She led Miss Smith to the study of the German language, of which she was afterwards particularly fond. She assisted her in botanical and other pursuits, as well as in different branches of the mathematics. I do not know when Elizabeth began to learn Spanish, but it was at an earlier period than that of which I am now speaking; when she was with us she seemed to read it without difficulty, and some hours every morning before breakfast were devoted to these studies. She acquired some knowledge of the Arabic and Persian languages during the following winter, when a very fine dictionary and grammar in the possession of her brother led her thoughts to Oriental literature. She began to study Latin and Greek in the year 1794, when Mr. C——'s excellent library and improving conversation opened to her an inexhaustible fund of information. She studied Hebrew from my mother's Bible, with the assistance of Parkhurst; but she had no regular instruction in any language except French. Her love of Ossian led her to acquire some knowledge of the Erse language, but the want of books made it impossible for her to pursue that study as far as she wished." Thus, even at this early age, whenever an opportunity presented itself of making any addi-

tional acquirement, we see how eagerly she seized it.

In some of her letters written in the course of the next two or three years, which Miss Bowdler has printed, we find further traces of her studies and her reading. In August 1793 she writes, apparently to Miss H——, that she has been reading in German an imitation of an Eastern tale called *Der Golden Spiegel* [The Golden Looking-Glass], in which there is “an account of a happy valley, that makes one long to live in it,” and Wiessen’s Poems. In October of the same year she informs her friend that she has got a nice collection of German books, which Miss Bowdler has borrowed for her; among them being a translation of the Iliad (probably Voss’s), Klopstock’s Messiah, which she was reading a second time with more pleasure than the first, a collection of poems, a novel, and a book of plays. “My favourite study just now,” she adds, “is algebra; and I find by Saunderson that if we had consulted proper books we should never have spent so much time in measuring squares and circles; for, though by the means we used (which were perfectly right) it may be brought inconceivably near, it is impossible to prove it mathematically exact.” She seems to have then endeavoured to explain the impossibility of the quadrature of the circle, as shown by Saunderson; but the passage is omitted in the printed

letter. Writing again in November, she states that she has just finished the *Messiah*, in twenty-two books, having not above half understood the poem when she had read it before in an earlier edition containing only fifteen books. In April 1794 she writes,—“I am very rich in German books just now ; for Dr. R——, who has a great many, has given me the entré of his library, to take whatever I like. I have got your friend Kleist, which I think delightful ; Haller’s Poems ; and Zimmermann’s *Einsamkeit* [Solitude], which pleases me more than almost any book I ever read. How much am I obliged to you for teaching me German ! I assure you I never read a beautiful passage without thinking it is to you I owe the pleasure I enjoy, and wishing you could enjoy it with me ; for, after all, it is but a selfish sort of thing to read merely to entertain *oneself*. . . . I envy you extremely in reading Virgil. I must learn Latin some day or other. At present I am puzzling at Persian and Arabic, and I mean to begin Hebrew. I get on least with Spanish, for I have been able to meet with only one book since I read *Don Quixote*, which was the *History of the Incas* by Garcillasso de la Vega. I was very much pleased with it, though it is very long, and in some parts tedious.” She adds that she wishes she had her friend’s patience to translate from one language into another, seeing that that is, she believes, the only way to be

perfect in any ; but she succeeds so ill, she says, in writing of any kind, that she never likes to attempt it. In February 1795, dating from London, she tells her friend that she has now accomplished the resolution she had long formed of making herself a Latin scholar. She had been staying in the latter part of the preceding year at a place called Shirley, the seat of a Mr. C——, whose wife was a relation of her mother, and, having begun the study of the language soon after she went there—thinking that “Shirley was a very good place for it”—she had now read through Cæsar’s Commentaries, all Livy (she seems to say), and some volumes of Cicero, including the Letters to his Friends. “As to Persian,” she adds, “all my books are at Bath, so that I shall most probably forget the little I knew when I saw you last. I have met with neither German nor Spanish books ; so that, if it were not for Latin, I should be quite in despair. I am very impatient to begin Virgil.” Another letter written on the 11th of March announces that she had by that time not only begun Virgil, but already finished the second book of his Georgics. In July she writes from Shirley, to which she had returned, and where she spent the greater part of this year, that she has been reading more of Cicero, and, among others of his works, his Tusculan Disputations, with which she had been greatly charmed. And in the same letter she says,—“I have just finished Cla-

rendon's History of the Rebellion, which Miss Bowdler long ago desired me to read. It is extremely interesting and instructive. Here is another of her favourites, Spenser, which I once gave up in despair, but which I am very glad I have read, for I am charmed with it, and I think some of the lesser poems are even superior to the Fairy Queen. We have read Mr. Gisborne's book [On the Duties of Man] aloud, and all the party was extremely pleased with it. I have got a new Atlas of all the remarkable fixed stars that are visible to us, without the figures. . . . Have you read Horace yet? Pray do not lose a moment; he is indeed delightful." In October, writing still from Shirley, she mentions that she has read Wieland's Oberon, and that she has just finished Froissart, "which," she says, "though rather tedious, I found very entertaining, and in a much pleasanter style than most of the modern French writers." And then she goes on;—"Immediately before this great undertaking I read the Memoirs of Petrarch, which made a very good line of history, containing the whole of the fourteenth century. With this book I was excessively pleased. It is impossible not to love Petrarch, if it were only for crying when his father threw Cicero and Virgil into the fire. He was a passionate admirer of Cicero, and I think a strong resemblance may be traced between their characters, though the circumstances in which

they lived were so different. You see in both the same love of glory, the same patriotism, the same high opinion of himself, which he endeavours to conceal from others, perhaps even from himself, by a cloak of humility. You discover in each an equal warmth of friendship; and I cannot help thinking that, if Cicero had met with Laura, or Petrarch been Consul in the flourishing times of the Roman Republic, the former would have been the poet, and the latter the orator. I hope I have improved a little in botany this summer, as well as you." The comparison here drawn between Cicero and Petrarch is at least lively and ingenious, and the passage illustrates how she reflected as well as read, and how her mind and her powers of thought were growing and strengthening with her multifarious studies and acquirements.

Meanwhile in 1794 Mr. Smith had entered the army, and in May 1796 his wife and daughter joined him in Ireland, where he was with his regiment. While moving about from place to place in that country, Elizabeth's studies were for a time necessarily much interrupted. "Books," her mother observes, in the letter already quoted, "are not light of carriage, and the blow which deprived us of Piercefield deprived us of a library also. But, though this period of her life afforded little opportunity for improvement in science, the qualities of her heart never appeared in a more

amiable light. Through all the inconveniences which attended our situation while living in barracks, the firmness and cheerful resignation of her mind, at the age of nineteen, made me blush for the tear which too frequently trembled in my eye at the recollection of all the comforts we had lost." The mother and daughter, however, returned to Bath in October, and Elizabeth spent the following winter there with her friends the Bowdlers. In the summer of 1798 they settled at Conway, where they remained for about a year. Miss Bowdler has printed a number of detached thoughts found in the pocket-books of her young friend, and written by her in 1796 and 1797, which evince not only much felicity of expression but often a power of reflection greatly more remarkable for one of her age. Sometimes, indeed, it may be felt perhaps that the ingenuity is greater than the depth or the truth; a little of that is to be expected in the circumstances; but the views that are taken, at any rate, even when they may be wrong or questionable, are generally far above commonplace, and, although not always actually new, are most of them evidently the result of original or independent thinking. The following, for instance, opens a vista of speculation which by no means belongs to the first stage even of system-making or philosophic reflection:—"Reason is the most unreasonable of all things, for without common sense to guide it

it never knows where to stop." The same or a nearly connected view lies at the root of an argument which is afterwards offered in refutation of the principles adopted by certain modern theorists in education, "that it is necessary to convince a child by reason before you expect him to obey:" "Reason," it is urged, "being the faculty of comparing ideas already presented to the mind, cannot exist in a child, to whom few or no ideas have been presented; *and no one was ever convinced by the reasoning of another.* It is, therefore, impossible to convince him; and, if he be suffered to do as he please till he be capable of reasoning, it is a great chance if his understanding be not so warped by the practice of evil, that he mistake it for good; and it is most probable that he may have contracted such a habit of disobedience as not willingly to submit to the laws of his country, or even to those of his God." There is something very far out of the common range of thought, at least for a girl of nineteen, in the remark, so unostentatiously thrown in, which we have put in italics, and which expresses so clearly the important truth that, although we may be silenced or perplexed by the reasoning of another which we cannot answer, it is only by an act or process of reasoning performed by itself that any mind is ever satisfied or convinced. Here is another example of the same mood of thought so unlike the usual headlong and all-assuming

confidence of youth:—"How very narrow are all the limits of the human understanding! Our situation in this world is like that of a person groping about in the dark. Whatever path of science we turn into, we meet with no obstacles that may not easily be surmounted, we flatter ourselves that we have made great discoveries, and think there will be no end of our progress till we perfectly understand everything; when on a sudden we knock our heads against the mud walls of our habitation, and are beat back by the blow to the centre of ignorance from whence we set out." There are also some reflections upon the study of languages which are interesting as coming from one who had shown such a genius for that pursuit; but they are too long to be extracted.

We must give the paragraph, however, which concludes the collection, and is dated January 1st, 1798, as not only essential to the exposition of the mind and character of the writer, but also forming a part, we may almost say, of the history of her life.—"Being now arrived at what is called years of discretion, and looking back on my past life with shame and confusion, when I recollect the many advantages I have had, the hours I have squandered, and the opportunities of improvement I have neglected; when I imagine what, with those advantages, I ought to be, and find myself what I am;—I am resolved to endeavour to be more

careful for the future, if the future be granted me; to try to make amends for past negligence, by employing every moment I can command to some good purpose; to endeavour to acquire all the little knowledge that human nature is capable of on earth, but to let the word of God be my chief study, and all others subservient to it; to model myself, as far as I am able, according to the gospel of Christ; to be content while my trial lasts, and when it is finished to rejoice, trusting in the merits of my Redeemer. I have written these resolutions to stand as a witness against me, in case I should be inclined to forget them, and to return to my former indolence and thoughtlessness, because I have found the inutility of mental determinations. May God grant me strength to keep them!" Her mother, referring to this passage, says,—“I firmly believe this prayer was accepted, for I do not recollect any instance in which she could justly be accused of either indolence or thoughtlessness, except on the subject of her health; on that point she trusted too much to the strength of a naturally good constitution, and had so little confidence in human skill that she neglected such means in the commencement of her last illness as in all probability would have removed it.”

During the year they spent at Conway Miss Smith's pursuits and studies were more of a kind to be carried on in the open air than such as required

the quiet and seclusion of libraries. "Our books are not arrived," she writes to her friend Miss H—— in the latter end of May, "but that is no misfortune, for I never find time to read." She rambled about in the neighbouring country, sketching its beautiful and majestic scenery, and collecting botanical and geological specimens. Writing again to Miss H—— in July, she says, "I often recollect how we all *groaned* together at Bath, at the idea of the unpleasant summer we expected to pass in our different lots; and, comparing that idea with the happiness we actually enjoy (of which from our want of confidence we were so particularly undeserving), I determine never again to be *anxious* about anything; persuaded that all events are much better disposed of than if *I* had the management of them." She then gives a long account of an ascent to the top of Snowdon to witness the rising of the sun, upon which she had set out with her mother and some friends from Caernarvon at eleven o'clock at night one day in the beginning of the preceding month. This letter, having been communicated by Miss H—— to her friend Madame De Luc, the wife of the well-known geologist, was read by that lady to the queen, and procured the fair and youthful writer some fame in fashionable circles.

In the end of March 1799 we find her again at Shirley, with her friends Mr. and Mrs. C——. In a letter to Miss H—— from that place, she tells

her that Mr. C—— has given her a very little book, the ‘*Sententiæ Rabbinorum*’ (or *Sayings of the Rabbis*), in Hebrew we presume, which she carries always in her pocket. It contains, she says, a vast deal of wisdom. “If you want,” she adds, “to consult the Syriac translation of the New Testament upon any particular passage, let me know. Mr. C—— has a very fine one, printed in Hebrew characters, and the language is so very like the Hebrew, and, where it differs from that, so like the Arabic, that I can read it very well.” In another letter, written in the beginning of May, she says, —“In town I have been reading two volumes of Sully’s Memoirs, with which I am delighted, and which I mean to finish the next time I can meet with it. Since I came back I have been reading Cicero’s Letters to Atticus. I cannot say that I understand every part of them, on account of many allusions to circumstances of the times, but with many parts I am much pleased.”

Shortly after this Mrs. Smith returned with all her family to Ireland, where her husband’s regiment was still stationed. They established themselves after some time at Ballytore, in the county of Kildare; and there Miss Smith, during a residence of nine months, had access to a good collection of books, chiefly Greek and Latin, from many of which she made copious extracts. The bundle of papers was found after her death, described in a

Latin title (certainly very incorrectly given by Miss Bowdler) as "A Collection of curious Plants gathered at Ballytore in the spring of 1800, some for their beauty, some for their sweetness, some for their rarity." They were all in the original languages; and many were taken from the Greek minor poets, others from Epictetus, Hesiod, and the Sibylline Oracles; those in Latin, from Cicero, Terence, Grotius de Veritate Religionis Christianæ, Bacon's Treatise de Augmentis Scientiarum, and the Latin translation of Bacon's Essays; those in English, from Josephus; with notes, according to Miss Bowdler, referring to the whole of his works, and showing that the writer had studied all parts of them with attention.

They left Ireland again in October 1800, "determined," says Mrs. Smith in her account, "on seeking out some retired situation in England; in the hope that by strict economy, and with the blessing of cheerful, contented minds, we might yet find something like comfort." They settled in the first instance in a cottage at Patterdale on the banks of the Lake of Ullswater in Westmoreland, and remained there till May of the following year, when they removed to a place designated C—— in Mrs. Smith's narrative. It appears to have been situated in the same part of England; and the surrounding country is described as very beautiful. Here Mrs. Smith continued to reside so long as her daughter lived.

Miss Smith appears to have continued the habit of recording such of the views or thoughts which suggested themselves in the course of her reading or reflection as wore any semblance of novelty or peculiarity from her first adoption of the practice, in 1796, to the end of her life. On commencing the regular observance of it she had written,—“I find it a very good method to write down my thoughts as they occur, for an idea often strikes me, which, turning to something else, I forget immediately; but considering it as much as is necessary to write it down makes me more acquainted with the subject, and makes my thoughts more my own. For want of some such plan, I see people dreaming away their lives in inactivity of mind, without forming any opinions of their own, till, from paying no attention to their thoughts, they come not to think at all.” In the performance of the task which she thus set herself she appears also to have attended to the important rule, especially for a young person, of giving full and correct expression to the thoughts which she registered. To do this is to cultivate not only the art of expression, but the art of thinking also; not only style, but thought. In general a thought is not distinctly conceived till it is distinctly expressed. Miss Smith’s observations are not mere hurried hints, but complete though short statements, intended to be and actually being as intelligible to any other

reader as to herself. To illustrate the growth of her mind, we will transcribe two or three of those which appear to have been noted down by her after her return from Ireland.

She may have been anticipated in the following thought, but it has all the air of being an unborrowed one :—“ Why are the writings of the ancients, generally speaking, superior to those of the moderns? Because paper was scarce. Of course they would think deeply, and consider their subject on every side, before they would spoil their parchment by writing what on reflection might appear not worth preserving. The same cause, added to the labour of transcribing, would prevent copies being multiplied except of what was really valuable. Thus, what has come down to our time is only the cream of the writings of the ancients, skimmed off by the judgment of their immediate successors, and cannot fairly be compared with the general mass of modern literature.” No doubt there is something in this consideration as affecting any comparison of the entire mass of modern with that of ancient literature; but it does not seem to bear upon the case of works of the first class, with which alone the controversy about the superiority of the genius of the ancients or the moderns can concern itself. It can hardly be supposed that such works can have either been made better than they otherwise would have been

by the scarcity of paper, or worse by its abundance. Still it is remarkable that a reigning distinction between the writings of the ancients and those of the moderns consists in the comparative compactness of the former and diffuseness of the latter, to whatever cause or causes it is to be attributed.

A similitude in another of Miss Smith's reflections is ingenious and happy, and, we apprehend, original :—“The hand of a friend imparts inestimable value to the most trifling token of remembrance; but a magnificent present from one unloved is like golden fetters, which encumber and restrain not the less for being made of costly materials.”

The following is really a creditable venture upon a high and difficult question, and one which has engaged and perplexed the most powerful intellects:—“Sublimity is something beyond the little circle of our comprehension, and whatever within that circle approaches the circumference approaches the sublime. The pleasure occasioned by the idea of sublimity seems to me to consist in the exertion of the mind, which, when violent, overpowers weak minds, but makes strong ones feel and rejoice in their own energy. Mr. Burke certainly understood and felt the sublime; but I think he would have defined it better, if, instead of saying it is occasioned by terror, he had said it is something incomprehensible to the mind of man, something which it struggles to take in but cannot, which exerts all its

powers but baffles them. The instances he brings of it would in general agree much better with this idea than with that of terror; as, an extent of space of which the eye sees not the bounds, a degree of darkness which conceals them, everything which occasions indistinctness and difficulty. The same perpendicular height gives a more sublime idea to a person on the summit than at the base, because the eye cannot so easily measure the height." Burke would have said, perhaps has said, in this last case that the sublimity is greater to the person on the summit because his terror is greater; but the terror felt in such a situation would seem in reality to be something quite distinct and of a different nature altogether from the feeling of the sublime. It is much the same feeling with the terror which might be excited by the attack of an infuriated bull or a mad dog. It might rather be said to have a tendency to extinguish the feeling of the sublime than to be its source or essence. Moreover, if the feeling of the sublime be excited in the person on the summit of the precipice solely by terror, it is not very intelligible how the person at the base should have any feeling of the sublime at all. It may be said, indeed, that he imagines what he would feel if he were on the summit, or perhaps that he acquires the feeling of terror from the thought of the precipice falling down upon him. But these explanations are manifestly desperate and

utterly inadequate. When we feel the sublimity of the firmament, is it that we are afraid either of its falling down upon us or of our falling down from it?

Others of Miss Smith's reflections may be quoted for their bearing upon the subject of the present volume. Such is the following:—"Study is to the mind what exercise is to the body; neither can be active and vigorous without proper exertion. Therefore, if the acquisition of knowledge were *not* an end worthy to be gained, still study would be valuable on its own account, as tending to strengthen the mind; just as a walk is beneficial to our health, though we have no particular object in view. And certainly for that most humiliating mental disorder, the wandering of the thoughts, there is no remedy so efficacious as intense study." And this:—"It is not learning that is disliked in women, but the ignorance and vanity which generally accompany it. A woman's learning is like the fine clothes of an upstart, who is anxious to exhibit to all the world the riches so unexpectedly acquired. The learning of a man, on the contrary, is like hereditary rank, which having grown up with him, and being in a manner interwoven with his nature, he is almost unconscious of possessing it. The reason of this difference is the scarcity of the commodity among females, which makes every one who possesses a little fancy herself a prodigy. As the sum total increases we may reasonably hope that each

will become able to bear her share with a better grace."

Miss Smith's first considerable literary occupation after her removal to C—— appears to have been her new translation of the Book of Job from the original Hebrew. It was finished, her mother states, in 1803. Miss Bowdler speaks of translations which she also executed of some chapters of Genesis, of many of the Psalms, of some parts of the Prophets, &c. "She spent," says Miss Bowdler, "some time with me in the years 1802 and 1803, when she brought me her translation of Job, and many observations on different parts of the Old Testament. . . . She had shown me her translation of the eleventh chapter of Genesis in the year 1797, when she was only twenty years old; and, as it differs considerably from that in the English Bible, I requested a friend to show it to Mrs. Carter, who said that the idea was new to her, but she thought the words might bear that interpretation. I was afterwards informed that Sir William Jones had given the same interpretation to that chapter." Miss Smith's translation of the Book of Job was published after her death on the strong recommendation of Dr. Magee, afterwards Archbishop of Dublin, who says of it in a letter printed in Miss Bowdler's volume,—“After a close scrutiny, and a careful comparison with the original, it strikes me as conveying more of the true character

and meaning of the Hebrew, with fewer departures from the idiom of the English, than any other translation whatever that we possess."

It would seem to have been after finishing this translation that she engaged in the preparation of her work upon Klopstock, which, as published after her death, consists of a translation of the 'Posthumous Writings of Margaret [or Meta] Klopstock,' published by her husband at Hamburg in 1759, accompanied by a memoir of the poet, and translations of a number of his Letters and Odes. It is stated by the Editor (Miss Bowdler) that the volume, with the exception of a few pages, was completed in the year 1805; and that the Preface was read and approved by Miss Smith. In her Memoir Miss Bowdler informs us that in the year 1803 Mr. Sotheby, who had acquired a high reputation by his version of Wieland's Oberon, suggested to her that the uncommon talents of her young friend should be employed in translating something from the German with a view to publication. He desired Miss Bowdler to ask her to execute a translation of one of Gesner's Idylls, which he pointed out, that entitled 'A Picture of the Deluge.' "I believe," says Miss Bowdler, "she had never read it, and I know she had no dictionary; but I told her that Mr. Sotheby had commended the poem highly, and I wished she would make me understand it." When the trans-

lation, which she produced on the following morning, and which Miss Bowdler has printed, was shown to Mr. Sotheby, he was extremely pleased with it; and he encouraged Miss Smith to undertake the work upon Klopstock. It was a task "which," says Miss Bowdler, "employed much of her time and attention, and in which she took particular pleasure; till her last fatal illness put an end to her pursuits, and to all our earthly hopes in regard to her." She herself writes to Miss Bowdler on the 9th of November 1804,—
"I cannot conclude without thanking you most heartily for the employment. I am so delighted with Klopstock, that I feel very glad of an excuse to give up my whole time and thoughts to him. As to the dictionary, I am sorry to have troubled Mr. Sotheby, for I have not yet found any use for it. The English often runs so naturally in the same course with the German, that I have nothing to do but to write it down." On the 25th of the same month she writes,—
"That you may not suspect me of arrogance in saying that I made no use of the dictionary, I must tell you that the difficulty of Klopstock's Odes (for difficult many of them certainly are) does not consist in hard words, but in the wide range of ideas, and the depth of thought, which he has expressed in very concise language; of course, often bordering on obscurity, but such obscurity as no dictionary has power to dissipate.

On the contrary, in translating the prose, I have several times had occasion to consult it for names of things in common use, which never occur in poetry, and it has not always afforded the information I wanted." She adds, "If you imagine me making rapid progress, you are totally mistaken. Since my sisters and B—— [her brother] came home, my perfect stillness is at an end; and, my brains being of that kind which requires the aid of outward composure, it is not without difficulty that I can now translate the prose, and the poetry I do not think of attempting." On the 22nd of December she acknowledges the receipt of a parcel from her friend—a "little parcel of great treasures"—which would appear from what follows to have been a copy of Klopstock's publication about his wife sent to her by Mr. Sotheby. The translation of this volume she had completed by the 22nd of March in the following year, on which day she writes,—“A small box will be despatched tomorrow, containing a translation of all the prose in Mr. Sotheby's book, &c. I fear you will find some German still sticking to the translation, which I have not been able to rub off.” This, however, had not been all the literary labour for which she had found time. “I have added,” she subjoins, “some of my Sunday work, for your private amusement. You are so well acquainted with the subject, and have the power of consulting

so many books, that you will probably know I am mistaken in many instances; and you will highly oblige me by telling me so." This no doubt refers to some compositions on religious subjects. Nor had her pen made her neglect everything else. "At the bottom of the box," she adds, "you will find a few transparencies done by K—— [her sister] and one for your show-box." Miss Bowdler states that she is in possession of a beautiful collection of transparencies from scenes in the neighbourhood of Patterdale and C—— done by Miss Smith and her sisters. "Elizabeth," she says, "discovered a method of clearing the lights with wax, instead of oil or varnish, which I think answers perfectly well."

There is another letter from Miss Smith dated the 16th of April, from which it appears that she had by this time nearly completed her undertaking. "The employment," she says, "has been delightful to me. I could not have got through the winter without something to engage my thoughts, to fix my attention; and I could hardly have found anything that would do this more agreeably than the Klopstocks I have now sent all that was wanting of the little volume, except some of the letters of their friends, which seemed to throw no particular light on the subject, and are only interesting as they show how much the Klopstocks were beloved."

But this labour of love was the last literary task she was ever to accomplish or to commence. The family had now resided four years at C——. “This country,” says her mother, “had many charms for Elizabeth. She drew correctly from nature, and her enthusiastic admiration of the sublime and beautiful often carried her beyond the bounds of prudent precaution with regard to her health. Frequently in the summer she was out during twelve or fourteen hours, and in that time walked many miles. When she returned at night she was always more cheerful than usual; never said she was fatigued, and seldom appeared so. It is astonishing how she found time for all she acquired, and all she accomplished. Nothing was neglected; there was a scrupulous attention to all the minutiae of her sex; for her well-regulated mind, far from despising them, considered them as a part of that system of perfection at which she aimed; an aim which was not the result of vanity, nor to attract the applause of the world; no human being ever sought it less, or was more entirely free from conceit of every kind. The approbation of God and of her own conscience were the only rewards she ever sought.” She herself dated the commencement of her illness from a very hot evening in July, on which, after leaving the house and walking about two miles, she seated herself on a stone beside the lake, and, getting interested in a poetical work

she had brought with her, did not perceive that the sun was gone down, and that a very heavy dew had fallen, till in a moment she felt, as she expressed it, "struck on the chest as if with a sharp knife." She returned home, and said nothing of the pain; but on the next day, which was also very hot, when every one was busy in the hay-field, she took a rake and worked hard in the hope of getting rid of it by throwing herself into a perspiration. It still continued, however, and was soon followed by a bad cough, with occasional loss of voice. "No entreaties," says her mother, "could prevail on her to take the proper remedies, or to refrain from her usual walks. This she persisted in, being sometimes better and then a little worse, till the beginning of October." Her mother and she then set out for Bath, where they had been engaged to spend the winter. By the time she reached her journey's end, Elizabeth had lost all use of her legs, and her voice was also gone. From this state, however, she was recovered by the medical aid that was called in, and after about six weeks she accompanied her mother to Sir John Legard's at Sunbury, near London, where her two sisters were staying, one of whom was about to be married. Writing from Sunbury on the 28th of December to her friend Mrs. C—— at Shirley, she says, "I was certainly somewhat fatigued with the journey, and for the first two days after I

arrived was but indifferent; but yesterday and to-day I am astonishingly well; have learned to sleep, and cough but little I am very busy tracing the situation of Troy in Mr. Gell's book, and am very well satisfied with it. Yesterday we took an airing to Hampton Court and Twickenham. The day was delightful, and the air seemed to give me new life." Encouraged by these appearances of convalescence, her mother after ten days returned to Bath. Here she continued for some weeks to receive accounts that everything was going on well. But when she returned to Sunbury on the 23rd of March 1806, she was thunderstruck at the first sight of her daughter, in whose countenance she plainly read, as she thought, confirmed consumption. A change for the worse had taken place only a few days before, supposed to have been occasioned by a long-continued cold east wind. From this time Miss Smith herself seems to have felt that the hand of death was upon her. On the 28th of March we find her writing to her sister as follows: — "I want you, my K——, to be composed on this subject, as I am myself. You must not be frightened when you hear I am worse, nor, because it is said that I am better, suppose that I am to be immediately well; for both mean nothing, and perhaps last but a few hours. I have myself a decided opinion of the probability of the event, and I see no

kindness in feeding you with false hopes. I wish you to be prepared for what *you*, though not *I*, would call the *worst*. I do not mean that there are any symptoms to cause immediate alarm, but the constitution seems to be wearing out; that, however, *may* be restored by the warm air of the spring and summer." Anxious to return home, she left Sunbury with her mother on the 6th of May. They first proceeded to Matlock, and there her father joined them. "The pleasure of meeting him," Mrs. Smith continues, "the novelty of the scene, and the remarkable fineness of the weather, seemed to give her increased strength and spirits; and the day after our arrival she walked so far that I confessed myself tired; but this apparent amendment was soon over, and she relapsed into her former languid state, unable to walk to any distance, and only riding a little way while some one walked beside her. We remained at Matlock near three weeks; but, not perceiving that she gained any benefit, we set off for C——. Travelling always seemed to agree with her, and on her arrival at her favourite spot I again perceived an alteration for the better, but it was only for a few days." Writing herself to a friend, also an invalid, on the 4th of July, she says,—“I have never had a pen in my hand from the time I left Sunbury till now; and now, if my father were not going to-morrow, I should put off writing, in hopes of being more able

to say something to you some other day. This, however, I can say to-day, or any day,—that, though my strength has failed, my memory and affections have not; and that, while they remain, you will ever hold your place in the one, and your share in the other. I am much concerned at the accounts which I hear of you. It is very tedious to suffer so long;—but we shall all be better soon.” It appears to have been on the same day that she wrote for the last time to Miss Bowdler, to whom the letter was brought on the 9th, by Miss Smith’s father, as he passed through Bath on his way to Plymouth, with his youngest son, who was going to sea. “I can never thank you enough,” she says to this early and dear friend, “for all the kind interest you take in me and my health. I wish my friends were as composed about it as I am; for, thanks to you, and your ever dear and respected mother, I have learned to look on life and death with an equal eye, and, knowing where my hope is fixed, to receive every dispensation of Providence with gratitude, as intended for my ultimate good. The only wish I ever form, and even that I check, is that my illness might be more severe, so it might be shortened; that I might not keep my father and mother so long in suspense with regard to all their plans, and occasion so much trouble and anxiety to my friends.” Still the decay of her strength seemed to be very gradual, nor was it till the Monday be-

fore her death that any material alteration was observed. She lived till Thursday the 7th of August, and even on the morning of that day, at six o'clock, she attempted to get up; but, while they were proceeding to dress her, she leant her head on the shoulder of her attendant, and in a few minutes expired.

For such spirits this earth is scarcely a fit abiding-place, and an early death is a release and a consecration. Her life had been all beauty, and so too is her memory now for ever. Length of days, indeed, may yield the more fruit; but it is something too to escape the at the best bedimmed metamorphosis of old age. Miss Smith's "person and manners," Miss Bowdler tells us, "were extremely pleasing, with a pensive softness of countenance that indicated deep reflection." Her mental constitution was a combination of exquisite sensibility with great powers of thought and reasoning. Certainly nowhere could such a nature have either so safely sought or so sufficiently found exercise and enjoyment for its faculties and its affections as in the boundless universe of literature. To the last, books, with their distilled spirit of wisdom, were her delight and her sustenance. Only the morning before she died she desired her mother to read to her Thomson's 'Winter,' and listened to the poem with all her wonted interest, making many observations upon it. And, after

she was taken away, what other conceivable possession was there that that mother would have taken in exchange even for the recollection of such a daughter? "I can now again," we find her writing to Miss Bowdler on the 8th of September, "attend my own parish church, and I cannot tell you how gratifying it is to me;—I seem to meet my beloved Elizabeth every Sunday. This idea occasions sensations that I would not exchange for any earthly treasure. They are not such as depress my spirits; quite otherwise. They excite my hope, increase my piety, and strengthen me to meet the trials of the ensuing week. Indeed I feel that she is dearer to me every day."

CHAPTER VI.

Elizabeth Hamilton.

MISS, or, as she latterly chose to style herself, Mrs. Elizabeth Hamilton is one of the female writers of what may now be called the last age whose irruption into literature was about as spontaneous and irregular as well could be, for there was nothing either in the education she had received, or in the circumstances of her position, to give her any peculiar impulse towards such a career; yet she may be said to have registered her name there among the classics of our language. If everything else she produced be forgotten, as may almost be said to be already the case, her 'Cottagers of Glenburnie' at least will live and continue to be read so long as the Scottish dialect remains intelligible. It is the only work written in that dialect between the era of the poetry of Burns and that of the prose of Scott which is even now remembered. Of Scottish prose-writing there is no earlier subsisting example until we go back to the sixteenth century; here it claims the honour of having been the only modern predecessor of the Waverley novels, if not

that of having been in some degree their model. In so far as its interest and humour lie in the use of the popular dialect, it is itself probably to be accounted the offspring of Miss Edgeworth's *Castle Rackrent*, which is the earliest work still surviving in which the comedy and expressiveness to be found in the peculiarities of the Irish provincial speech were largely taken advantage of.

Miss Hamilton was Irish by birth, though Scotch by descent and also by education. Her family, the Hamiltons of Woodhall, we believe in Lanarkshire, she herself describes, in a short autobiographical fragment which has been published since her death, as the stock whence all the branches of that name that have been ennobled in Great Britain, France, and Germany have sprung; and such may have been the family tradition or conceit. With these pretensions pride of birth may be supposed to have beat high in the Hamiltons of Woodhall. Even Miss Hamilton's great-grandfather, who was but a younger son, and who left Scotland for Ireland in the reign of Charles II., to escape the English liturgy, appears to have bequeathed more of that feeling than of any more substantial property to his descendants, although he is said to have taken with him funds which enabled him to purchase "a tract of land in the county of Monaghan of such extent as, had his family been possessed of worldly wisdom, would have raised them to

influence and distinction." He had a great many children, of whom Charles, Miss Hamilton's grandfather, entered the army at fifteen, and went over to Scotland at once to join his regiment (one of horse), and to finish his studies at the university of Edinburgh. Acquiring at college a disrelish for a military life, he eventually accepted a civil appointment, and soon after married a lady distinguished for her beauty and also possessed of a handsome fortune. He did not, however, inherit anything from his father, who probably thought he had done enough for him in purchasing his commission, and who is stated to have bequeathed his property in nearly equal lots among four sons who remained with him in Ireland while their brethren went to seek their fortunes elsewhere. The Monaghan estates thus divided were afterwards, we are told, in great part re-united by his grandson Sir James Hamilton, but were by him again divided at his death among his children. Meanwhile Charles Hamilton and his beautiful wife had been making for themselves a common enough history. "My grandmother," says Miss Hamilton, "who in manners and accomplishments, as well as in a taste for show and gaiety, seems to have anticipated the fashions of a succeeding age, resolved not to discredit her husband in the eyes of the world by an appearance inferior in point of expense to any of his great connexions. She con-

sequently vied with the people of rank among whom she lived ; and, being much too fine a lady to be a good manager, did not, as is often done, make up by secret deprivation for ostentatious display. In vain did her too indulgent husband remonstrate ; in vain did he change his place of residence to different parts of the kingdom, in order to find a society with whom he might live on equal terms without exceeding his income. My poor grandmother did not understand reasoning ; she piqued herself on being one of the best of wives and most affectionate of mothers, and in all the pride of virtue ruined her family and destroyed the peace of her husband." The end was that Mr. Hamilton was tempted to appropriate certain public moneys that passed through his hands, and, when a discovery was made, died suddenly, as his granddaughter seems to intimate, of a broken heart. Besides a son he left two daughters, upon whose education in early life he is stated to have bestowed much care, endeavouring to make them rational while their mother was only anxious that they should be accomplished, and that with so much success, that, as his granddaughter expresses it, even the third generation had reason to bless his memory. Of the eldest daughter we are only told that in the destitution in which the family were left she "thankfully accepted of an invitation from a rich aunt in Ireland, where she soon

found herself looked on with an evil eye by the numerous relations who were competitors with her for the old lady's fortune." The history of the younger is more closely connected with that of the authoress of 'The Cottagers of Glenburnie.' She is described as having her mother's beauty and her father's understanding, without any of his weakness. "With talents," says her niece, "of a superior order, and with an education such as few Scotch ladies could at that time boast of, my aunt ought not to have experienced any difficulty in the attainment of independence. But for talents and accomplishments there was at that period no resource, nothing upon which they could be employed to advantage; she was therefore glad to obtain protection in the house of a distant relation, and to repay this protection by those exertions for which she was eminently fitted by a superior education." The person with whom she went to reside was a Lady G., "a woman of great piety and extensive information," who kept up a correspondence with some distinguished characters, and employed her young friend to write all her letters; thus giving the latter "an opportunity," says her niece, "of improving in sentiment and expression, nor was the opportunity thrown away; for I have never met with the writer who could express so many ideas in so few words with an equal degree of simplicity and elegance." On

the death of Lady G., Miss Hamilton was received into the family of her daughter, a Mrs. M., the wife of a Scotch gentleman of old family, the Laird of P——, in Stirlingshire, whom she had married before either had yet reached the age of sixteen. The lady is described as, though not equal to her mother in intellectual accomplishments, yet possessing a compassionate temper and charitable disposition; but her poor relation did not find her house a happy home. "That family pride," says her niece, "which my aunt had hitherto considered as a generous and dignified sentiment, and which she had from her cradle been taught to cherish as a virtue, she now saw in a very different light, for she had now an opportunity of contemplating its effects in giving self-importance to vulgarity and ignorance." The allusion here, we suppose, is to Mr. M. "The letters written by my aunt to my father about this period," the narrative proceeds, "show how deeply she was affected by the mortifications to which she was now exposed; mortifications which only ceased to wound when she had obtained that perfect resignation to the divine will which enabled her to read the dispensations of infinite goodness and wisdom in all the events of her life. When the pride of the heart has been expelled by true Christian humility, half the evils of life are annihilated; a truth of which
✓ good aunt was an eminent example." At the

time of her father's death the well-born and beautiful girl, then in her sixteenth year, had been about to be united to the eldest son of a baronet, Sir A. W. ; the marriage would have taken place if her father had lived, or rather if the disclosure of the state of his affairs had been deferred only a few months longer. She now, though not without a severe struggle, brought herself to listen to the addresses of a Mr. Marshall, a person of very humble birth. "Time, however," says her niece, "as it displayed the extraordinary virtues of this best of men, reconciled her by degrees to the thoughts of an alliance which, though little gratifying to her pride, would, as she believed, secure her peace ; nor was she disappointed in this expectation ; nor in the two-and-thirty years that she afterwards lived with him did her heart ever experience even a momentary pang of vexation, sorrow, or regret." Though the son of a peasant, Mr. Marshall had received a good education ; and he appears to have already made his way to a secure position, and to have been in good circumstances, when he married. His business seems to have been that of a farmer.

Mrs. Marshall's marriage had the sanction of her brother. "Whatever repugnance," says Miss Hamilton, "my father might have felt at the idea of such a connexion, he had too sound an understanding, and too liberal a mind, to take offence at

his sister for consulting her own happiness. He had himself experienced the benefit of an early acquaintance with adversity ; and, though the vigour of his mind enabled him to assert the spirit of independence, he made every allowance for the different circumstances under which his sister was placed, and generously offered to her and her husband all the assistance in his power towards placing them in a situation equal to their wishes." He had on the death of his father been obliged to quit the university, and had gone to London, where through the friendship of a Mr. A. he was soon taken into a mercantile house with which that gentleman was connected. But, finding or imagining that his health suffered from the air of London, he was induced after some time to go over to Ireland and to set up in business for himself at Belfast. It was in passing through Dublin on his way to that town that he first met the lady whom he afterwards married, a Miss Mackay. She was a sister of the Reverend Mr. Mackay, for many years minister of the congregation of the Old Independents at Belfast. "The want of fortune," says their daughter, "seemed for some time to present an invincible obstacle to their union ; but love brought hope and confidence of future affluence to support his cause against the arguments of rigid prudence. They married ; and, if ever perfect happiness was enjoyed by married pair, that happiness was theirs." Mr.

Hamilton, however, was cut off by typhus fever in 1759, leaving, like his father, two daughters and a son, with very little, apparently, for their support, except what his widow might be able to derive from continuing his business, of the precise nature of which we are not informed. The elder child was a daughter, Katherine; the second was the son, named Charles; the youngest of the three was Elizabeth, who was born at Belfast on the 25th of July, 1758, and was therefore only about a year old when she lost her father.

The account of the life of Elizabeth Hamilton, thus merely commenced by herself, has been continued by Miss Benger, whose work was published at London in two volumes in 1818, and who has subjoined to her Memoir extracts from the correspondence and the private journal of her deceased friend. Mrs. Hamilton appears to have been a woman of eminent good sense and remarkable firmness of mind. It may be suspected that it was from her rather than from her father that Miss Hamilton inherited her intellectual superiority. Something of her character may be gathered from a letter addressed by her to her son, of whose inattention to his lessons some complaints had been made by his schoolmaster. After observing that "the lash is applied to dogs and horses because they are incapable of reason, and cannot be managed without it; but never would a boy of a right spirit incur

such a disgrace ;” she goes on :—“Take example by your sister. She is not a year and a half older than you, and in what respect does her behaviour differ from a woman’s? When did you see her amuse herself with a childish diversion? When she is not employed about something necessary and useful, she entertains herself with a book for the improvement of her mind.” This eldest daughter, Katherine, devoted herself especially to her uncle the clergyman, who resided in the family, and, besides superintending the education of his favourite niece, afterwards left her all that he had. As for the youngest, Elizabeth, she was at four years of age resigned by her mother to the care of her late husband’s sister Mrs. Marshall, and sent over to Scotland; the poor widow in consenting to this arrangement sacrificing her feelings as a mother to a sense of what she believed would be for the advantage of her child. After two years, little Elizabeth, accompanied by her uncle and aunt, returned on a visit to Belfast; and, after another separation of the same length, she and her mother were once more restored to one another for a time by the latter, then in a declining state of health, coming over to spend part of the summer in Scotland. But this was the last time they met: in the following year, 1767, Mrs. Hamilton died.

Elizabeth continued to reside with her kind uncle and aunt, in a solitary house which they inhabited

not far from the town of Stirling. "By this worthy couple," she herself says, in a letter written long afterwards, "I was adopted, and educated with a care and tenderness that has been seldom equalled. No child ever spent so happy a life; nor, indeed, have I ever met with anything at all resembling the way in which we lived, except the description given by Rousseau of Wolmar's farm and vintage." According to her biographer she had learned to read with distinctness and propriety before her arrival in Stirlingshire; but it can hardly be meant that she had made so much progress in her education before leaving Ireland. Her uncle and aunt, we suppose, had resided in some other part of Scotland when she first joined them. We are expressly told, however, that in the lonely house near Stirling she spent two years,—“not,” it is added, “in learning tasks, but in receiving more instructive lessons from nature: fortunately she had a playmate of the other sex, by whose example she was stimulated to feats of hardihood and enterprise, and, happy to escape restraint, she readily joined her companion in fording the burns [streams] in summer, or sliding over their frozen surface in winter.” Books, however, soon came to be her chief occupation and passion. She became enamoured of Sir William Wallace by learning to recite Blind Harry's rhyming life of that hero; two or three of Shakespeare's historical plays next attracted her attention; then she began

to read English history ; then Ogilvy's translation of the Iliad fell in her way, and excited all her young enthusiasm.

Miss Benger's chronology is somewhat perplexing. In the same page in which she tells us that Miss Hamilton was born in 1758 she makes her to have been six years old when she was sent to live with her uncle and aunt in 1762 ; and her notice of the two years spent by her friend in the lonely house near Stirling follows in the order of narration the mention of the death of her mother in 1767. We are then told that when the child had completed her eighth year she was sent to board with a female friend in the town of Stirling, that she might go to school there. This ought to mean that her removal to Stirling took place in 1766, the year before she lost her mother. But a space of two or three years—even when constituting nearly half the lifetime of her heroine—is neither here nor there in Miss Benger's reckoning ; and very possibly Miss Hamilton may have been not eight but ten years old when she was sent to Stirling. “It may shock the fastidiousness of modern refinement,” her biographer proceeds, “to hear that it was a *master* who presided over the school to which Elizabeth was introduced ; but it should be remembered that about fifty years ago this practice prevailed universally in Scotland, Ireland, and even some parts of England ; nor was it unusual to see

boys and girls associated in their tasks with no other separation than the being seated on different forms. Mr. Manson's school at Stirling was either devoted exclusively to girls, or opened alternately for girls and for boys; and it was a subject of regret to Mrs. Hamilton in after life that she had not been allowed to learn the classics under so competent an instructor. To writing, geography, and the use of the globes she applied with much assiduity, and with a degree of success that delighted her master, who, in a poem written forty years after, referred with generous pride to the period when Elizabeth Hamilton had been his pupil. Exclusively of the three hours of daily tuition from Mr. Manson, she attended the dancing-school, and soon became passionately fond of the exercise. It was not till the ensuing year that she learned French, to which she afterwards added drawing and music." It is difficult to understand what may be here meant by the ensuing year, no particular year having been previously mentioned; probably it means the second year of her attendance at school in Stirling. She continued to be boarded there, we are told, till after she had entered her thirteenth year. But all this time of four or five years she returned home to her uncle's—a distance, it seems, of about four miles—at the end of every week, and spent the Saturday and Sunday there. The former of these two days, however, Miss Benger intimates

was the one that the child decidedly most enjoyed. The Sunday was a day of severe task-work; to church in the morning and again in the afternoon, and then in the evening the getting by heart some psalm, or hymn, or catechetical exposition, perhaps with the chapter and verse proofs from Scripture annexed. Mr. Marshall attended an Episcopalian Chapel, but his wife, adhering to her family faith, went to the established Presbyterian Church, and, as we gather, took her niece with her. On the Monday morning, Miss Benger remarks, the latter "was perhaps not unwilling to return to Stirling."

When she was finally re-established in the house of her uncle and aunt in her thirteenth year, a lady was engaged for a time to give her further instruction in music and drawing. Afterwards she was sent for some months to Edinburgh and Glasgow, and in those two cities received lessons from various masters, we suppose in the ordinary female accomplishments. But the greatest advantage, we are told, that she derived from this visit was making the acquaintance of Dr. Moyes, the celebrated blind lecturer on natural philosophy.* They afterwards became great friends, and kept up a correspondence, to which Miss Hamilton was indebted for some useful guidance in so far as her studies were directed to the doctor's department of know-

* See an account of him in 'Pursuit of Knowledge,' Part First, vol. ii. p. 40.

ledge, which however they do not appear ever to have been to any considerable extent. "In after life," her biographer adds, "it was often a subject of regret to her that she had not devoted to classical or scientific pursuits the time unprofitably wasted in music." Her mind was certainly much more intellectual than artistic.

An impulse was also given to her mental growth about this time by a visit from her brother, who was five years her senior, and who, after having struggled in vain to overcome his repugnance to a mercantile life, had at last determined to be a soldier, and, having obtained a cadetship in the service of the East India Company, was now on the point of setting sail. Nearly at the same time that the brother and sister parted, early in 1772, the Marshalls removed to another house at Ingram's Crook near the field of Bannockburn—described by Miss Benger as "a neat thatched cottage, which during the summer was covered to the chimney-top with woodbines and roses," and which, "enclosed within a court, formed a picturesque object, just peeping from the embowering shades of the orchards and other plantations." "From the commencement of her residence at Ingram's Crook," it is observed, "Miss Hamilton may be supposed to have completed the circle of school attainments, to have suspended her lessons, and dismissed her masters."

The next eight years brought no change in her external circumstances. Much of her time continued to be spent in reading, partly alone, partly to her uncle and aunt, one of the regulations of whose household it was that, when no other engagement intervened, a book should be read aloud in the evening for the general amusement; and "the office of reader," we are told, "commonly devolved on Miss Hamilton, who was thus led to remark that the best prose style was always that which could be longest read without exhausting the breath." But certainly there are other qualities besides this that are requisite to make a good style. Mrs. Marshall, though not herself literary, did not discourage her niece's present studies, only advising her to avoid any display of superior knowledge, that she might not be thought pedantic or unwomanly. In a letter to her friend Mr. Hector M'Neill, the poet, written many years afterwards, Miss Hamilton seems to refer to this period of her life, and to the notions then generally prevailing in the society in which she moved, when she says,—“In Scotland, as far as I have observed, judgment is the only faculty which it is deemed allowable for women to cultivate. . . . Do I not well remember hiding Kames's Elements of Criticism under the cover of an easy chair whenever I heard the approach of a footstep, well knowing the ridicule to which I should have been exposed had I been detected in the act of

looking into such a book?" One of her principal sources of improvement as well as of enjoyment at this time was the correspondence which she kept up with her brother, who was devoted to literary pursuits, and in all respects well qualified both to appreciate her expanding faculties and to assist in directing their application. In the words of her biographer, "this epistolary intercourse soon became to Miss Hamilton a *second* education, in some respects, perhaps, more important than any preceding course of instruction." Writing to her brother, however, was not the only use she made of her pen. She is believed to have begun at a very early age to express her thoughts in verse—perhaps the most promising of all the signs of superior mental vitality—although she long kept what she did in this way to herself. Having accompanied some friends on a tour to the Highlands, we are not informed at what date, she brought back a journal of her adventures, which one of the party contrived to get hold of and transmitted without her consent or knowledge to a provincial Magazine, in which it soon after made its appearance in print, not a little to her consternation as well as surprise. It is impossible not to wish that the name of the Magazine had been mentioned, were it only to authenticate this interesting anecdote. Her most ambitious undertaking, however, was a novel on the story of Lady Arabella Stuart, which she at least cr

menced in the form of a series of letters, some specimens of which are given by Miss Benger, who observes that the manners of the times are represented throughout the work in such a way as to evince a diligent and accurate study of history. In one place no less illustrious a personage than Shakespeare is introduced: he is made to bring Lady Arabella the manuscript of his *As You Like It*, when newly finished, and to present it to her with a characteristic speech.

In 1778 Miss Hamilton went over to her native country, and met her elder sister, for the first time since they had parted, fourteen years before. They spent six happy months together. The next year Katherine was married to a Mr. Blake, younger, of Oran Castle; and she and her husband paid a visit to their relations at Ingram's Crook. In 1780 Miss Hamilton lost her aunt, but the house of her excellent uncle continued to be her home so long as he lived. "I have ever," she says, in writing to her brother, in 1780, "felt the most sincere filial affection for him, but his behaviour to me since my aunt's death has endeared him to me more than ever. He treats me with the affection of a father and all the confidence of a friend; he leaves everything entirely to my management within doors, and expresses approbation of everything I do. Indeed, I never take a step without his advice. I exert my utmost power to make him easy and happy. I

believe there are few houses where the Genius of Concord and Peace reigns more uninterruptedly than in our little mansion. We still keep up a social intercourse with all our neighbours; among whom are many worthy and some very agreeable people." In the management of her uncle's household, we are told by Miss Benger, she established the most perfect order and regularity; "the evidence," it is added, "of two contemporary friends warrants the assertion that Ingram's Crook, under the superintendence of Miss Hamilton, realized the *beau idéal* of domestic economy." Such facts as this are material to our subject, as going to correct the common notion that the pursuit of mental cultivation by a woman is unfavourable to her attainment of the qualifications, tastes, and habits demanded by the duties of what is peculiarly her proper sphere. In another letter to her brother, written in 1781, Miss Hamilton thus describes the sort of life she led:—"From the time I get up in the morning till my uncle makes his appearance at dinner-time, I have no more use for the faculty of speech than the monks of La Trappe; then, indeed, I get a little conversation, in the style of the country, of the badness of the weather, the deepness of the roads, the qualities of manure, or politics, which we discuss to admiration. . . . After settling these important matters, my reverend companion takes his nap and I rattle at the harpsichord till our reading

time begins, which is usually from seven till eleven ; and then I hold forth on various subjects. History and travels are our chief favourites : but with them we intermix a variety of miscellaneous literature, with now and then a favourite novel, to relish our graver studies. This is a picture of the last three months, and may serve as one for many more to come ; and yet my spirits are unimpaired and my vivacity almost what it was half a dozen years ago."

At last, towards the close of the year 1785, when she was in her twenty-eighth year, Miss Hamilton was tempted to make trial of what she could do as a writer for the public, by a communication to the periodical paper called the *Lounger*, then in course of publication in Edinburgh. Her contribution appeared on Saturday the 17th of December, and forms the 46th number of the work. Her biographer states that it was received and accepted by the editor (the late Henry Mackenzie, we believe) without any knowledge of the quarter whence it came ; so that we must suppose what is said in an introductory paragraph about the "sex and accomplishments of the author" to be founded merely on the evidence afforded by the composition itself. Miss Benger mentions a poem in octo-syllabic rhymes, entitled 'Anticipation,' of which she quotes a short passage, as having also been written by Miss Hamilton about this time ; but it does not appear to have ever been published.

In March 1786 we find her writing to her brother about a visit of three weeks that she had paid to Glasgow ; since her return from which she says she has been almost always at home, with no companion but her good uncle, who was seldom within-doors till dinner-time ; after which he continued to refresh himself with his long-accustomed nap ; “ and then,” she adds, “ between reading, chatting, and backgammon, we conclude the evening, and usually retire making the remark, that, if we are not regaled by any high-seasoned amusements, we are disturbed by no uneasy cares ; our peace is unmolested by anxiety, and our content unbroken by remorse.” At the end of this year her brother, who had distinguished himself by his Oriental scholarship, returned from India, on leave of absence for five years, for the purpose of preparing, by order of the Indian government, a translation from the Persian of the *Hedayah*, a celebrated commentary on the Mussulman laws. After spending a short time in London superintending the publication of another translation from the Persian which he had brought home with him in readiness for the press, an ‘ *Historical Relation of the Origin, Progress, and final Dissolution of the Government of the Rohilla Afghans,*’ which appeared in 1787, Mr. Hamilton took up his residence at Ingram’s Crook, and there proceeded with his great undertaking. To some extent his sister was admitted as the assistant of his

labours ; and the new studies upon which she now entered, or in which, at least, she took an interest, gave a turn to her imagination and manner of thinking, to which the world was afterwards indebted for her ' Letters of a Hindoo Rajah.' It does not appear, however, that she ever made any attempt to acquire the Persian language ; she satisfied herself with catching something of the spirit of Oriental expression from her brother's translations and conversation. She herself, in the enthusiasm of her gratitude, was wont, we are told, to ascribe to her brother the chief developement and almost the creation of her mind, and always to represent this season of her life which they passed together as the commencement, to her, of a new intellectual existence. In the spring of 1788 her views of men and things were further enlarged by a visit which she made to London in company with her brother. They returned to Ingram's Crook in the summer ; but in the autumn Mr. Marshall, who, although now about eighty years of age, had hitherto enjoyed uninterrupted health, died after a few days' illness ; and, upon this Mr. Hamilton and his sister repaired again to London, which continued to be their principal place of residence till the printing of the translation of the Hedayah was completed, and the work published, in 1791. After this Miss Hamilton resumed possession of Ingram's Crook ; and her brother, after paying her a parting visit there, pre-

pared once more to take leave of his native country, and to return to India, where he had been appointed Resident at the Court of the Nabob of Oude. But he died before he could set sail, on the 14th of March, 1792, at the age of thirty-nine. Miss Hamilton had come up from Scotland on his illness assuming a serious appearance; and she was with him, as well as her sister, Mrs. Blake, in his lodgings at Hampstead, when he breathed his last. On this sad extinction of many fond hopes, the two sisters retired, in the first instance, to the house of a friend at Hadleigh, in Suffolk; whence, after some time, they transferred themselves to Sunning, in Berkshire. Mrs. Blake seems to have, ere this, lost her husband, of whom we hear nothing in all these movements.

Miss Hamilton had been often advised by her brother to devote her talents to some distinct literary pursuit; and she now began to write her 'Letters of a Hindoo Rajah,' drawn by the state of her feelings to a subject and style which revived the memory of the studies they had pursued together, and also allowed her, as Miss Benger has expressed it, "to portray his character, and commemorate his talents and virtues." He is delineated in the 'Letters' under the name of Percy. It appears, however, from a letter of the authoress to a friend, which Miss Benger has printed, that, although the work may have been partly written

in Berkshire, it was completed in Scotland ; she had sent her friend, a Mrs. G., the manuscript, and she tells her that on her verdict it will depend whether the "Rajah shall sleep in peace on his native mountains, or expose himself to the dangers of criticism by a trip to England."* The letter, as printed in the 'Memoirs,' has no date ; but the words would almost imply that the 'Hindoo Rajah' had been not only completed in Scotland, but begun there. It seems not improbable that the first draft of it may have been thrown off by Miss Hamilton while her brother was still alive. Her biographer makes no mention of her having ever been in Scotland between the time of her brother's death and the publication of the work, which did not take place till the year 1796. It was not without reluctance, we are told, that she consented to prefix her name to it ; but she seems to have been chiefly influenced by an apprehension of its proving a failure, and the success it met with satisfied her scruples.

Before the 'Hindoo Rajah' was published her sister had been obliged to leave her for a time ; and during this separation she joined a family in Gloucestershire, while residing with whom, and living in great seclusion, she made rapid progress in another work, her 'Memoirs of the Modern

* Memoirs, i. 127.

Philosophers.' After a time, however, an attack of illness compelled her to repair for medical advice to London, and she was only relieved at last by a fit of gout. To that malady she continued to be subject all the rest of her life. Meanwhile she had to resort to the use of the Bath waters; at Bath she was rejoined by her sister; and they made that town their residence for some years. 'The Modern Philosophers' was published, anonymously, in three volumes, early in 1800; and a second edition was called for before the end of the year. This success induced the authoress no longer to refrain from avowing herself. "The popularity of 'The Modern Philosophers,'" says her biographer, "was a passport to fame and distinction; and Miss Hamilton consequently found herself admired by the celebrated and the fashionable, and an object of curiosity and interest to the public." Its success, it is added, "was the more remarkable, as the subject was not new, and the ground had been pre-occupied by writers of inferior skill. But in them the spirit of party had usurped the place of wit and humour; in 'The Modern Philosophers,' on the contrary, the alliance of morals and politics was carefully disclaimed, and consequently aristocrats and democrats agreed to laugh at what was ridiculous." The aim of the work, which is in the form of a fiction, though intermingled to a large extent with both satire and formal disquisition, is to

expose the exaggerations and incongruities of certain novel theories of morals and metaphysics, more especially in reference to their personal and domestic influence. "Of the positive good resulting from her work," says Miss Benger, "the author received a most pleasing testimony in a letter from a young woman, evidently of superior talents, who confessed she had detected herself in Bridgetina [the heroine], and instantly abjured the follies and absurdities which created the resemblance. This was not the only instance in which the author had the satisfaction to discover from strangers that she had proved to them a real friend;—a satisfaction which she would not have exchanged for the most flattering plaudits of fashion."

She now commenced another literary undertaking, her 'Letters on the Elementary Principles of Education.' In composing this work she was wont, we are told, to read portions of it to any female acquaintance, who, without much literature, was possessed of good sense and took an interest in the subject; a practice which may remind us of Molière and his housekeeper, La Forêt, and from which Miss Hamilton conceived that she best learned how to address herself to the capacities of those whom she was most anxious to have for her readers. The first volume of the 'Letters on Education' was published in 1801, the second the

following year. Her next work was 'The Life of Agrippina, Wife of Germanicus,' which she began during a short residence in the summer of 1803 at the village of Bowness, in Westmoreland, which she was induced to select as being near the house of a friend who had a good library. It was published, in three volumes, in 1804. In her 'Life of Agrippina,' Miss Hamilton's original object was to illustrate by example the speculative principles laid down in her 'Letters on Education;' but in the main the book is neither a philosophical romance, nor an historical novel, but a real biography. Its value, however, as such is not perhaps enhanced by the spirit of system which to some degree runs through it, as it certainly is not by the accompaniment of fiction by which the matter of fact is here and there sought to be relieved or embellished. Nor, with all the pains that the author appears to have taken to obtain light on doubtful or difficult points from her more learned male friends, has she succeeded in producing such a picture of Roman manners as can be considered to be trustworthy or satisfactory.

Soon after the publication of 'Agrippina' a pension, it is not stated of what amount, was conferred by the crown upon Miss Hamilton, "as an acknowledgment that her literary talents had been meritoriously exerted in the cause of religion and virtue." Meanwhile in the autumn of 1804 she and

her sister had established themselves in Edinburgh ; but she was soon after induced to comply with the earnest solicitations of a Scotch nobleman, who had lost his wife, that she would, with the assistance of a governess of her own selection, undertake the superintendence of the education of his children, and for that purpose come to reside for a limited time in his family. She resigned this office, however, after holding it only six months. The following winter she spent in seclusion at Westham, in Sussex, employing her time in the composition of a series of letters to the eldest of her late pupils, which were published in two volumes in the spring of 1806, under the title of 'Letters on the Formation of the Religious and Moral Principles, addressed to the Daughter of a Nobleman.' They were very favourably received by the public. Miss Hamilton now returned to Edinburgh, and that city continued to be her head-quarters for nearly all the remainder of her life.

Her next publication was 'The Cottagers of Glenburnie,' already noticed. This work was begun, we are told, merely as the amusement of an idle hour ; she was encouraged to proceed with it, and to extend the plan, by the mirth which the first sheets of it excited when she read them to a few friends collected at her own fireside. It was not, her biographer further informs us, without considerable distrust on the part of the publisher

that it was committed to the press. Is it indeed the unhappy instinct of publishers to be thus always blindest to the value before they come out of the books that succeed the best? Or is it thought expedient, for the sake of making the better story, that every instance of remarkably successful publication should be set off by being made to fall out contrary to expectation? However that may be, the success of the present work was immediate and decided. It was universally read in Scotland, and very generally even in England, where its humour could less be appreciated. The great demand soon induced the publishers to print a cheap edition, and in the native country of the writer it was to be seen in the hands of readers of all classes. Miss Benger relates that in Stirlingshire a person named Isabel Irvine, who had been Miss Hamilton's attendant when she was at school there some thirty or forty years before, and to whom, we suppose, a copy had been sent by the authoress, made money by lending it out among her neighbours. It is believed, too, not to have been without effect in making the peasantry ashamed of the indolence and slovenliness which it exposed and ridiculed. "Perhaps few books," observes a friend and countryman of Miss Hamilton's, in a sketch of her character and her literary and other services to her country, which Miss Benger has printed, "have been more

extensively useful. The peculiar humour of this work, by irritating our national pride, has produced a wonderful spirit of improvement. The cheap edition is to be found in every village library; and Mrs. M'Clarty's example has provoked many a Scottish housewife into cleanliness and good order."

Miss, or as she now called herself, Mrs. Hamilton's subsequent publications were, in 1809 a little work entitled 'Exercises in Religious Knowledge,' composed for the use of the young females educated in the Edinburgh House of Industry, an institution in the establishment and management of which she took a leading part; in 1813, two volumes entitled 'Popular Essays illustrating Principles essentially connected with the Improvement of the Understanding, the Imagination, and the Heart;' and in 1815, 'Hints to the Parents and Directors of Public Schools,' in recommendation of the system of teaching introduced in Switzerland by Pestalozzi. Miss Benger thus describes her ordinary mode of life after she took up her residence in Edinburgh:—
"The morning, whenever her infirmities permitted such an appropriation, was devoted to study. At two o'clock she descended to the drawing-room, where she commonly found some intimate friend ready to receive her. If no engagement intervened, the interval from seven till ten was occupied with some interesting book; which, according to her

good aunt Marshall's rule, was read aloud, for the benefit of the whole party. On Monday she deviated from the general system by admitting visitors all the morning; and, such was the esteem for her character, and such the relish for her society, that this private levee was attended by the most brilliant persons in Edinburgh, and commonly protracted till a late hour. But it was in the *heartsome ingle-nook*, by her *ain fireside*, when the world was shut out, and its cares and conflicts and pretensions consigned to temporary oblivion, that Mrs. Hamilton was most truly known, and most perfectly enjoyed. . . . Of anecdote she was inexhaustible; and in narrative she dramatised with such effect, that she almost personated those whom she described." A practice in which she persevered for seven-and-twenty years, or from 1788 till September 1815, was to write every Sunday a paper on some religious or moral subject, for the purpose of assisting herself in the discipline of self-examination. Annexed to Miss Benger's Memoir are a number of extracts from this Sunday Journal, which, it is stated, if published entire would have filled many volumes. In one place she thus takes a retrospect of her life (under date of March 1803):—"My lot has indeed fallen in pleasant places. My life has been a series of blessings and of enjoyments; my sorrows have been few; and, though from the keenness of my feelings they have been severe, they have borne

no proportion to my pleasures. The pleasures which my natural temper and the turn of my mind have ever rendered most delightful are those which arise from the communication of sentiment, and which give a lively exercise to the sympathies of the heart, and the faculties of the understanding. In the society of my dearest brother these were first called forth; and in losing him I thought I had lost them for ever. Blessed be God! this has not been the case. Since losing him I have enjoyed the happiness of living in a very superior society, of forming intimacies with many of the best, the wisest, and the worthiest of human characters. I have commenced many friendships which I hope and trust will neither cease in this world nor in the next, but which will continue to form a part of my happiness when all imperfection shall have been done away." It is evident, indeed, that no one could have led either a more happy or a more useful life than this literary woman.

Her literary pursuits and relish for intellectual labours materially helped her to bear up against much bodily weakness and suffering. "When her habitual infirmities are recollected," her biographer observes, "it will appear extraordinary that she should have been so long able to struggle against them. During some weeks or months of every winter she was almost wholly incapacitated for mental exertion; and in the most propitious season

she never could devote to her pen more than four or five hours of the day..... The variety of her sufferings could scarcely be surmised by those who were not domesticated beneath the same roof; even then such was her habitual consideration for the comfort of others, that she not only suppressed the mention of her complaints, but endeavoured to banish the recollection that they existed. Instead of repining at her lot, she often declared that the want of strength was more than compensated by exuberance of spirits, and the frequent recurrence of pain counterbalanced by large capacities for enjoyment." Nor did she communicate less pleasure than she enjoyed. "All who had the happiness to know this amiable woman," said Miss Edgeworth in a tribute to her memory which she contributed to an Irish paper soon after Mrs. Hamilton's death, "will with one accord bear testimony to the truth of that feeling of affection which her benevolence, kindness, and cheerfulness of temper inspired. She thought so little of herself, so much of others, that it was impossible she could, superior as she was, excite envy: she put everybody at ease in her company, in good humour and good spirits with themselves. So far from being a restraint on the young and lively, she encouraged by her sympathy their openness and gaiety. She never flattered; but she always formed the most favourable opinion: that truth and good sense would permit of every

individual who came near her. Instead, therefore, of fearing and shunning her reputation, all loved and courted her society." Her good sense, her naturally happy temper and benevolent disposition, and her sincere and ardent, yet cheerful and tolerant piety, would, no doubt, have produced much of this beauty and attractiveness of character without any literary taste or cultivation; but it would in that case have been, at any rate, in a lower and far narrower sphere. The radiance would have been felt by only a few individuals, and would have been dissipated and lost for ever as fast as it was dispensed. But, besides, these natural qualifications and graces are the fittest associates of literary culture and acquirement, and best entitled to be thereby refined and ennobled, and made still more beautiful and potent.

By the beginning of the year 1816 Mrs. Hamilton found her health giving way so seriously that she and her sister resolved to leave Edinburgh and transfer themselves to the milder climate of the south or south-west of England. They would probably have fixed their residence at Bath. With this view they set out about the middle of May, and repaired in the first instance to Harrowgate. But Mrs. Hamilton was able to proceed no farther; she breathed her last there on the 23rd of July, in the sixtieth year of her age.

CHAPTER VII.

Hannah More.

ONE of the most remarkable recent English examples of the achievement of distinction in literature by a woman is that of the late Hannah More. If success in authorship is to be measured either by the pecuniary productiveness of a writer's publications or by the number of their readers, she is probably to be accounted the most successful of English authoresses. It has been stated on the best authority that she realized by her pen alone not less than thirty thousand pounds ; * and of some of her larger works more than fifty thousand copies were sold in this country and in America, while many of her tracts, ballads, and other short pieces were dispersed by millions.

We mention these tests or proofs of her popularity and influence as being distinct and indisputable. Upon other points, such as the real value or literary ability of her writings, there will, of course, be some difference of opinion. But a glance over the personal history of this celebrated woman will

* Life by Rev. Henry Thompson, Curate of Wrington, 1838 ; p. 324.

at least satisfy us that the pursuit of literature, by which she gained so much in many ways, did not injure her nature in any, but on the contrary nourished and strengthened whatever there was of good in her, brightened every grace she might otherwise have displayed, and in all probability immeasurably augmented both her own happiness and enjoyment of life and the pleasure her society gave to others.

Her father, Mr. Jacob More, is said to have been of a good family in Norfolk or Suffolk. The story told is, that he was born with the expectation of inheriting an estate at Wenhaston in the latter county, which one account makes to have been of the value of more than eight thousand a-year,* but that, after he was grown up to manhood, the result of a lawsuit gave the whole, unjustly it is affirmed, to a cousin; upon which he transferred himself to the West of England, and at first found employment as a supervisor of excise at Bristol, but after some time was appointed master of the Free-school at Fishponds, a hamlet in the parish of Stapleton, lying about four miles from that city on the Gloucester side. Here he married Mary Grace, the daughter of a small farmer in the neighbourhood; and here Hannah was born on the 2nd of February

* *Memoirs and Correspondence of Mrs. Hannah More*, by William Roberts, Esq., 3rd edition, 4 vols. 8vo., 1835; vol. i. p. 9.

1745. She was the fourth of five daughters; the others being Mary, Sarah, and Elizabeth, her seniors, and Martha, her junior. And they continued to form throughout life a sisterhood in every other sense as well as in that of birth or parentage; in affection and in occupation, in union both of heart and hand, and even in residence to the end of their days all under the same roof. It is remarkable that, after setting out in the world, the whole five lived together for more than fifty years before death made the first breach in their little circle. Hannah appears to have been the only one of them by whom any matrimonial offer was ever encouraged; she had an affair of that kind which lasted from her twentieth till her twenty-sixth year. But it ended in nothing; and, scared perhaps by the result, she and her sisters seem to have all made up their minds to spend their days in single blessedness. They were so suited to and so happy with one another that this was probably a wise and fortunate determination. Yet they were all women, besides their talents and accomplishments, of superior personal attractions, and in all respects among the most agreeable of their sex, as is often the case with women who remain unmarried.

In all other things, as well as in this, Hannah was from the first the leading spirit. If she was not intellectually more highly gifted by nature than

the others, she appears to have had at least more ambition than any of them; she was regarded throughout her life by all her sisters with unbounded admiration as well as affection; it might almost be said that they seemed to live for her alone, to second her exertions, to assist in forwarding her schemes, to contribute in every possible way to both her usefulness and her reputation. Sarah, the second, is stated to have in her youth published two novels, which obtained considerable popularity,* and she also long afterwards assisted her sister in some of her literary undertakings; but Hannah was probably first in the field even as an authoress, and at any rate in this and every other path, as soon as she entered upon it, she soon distanced the others or was left by them to proceed alone.

Different accounts have been given of her early education and her first manifestations of talent. One is that a love of reading was first excited in her by an odd volume of Richardson's Pamela which chanced to fall into her hands.† This, however, is not mentioned among the details that have been given by her regular biographers. Mr. Roberts states that "at a very early age she was distinguished by great quickness of apprehension,

* Thompson, p. 276.

† ~~Thompson~~ *Biographical Dictionary of Living Authors*, 8vo., 1816;

retentiveness of memory, and a thirst after knowledge ;” and he adds,—“ Between the age of three and four, her mother, thinking it time to teach her to read, found, to her astonishment, that, by an eager attention to the instructions bestowed upon her sisters, she had already made considerable progress ; and, before she had attained her fourth year, she repeated her catechism in the church in a manner which excited the admiration of the minister of the parish, who had so recently received her at the font. Her nurse, a pious old woman, had lived in the family of Dryden, whose son she had attended in his last illness, and the inquisitive mind of the little Hannah was continually prompting her to ask for stories about the poet Dryden At eight years old, her thirst for learning became very conspicuous ; but her father, in addition to his other disappointments, having at his removal from his native place lost the principal part of his books, which he had sent by a separate conveyance, his collection became circumscribed to the very small number which travelled with him, and which consisted of a few Latin, Greek, mathematical, and geographical authors ; but this deficiency was in some measure supplied by his very wonderful memory, which enabled him to satisfy the very eager desire of his daughter to learn the histories of the Greeks and Romans by relating to her, while sitting on his knee, all the striking events which

they contained, and reciting to her the speeches of his favourite heroes, first in their original language, to gratify her ear with the sound, and afterwards translating them into English; particularly dwelling on the parallels and wise sayings of Plutarch; and these recollections made her often afterwards remark, that the conversation of an enlightened parent or preceptor constituted one of the best parts of education. It is related that Mr. More, who was remarked for his strong dislike of female pedantry, having nevertheless begun to instruct his daughter in the rudiments of the Latin language and mathematics, was soon frightened at his own success. The study of the mathematics was not pursued; but she ever carefully cultivated her acquaintance with the Latin classics; and of the mathematics she has often said, that the little taste of them she had thus acquired was of sensible advantage to her through the whole course of her intellectual progress. The mother, who had received but a moderate education, but is said to have been furnished by nature with some of her best gifts, was as anxious for the instruction of their promising daughter as the father was fearful of its consequences; and his consent to her entering upon any new studies was only wrung from him by their joint importunity."

Mr. Thompson, whose humour it is, throughout his shorter and more modishly written memoir,

to affect the most profound ignorance of the existence of his predecessor's book, supplies us with one or two additional particulars. From the clergyman, we are told, to whom she repeated her catechism with so much accuracy at so early an age, she received the first sixpence of which she was mistress. From the very first, therefore, we may say her intellectual efforts and performances were encouraged by an immediate tangible return. At this same early age, too, Mr. Thompson assures us, she had actually composed what he somewhat oddly calls "a satirical poem on Bristol, descriptive of the Bristol road, beside which her father's house was situate." The single couplet that has been preserved of the infantine satire—

"This road leads to a great city,
Which is more populous than witty"—

seems to us to indicate that (although the road indeed is mentioned) the poem generally must have related rather to the town of Bristol—as one would expect a "Poem on Bristol" to do. "Her love of literature," Mr. Thompson proceeds, "continued to manifest itself, not only in perusing with great avidity the books which her father's slender library supplied, but in the composition of poems, essays, and imaginary correspondence. At eight years old she received her first lessons in Latin: her father being desirous not only to cultivate the fine abili-

ties of his child, but also to qualify her, together with her sisters, for the management of a ladies' school upon principles more befitting the requirements of responsible and reasonable beings than those which generally obtained in such establishments at that time." This, it will be perceived, is at variance, in regard to Mr. More, with Mr. Roberts's account. Nevertheless Mr. Thompson afterwards admits that Hannah's father, like many other sensible men of that day, was not without a considerable horror of learned ladies. "But," he subjoins, "his good sense and parental feeling corrected his practice."

Mr. Roberts's history of the first literary performances of his heroine is as follows:—"In her days of infancy, when she could possess herself of a scrap of paper, her delight was to scribble upon it some essay or poem, with some well-directed moral, which was afterwards secreted in a dark corner where the servant kept her brushes and dusters. Her little sister, with whom she slept, was usually the repository of her nightly effusions; who, in her zeal lest these compositions should be lost, would sometimes steal down to procure a light, and commit them to the first scrap of paper which she could find. Among the characteristic sports of Hannah's childhood, which their mother was fond of recording, we are told that she was wont to make a carriage of a chair, and then to call her

sisters to ride with her to London, to see bishops and booksellers; an intercourse which we shall hereafter show to have been realized. The greatest wish her imagination could frame, when her scraps of paper were exhausted, was that she might one day be rich enough to have a whole quire to herself. And when, by her mother's indulgence, the prize was obtained, it was soon filled with supposititious letters to depraved characters to reclaim them from their errors, and letters in return expressive of contrition and resolutions of amendment."

The way in which she made her first acquaintance with the French language, which she appears to have done not long after this, is creditable both to herself and to her eldest sister. Mary was sent to learn the language at a French school in Bristol, and her sisters were taught it by her. "Some French officers," says Mr. Roberts, "of cultivated minds and polished manners, who, being on their parole in the neighbourhood, were frequent guests at Mr. More's table, always fixed upon Hannah as their interpreter; and her intercourse with this society is said to have laid the ground of that free and elegant use of the language for which she was afterwards distinguished." According to Mr. Thompson, she was a tolerable French scholar by the time she had completed her twelfth year. Her eldest sister, he says, used to go to Bristol, to take her lessons thrice a-week, and on coming home

regularly communicated what she had been taught to her sisters. "So diligently," we are assured, "did the eldest Miss More labour in this endeavour, that she spoke the French language with the fluency of a native; and she has been known even to faint beneath the exertion of her day." Perseverance and inflexibility of purpose continued to be the characteristics of this admirable sister to the end of her life.

The boarding-school, with a view to which all this care had been bestowed upon their education, was opened by Miss More and her sisters in Trinity Street, Bristol, in 1757. Mary was at this time only in her twentieth year, but her character had already acquired her many influential friends, and her undertaking prospered from the first. Her two youngest sisters were, of course, for a time rather pupils than assistants; but Hannah at least soon became qualified to take a share in the business of the establishment. She now took lessons from the masters who attended the school in Italian and Spanish, with both of which languages she eventually became familiar. Of the English books which were now brought within her reach, the 'Spectator,' Mr. Roberts states, was the first to engross her attention.

The next notice that we have of her is under the year 1762, when she is stated to have written her pastoral drama in rhymed verse, entitled 'The

Search after Happiness,' which was immediately performed by the young ladies of the school. If it was not much improved before its publication eleven years afterwards, this was certainly a remarkable production for a girl of seventeen. "Shortly after the composition of this poem," Mr. Thompson relates, "the sisters had prospered sufficiently to enable them to build a house on a more extensive scale, which was the first erected in Park Street, Bristol. The order and management of the establishment, together with the superior quality of the education afforded, rendered this school the most celebrated of its kind in the kingdom. It comprised upwards of sixty pupils; and twice the number might have been easily entered had the accommodations admitted. The Land's End and the Highlands of Scotland contributed at once to its supply. It is pleasing to record the filial gratitude of the sisters. They now took a house and garden for their excellent father at Stony Hill, Bristol, and kept two female servants to attend on him. Their substance, thus dedicated, was blessed and increased. The school advanced in reputation, and patrons multiplied. Hannah's talents were known, not only through the commendations of friends, but especially through the celebrity of 'The Search after Happiness,' of which many transcripts had got abroad."

Mr. Thompson, we suppose, is correct in making

it to have been in 1763, and not two years earlier, as stated by Mr. Roberts, that the elder Sheridan came to deliver his lectures on eloquence, or oratory, in Bristol, the consequence of which was that Hannah and he met, and were made known to one another, much to their mutual satisfaction. But the reverend biographer's assertion that Hannah actually evinced her delight at the first lecture by addressing Sheridan in three dozen "extemporaneous verses," which are given, is startling. It cannot surely be meant that she rose at the conclusion of the exhibition, and in her enthusiasm poured out *vivâ voce* the deluge of rhyme. We take the account of Mr. Roberts, who tells us that the copy of verses was presented to the lecturer by a friend of both parties, to be the more credible here. At all events, this was probably the first acquaintance of the future authoress with any living literary celebrity. About the same time she is stated to have become known to another popular lecturer, Ferguson, the astronomer; he and she, Mr. Roberts asserts, soon became intimate friends; "and," he adds, "the time they passed together being devoted to topics connected with science, she derived from it a decided advantage; and he, on his part, was impressed with so much respect for her taste and genius, that he is said to have submitted the style of most of his compositions to her inspection." But the person to whom Hannah was

most indebted for her advancement in critical knowledge and the principles of correct taste was, we are told, a Bristol linendraper named Peach. "He had," says Mr. Roberts, "been the friend of Hume, who had shown his confidence in his judgment, by intrusting to him the correction of his 'History,' in which, he used to say, he had discovered more than two hundred Scotticisms." But this, we apprehend, must, in so far at least as regarded the first volume, containing the reigns of James I. and Charles I., which appeared in 1754, have been after the first publication of the work, the original edition of which is full of Scotticisms.

Hannah, meanwhile, persevered in both her studies and her habits of literary composition. "At the age of twenty," says Mr. Roberts, "having access to the best libraries in her neighbourhood, she cultivated with assiduity the Italian, Latin, and Spanish languages, exercising her genius and polishing her style in translations and imitations, especially of the Odes of Horace and of some of the dramatic compositions of Metastasio, which were shown only to her more intimate literary friends, of whom some have left their testimonies to their spirit and elegance. She was not, however, in sufficient good humour with these, or, indeed, with any of her very early compositions, to allow them to live. The only one which was

rescued was Metastasio's opera of 'Regulus' [Attilio Regolo], which, after it had lain by for some years, she was induced to work up into a drama, and publish under the title of 'The Inflexible Captive.' It appeared in 1774. "It is related of her," Mr. Roberts adds, "in proof of the ease with which she transfused the spirit of the Italian authors into her own language, that, being present at a celebrated Italian concert, to gratify one of the company who was desirous of knowing the subject of some parts of the performance, she took out her pencil and gave a translation of them, which was snatched from her, and inserted in the principal magazine of the day." But what Mr. Roberts may mean by "a celebrated Italian concert" it is not very easy to understand; at any rate, if the concert was so celebrated, there would seem to be the less reason for speaking of it so evasively and unintelligibly. And so with regard to "the principal magazine of the day;" a diligent biographer would have endeavoured to ascertain both what magazine this was and whether or no it did really contain the translation in question. It is only by the translation being produced to speak for itself that we could know in what degree the spirit of the Italian original was transfused. As for simply writing off-hand the sense of some passage in the libretto (for we cannot suppose that the translation was written down while the Italian words were

merely recited or sung), that is what any person knowing the language might have done, more especially if previously familiar with the passages, as, for anything that appears, the translator may have been in the present instance."

One of the most important events in Hannah More's history was her first visit to London; yet neither of her biographers tells us distinctly when it took place. Mr. Roberts, after printing a number of letters written by her from the capital without dates, but mentioning many facts from some of which the year might surely have been ascertained, places it in 1773 or 1774. She came up, he says, in company with two of her sisters. Mr. Thompson's account is, that, having in 1773 published '*The Search after Happiness*'—"which had suffered so much from careless transcription that she thought it due to her own reputation to give the world an authorised copy"—"not long after, desirous of extending her acquaintance in the polite and literary circles to whom her reputation was now sufficient introduction, she visited London in company with her sisters." "The theatre," it is added, "on her arrival in town, was the great point of attraction; and Garrick the great object of curiosity. The character in which she first saw him was *Lear*; and her description of his powers in a letter to a common friend so clearly evinced the correctness and vigour of her dramatic con-

ceptions, that Garrick immediately sympathized with her taste, and felt anxious to see her." A few days afterwards they were introduced to one another. "Garrick," Mr. Thompson's narrative proceeds, "was delighted with his new acquaintance, and took pride and pleasure in introducing her in the splendid circle of genius in which he moved; to the royal family, who inquired of him concerning her, he spoke in terms of the most ardent commendation; Mrs. Montagu, Sir Joshua Reynolds, Dr. Johnson, rapidly succeeded in her acquaintance; and in the course of six weeks (for such was the limit of this visit) she had become intimate with the greatest names in intellect and taste."

Her own name soon came to be famous too. In 1774, as already mentioned, she published her tragedy of 'The Inflexible Captive,' altered from Metastasio. The following year it was acted first in Exeter and then in Bath, with the greatest applause; Garrick on the latter occasion being behind the scenes, and a host of distinguished persons filling the house. Her first publication, 'The Search after Happiness,' had by this time reached a sixth edition, besides having been reprinted in America. She now offered Cadell, the publisher, her two poems entitled, 'Sir Eldred of the Bower,' and 'The Bleeding Rock,' informing him that she would not part with them for "a very paltry con-

sideration ;” upon which he at once agreed to give her whatever it might appear that Goldsmith had received for his ‘Deserted Village ;’ and he actually paid her forty guineas. It may be, as the biographers of the authoress assert, that he had a very good bargain ; but the poems have not taken their place in our literature beside that of Goldsmith. In November 1777 her tragedy of ‘Percy’ was produced at Covent Garden theatre ; Garrick, who had also contributed both the prologue and epilogue, sustaining the principal character. “The success of the play,” says Mr. Thompson, “was complete ; perhaps at that time unsurpassed. It had a run of twenty-one nights, and soon became universally acted at the provincial theatres. Nor was its popularity confined to England. It was translated into French by M. de Calonne, prime minister of France ; and in a German dress ‘Percy’ appeared on the stage of Vienna. Miss More received on the occasion the most flattering honours and distinctions ; the whole blood of the Percies did homage to their minstrel. The Duke of Northumberland, Earl Percy, and the editor of the ‘Relics,’ all came forward, complimented, and thanked her. An edition of nearly four thousand copies of the play was sold in a fortnight, and the authoress realized on the whole nearly 600*l*.” The tragedy of ‘Percy,’ nevertheless, has now long ceased to be acted, and has, it

may be apprehended, been read by very few living men.

A second tragedy of Miss More's, entitled 'The Fatal Falsehood,' which was brought out in 1779, was not so successful. It was followed in 1782 by a volume of 'Sacred Dramas,' written principally for young persons, which was extremely well received. So also was another volume published in 1786, containing two poems entitled 'Florio,' a tale dedicated to Horace Walpole, and the 'Bas Bleu, or Conversation.' The latter was declared by Dr. Johnson, to be "a very great performance," but, like all the rest of Miss More's poetry, it is now much forgotten. Fluency, vivacity, and smartness give a relish for the moment, though they do not make the true preserving Attic salt.

A year or two before this last publication, Hannah More's religious views, which had always been decided, assumed so much deeper a colour as to induce her very much to withdraw herself from the gay or miscellaneous society in which she had for some time moved, and even to renounce some of the intellectual pleasures which she had hitherto regarded as innocent. She never went to the theatre after the death of her friend Garrick, which took place in January 1779—not even to see her own tragedy of 'Percy' some years after, when the heroine was acted by Mrs. Siddons. After the production of her second tragedy she wrote no

more for the stage; and when long afterwards, in 1801, she published a complete edition of her works in eight volumes, she prefaced her two dramas by a formal and elaborate exposition of the grounds on which she had come to think theatrical amusements to be prohibited to a Christian. In 1785 she retired, for the sake of greater solitude and quiet, to a cottage called Cowslip Green, situated in the rural parish of Wrington, about eight or ten miles to the south-west of Bristol: Wrington is described by Mr. Thompson as a place then considered to be at a formidable distance from London, and which no post even from Bristol visited. In 1787, being then in her forty-third year, she assumed the matronly style of *Mrs. More*, after a fashion which was then more prevalent than it is now, but which was not usually adopted at quite so early an age. Nothing of gloom or moroseness, however, made any part of Hannah More's stricter or more serious religious views. She retained unimpaired her cheerful temper, and her enjoyment of society when it came in her way; she kept up an active correspondence with a large and constantly increasing circle of friends; in the midst of many works of charity and philanthropy, to which she liberally devoted both her time and her fortune, and her personal exertions in every way, she continued to write for the press more actively than ever; nor did she altogether abandon

any of her early studies, or lose her relish for even the lightest literature, to the end of her days. She appears to have ceased some time before settling at Cowslip Green to have any connexion with the boarding-school at Bristol; but in the beginning of 1790, her sisters, having acquired an ample competence, also relinquished the business of tuition, upon which all the five resumed their old plan of living together, dividing the year between Cowslip Green and a house which they had built in Great Pulteney Street, Bath. This arrangement subsisted till 1801, when they exchanged Cowslip Green for a more spacious mansion which they built at Barley Wood in the close neighbourhood of the village of Wrington, and at the same time parted with the house in Bath.

Even in the hurry and gaiety of her London life, in 1773 or 1774, we find her sister Sarah writing, in a letter to a friend, that "from her arising to her down-lying" Hannah does nothing but read Virgil and Cicero in the original Latin.* In 1779, while staying in London with Mrs. Garrick, she herself thus describes her way of life—which she says is very different from what it used to be—in a letter to one of her sisters:—"After breakfast I go to my own apartment for several hours, where I read, write, and work; very seldom

* Thompson, p. 24.

letting anybody in, though I have a room for separate visitors ; but I almost look on a morning visit as an immorality. At four we dine. We have the same elegant table as usual, but I generally confine myself to one single dish of meat. I have taken to drink half a glass of wine. At six we have coffee ; at eight tea, when we have sometimes a dowager or two of quality. At ten we have salad and fruits. Each has her book, which we read without any restraint, as if we were alone, without apologies or speech-making.* Writing from Barley Wood to her intimate friend Sir William Pepys (father of the present Lord Chancellor) in December 1808, soon after the breaking out of the Spanish insurrection, she says, at sixty-four, with all the spirit of four-and-twenty, " I have been quite a wild enthusiast about Spain I have been making all my clever young friends learn the language of these noble patriots ; and all my little Spanish library is dispersed among them, *par ci, par là*, except my nice edition of Don Quixote, which dear Mrs. Carter left me at her death."† And her correspondence betokens to the last the lively interest which she continued to take both in the great political movements and even in the current literature of the day.

We will now enumerate the principal of her re-

* Roberts, i. 160.

† Id. iii. 267

maining publications. In 1788 appeared, anonymously, her 'Thoughts on the Importance of the Manners of the Great in General Society,' characterized by Mr. Thompson as the first methodical battery she constructed against vice and error. Its success was very great. According to Mr. Thompson, "seven large editions were sold in a few months, the second in little more than a week, and the third of them in *four hours!*" It was followed in 1790 by its continuation and completion, under the title of 'An Estimate of the Religion of the Fashionable World, by one of the Laity,' of which five editions were carried off in two years. In 1792 she was induced by Bishop Porteus and other friends to make a trial of her power of influencing the minds of the working classes in favour of constitutional principles, then sought to be undermined by the French revolutionary doctrines of liberty and equality; on which she produced her clever dialogue entitled 'Village Politics; by Will Chip, a Country Carpenter.' "Its circulation," says Mr. Thompson, "was incalculable; some thousands were purchased by government for distribution; it was reprinted by societies and individuals; it was translated into French, and even into Italian, with such modifications as suited the Papal government; and there is every reason to believe that this clear, concise, and sensible statement of a question which was then perplexing and

ensnaring thousands had a very considerable effect in reclaiming the deluded and forewarning the sound." The dialogue was followed by a periodical work, entitled 'The Cheap Repository,' consisting of a series of tracts and other pieces, both in prose and in verse, in the same spirit, the first number of which was published in the latter part of the year 1795, and which was kept up for about three years. In this undertaking, however, Hannah More was assisted by her sisters Sarah and Martha, and also occasionally by other contributors. "It became," says Mr. Thompson, "a favourite with high and low, educated and unlearned. It was soon necessary to bring it out in two forms; one for the hawkers, and a superior style of print and paper for the higher classes. Many important moral results were directly traceable to its influence. At Bath, the colliers had organized operations for a direct attack on the mills, and afterwards on private property, when, by the timely distribution of the ballad of 'The Riot' among them, they were convinced of their folly, and abandoned their design. The same ballad was also instrumental in suppressing a tumult at Hull. The 'Repository' was actively disseminated by all friends of order and morality. It was forthwith translated into the French and Russian languages. The government itself saw its great importance; and it is probably to this and her other anti-revolutionary productions

that Mrs. More chiefly owed her introduction to the Duchess of Gloucester, who always remained her warm friend and patroness; and hence her acquaintance with the Royal Family." The tracts composing the 'Cheap Repository,' and their author, had the extraordinary honour of being formally recommended to his clergy by Bishop Porteus in a Visitation charge, in which he stated that no less than two millions of them had been sold in the first year. In 1799 Mrs. More gave to the world one of the most important of her literary performances, her 'Strictures on the Modern System of Female Education, with a view to the Principles and Conduct prevalent among Women of Rank and Fortune.' Of this work seven editions were sold the first year; and by the year 1838, when Mr. Thompson wrote, thirteen editions, making 19,000 copies, had been printed in all. In 1801, as already mentioned, Mrs. More collected and republished all her writings in eight volumes. In 1805 she produced her 'Hints for the Education of a Young Princess,' written with a special view to the case of the Princess Charlotte of Wales. Of this work Mr. Thompson states that six editions of 1000 copies each had been sold up to the time when he drew up his account. In December 1808 her novel of 'Cœlebs in search of a Wife' issued from the press. "The first edition," says Mr. Thompson, "was sold in less than a fortnight; twelve

editions were printed in the first year of its publication; and it has since gone through five more,—comprising in the whole 21,000 copies. The profits of the first year amounted to 2000*l*. In America the sale was even yet greater, where 30,000 copies were dispersed before Mrs. More's death. It was rapidly translated into the continental languages." Of 'Practical Piety, or, the Influence of the Religion of the Heart on the Conduct of Life,' the next work of this prolific and unwearied writer, which appeared in the beginning of the year 1811, we are told that "it exceeded 'Coelebs' by one in the number of editions, and by three thousand in that of copies." It was followed the next year by a sequel, or second part, under the title of 'Christian Morals,' which however never obtained so high a popularity as its predecessor. Yet by the year 1838 it had passed through eleven editions, and nearly 10,000 copies of it had been sold. All this curious information respecting the commercial success of Mrs. More's different works Mr. Thompson derived from papers confided to him by the family of Mr. Cadell, her publisher.

Much of this literary labour, it is also worthy of note, was achieved under the pressure of bodily weakness and suffering. "Never," she wrote in a letter to a friend, when apologizing for the defects of her novel of 'Coelebs,' "Never, I believe, was more pain bound up in two volumes." It had been writ-

ten during her recovery from one of those long illnesses to which she was subject, both in early life and in her declining years. But even out of this evil of infirm health she endeavoured to extract good. "She used to say," Mr. Roberts tells us, "that her frequent attacks of illness were a great blessing to her, independently of the prime benefit of cheapening life and teaching patience; for they induced a habit of industry not natural to her, and taught her to make the most of her *well* days. She laughingly added, it had taught her also to contrive employment for her sick ones; that from habit she had learned to suit her occupations to every gradation of the measure of capacity she possessed. 'I never,' she said, 'afford a moment of a healthy day to transcribe, or put stops, or cross *t*'s, or dot my *i*'s. So that I find the lowest stage of my understanding may be turned to some account, and save better days for better things. I have learned from it also to avoid procrastination and that idleness which often attends unbroken health.' "

But Hannah More's exertions in the cause of religion, morality, and civilization, were not confined to the writing of books. One of her most meritorious services to the best interests of her country was her establishment of schools for the young throughout the district around her place of residence, the mining region of the Mendip Hills, where, till she came among them, the people, taught

scarcely anything either by schoolmaster or clergyman, were almost universally in a state of semi-barbarism. It was an excursion with a pleasure-party which she made to the cliffs at Cheddar, about ten miles from Cowslip Green, in 1789, that introduced her to an acquaintance with this condition of things, and inspired her with the resolution to attempt its improvement. She was met by all sorts of opposition and discouragement, both from the few persons of better station in the parish, and even from the generality of the labouring class themselves. The vicar was old and infirm, and did not reside in the parish, nor was there any resident curate—no clergyman of any kind, in fact, had resided in Cheddar for forty years; and, although there were two church services on the Sunday, the attendance was thought to be a full one if so many as twenty persons were present. The population of the parish was at this time probably not much under 2000. Nor was there any dissenting congregation. The farmers and petty landholders, in many cases, openly avowed their aversion to have the poor taught either religion or reading. Writing to her friend Mr. Wilberforce, many years after, Hannah More herself states that when she commenced her schools she was considered by the farmers, and even by their betters, as the greatest enemy of the country. “We shan’t have a boy to plough, or a wench to dress a shoulder of mutton,”

was the general cry.* Among the poor, on the other hand, some refused to send their children to the schools unless they were paid for doing so; others, one might almost suppose with some dim traditional memory of a principal branch of the trade to Ireland in the Saxon times, which this district is said to have been the last part of England to abandon, were afraid that Mrs. More would obtain a right of property in their children if she should get them to come to her schools, and that she would then export them for slaves. But all difficulties gradually gave way before her courage and perseverance. After several visits to Cheddar, and many attempts, which were only partially successful, to dissipate the misconceptions that prevailed among all classes of the population, she took up her quarters at a little inn in the place, and prepared to open the campaign. Mr. Thompson's narrative thus proceeds:—"A cottage was immediately hired for a school-house; and, that she might cut off all temptations to retreat, she engaged it for seven years, and at a high rent. A religious and respectable woman was immediately found to undertake the sabbath duties. On the opening of the school, by Mrs. More in person, nearly two hundred children and young persons attended; some of

* Roberts, iv. 214.

the latter distinguished for profligacy, and not unknown to the criminal jurisdiction of their country. Before the expiration of the year, great numbers of these could repeat the Catechism, read the New Testament, and answer plain questions on the great truths of the Gospel. During this time, also, they had practically learned to hallow the Sabbath, and been constantly brought to both services of the church. After a short interval, a master and mistress were procured to instruct the children in the week. With instruction industry was also combined; useful work, especially sewing, knitting, and spinning, was taught, and the profits given to the children. To procure information and materials for the last of these employments, Mrs. More actually visited most of the principal clothing towns of Somersetshire. The parents, who, though they had never heard of Adam Smith, had been much inclined to class the schoolmaster with the unproductives, began to see that there was something, after all, in Christian education; and prejudice and opposition gave way. They now came themselves for instruction in spinning, and soon took interest and pleasure in attending the devotional exercises also. The mistress and her daughter were supplied with medicines and occasional sums of money for distribution among the sick and needy; and they were instructed by Mrs. More to make their charitable visits spiritually beneficial, by teaching the

ignorant and awakening the thoughtless, and bringing them to the school and the church. So faithfully was this duty discharged, that a few years afterwards, almost the whole parish attended to the grave the remains of the schoolmistress, in whom all felt that they had lost their best of friends. Two years after Mrs. More's first visit to Cheddar, a most able and zealous curate, the Rev. Thomas Drewitt, came into residence, who cordially forwarded the work. Such was the blessing which attended this institution, that in the year 1801 the congregation of the church had increased in about ten years to seven hundred ; and the communicants, who had averaged fifteen, to about one hundred and twenty."

In the same year, as we understand Mr. Thompson, schools upon the same system were established in the neighbouring parishes of Axbridge, Banwell, Winscombe, Blagdon, Yatton, Congresbury, Wedmore, Shipham, and Nailsea, being nine out of thirteen contiguous parishes in no one of which was there a resident clergyman. Before the expiration of the year about five hundred scholars were in training in the ten schools. What the children of the poor were taught was, simply to read and to repeat their Catechism. But a somewhat higher education, including writing and ciphering, was afforded to the sons and daughters of the farmers ; which class, notwithstanding their opposition to the establishment of the

schools, very soon showed themselves quite ready to take advantage of them, even though they were obliged to pay a small fee for the instruction of their children. "It was to the education of the labourer, not of himself," Mr. Thompson remarks, "that the farmer objected. His ignorance prevented his estimating, but not his acknowledging, the value of learning, which it rather led him to exaggerate. Besides, it was now too late to keep his labourer in ignorance, and the only way of maintaining his own superiority was by acquiring superior knowledge. Writing and ciphering he was well aware were useful things, and he was willing to spare a trifle to secure these advantages for his children; and writing and ciphering, Mrs. More very readily allowed, were beneficial and appropriate knowledge for the boy of this class, who had, beside, more time to spare for their acquirement than the child of the day-labourer. This addition, therefore, was made in the case of those farmers' children who attended the week-day schools; and the effects fully realized the expectation. The agricultural class became proportionally raised in the scale of spiritual and reasonable beings; and, as they associated daily with those who were to be their future servants, the kindly affections of childhood were brought in aid of the commandments of the Gospel. The practice is now common in the Mendip districts; almost every National School deriving a part of its support from the contributions of farmers, who

possess, by somewhat larger subscriptions, the privilege of presenting their own children, and of obtaining for them a superior kind of education."

Nor did the exertions of the benevolent foundress cease with the mere institution of the schools. Her practice was, whenever she was resident at her house in the country, which was always for the greater part of the year, to make a round along with her sisters every Sunday, in the course of which the schools in three different parishes were visited by the party, who were usually occupied in the survey for about thirteen hours, and frequently passed the night in one of the villages. This practice she continued, except when incapacitated by sickness, for upwards of twenty years. After some time she began to give prizes to the children; "pence for regular attendance; Bibles, Prayer-Books, &c., to the best proficient in learning and piety." In a letter written in 1802 she states that she had for many years given away annually in this way near two hundred Bibles, Testaments, and Prayer-Books. When any of the girls was taken from the school to be married, she received a pair of white stockings of Mrs. More's own knitting, five shillings, and a Bible. Clothing was also annually distributed among the poorer scholars. And the whole system was as it were drawn together and crowned by an annual festival, at which all the children of the several

schools were collected on the summit of one of the Mendip hills, and regaled, at separate tables spread for those of each parish, with roast-beef, plum-pudding, and cider. At these celebrations, we are told, no fewer than 1300 children have been known to assemble. The clergymen of the several parishes were present to say grace; and Mrs. More and her sisters were generally accompanied by many friends, some of them among the most distinguished persons in the country.

In connexion with her schools, also, this excellent person had established benefit societies for the women of each parish. "The proposal," says Mr. Thompson, "met with ready acquiescence from the mothers and near connexions of the children. In some of the parishes the number of members soon amounted to 150; and in less than ten years many hundreds of pounds were saved by this class for sickness and confinements. The payments in the former case were three shillings per week; in the latter seven shillings and sixpence at once. These advantages were secured by a subscription of three halfpence per week, and exact conformity to the school regulations; and they had the effect of bringing many children to the schools, whose parents would otherwise have been hostile or indifferent. Nor was the benefit restricted to those parishes, or to that generation. Most of these clubs subsist to the present day, and

great numbers of others have sprung up in the surrounding parishes." The women too had their annual festival day, when, after attending divine service at their respective parish churches, they repaired to the school-room, which was gaily decorated with evergreens and flowers by the children, and were there served with tea and cakes by Mrs. More and her sisters. The neighbouring clergy and gentry were invited, and not a few distinguished strangers were often present. "A train of carriages extending no less than a mile," Mr. Thompson writes, "has frequently been known to leave Mrs. More's residence on these occasions; nor have coronets and mitres disdained the thatched schoolhouses of Cheddar and Shipham."

Eventually, when the increasing age and infirmities of their patronesses made it impossible to carry on the system upon its original scale, the schools were reduced to three, those of Shipham, Cheddar, and Nailsea. But these Mrs. More maintained so long as she lived, at an annual cost of about 240*l.* The annual festival of the schools was also of necessity discontinued after it had been held for about twenty years; and that of the clubs, although kept up to the present day, also ceased of course to be held with the same degree of display when Mrs. More and her sisters were no longer able to attend. Her sisters were all taken away some years before Hannah's life was brought to a close.

Mary, the eldest, died at the age of seventy-six in April 1813; Elizabeth, the third of the five daughters, in June 1816; Sarah, the second, in May 1817; and Martha, the youngest, in September 1819.

But even after she was thus left alone, Hannah More did not suffer either her spirits to droop or her faculties to lie unemployed. In the preceding five or six years she had added several publications to those that have been already enumerated; in 1815, an 'Essay on the Character and Practical Writings of St. Paul,' which by the year 1838 had passed through seven editions, comprising 7500 copies; a number of new political tracts and ballads in the winter of 1816-17, written while confined to her room, and often to her bed, by illness; and in the summer of 1819, a volume of essays entitled 'Moral Sketches of prevailing Opinions and Manners, Foreign and Domestic,' the first edition of which, Mr. Thompson tells us, was sold on the day of publication, and realized 3000*l.*, and of which eleven editions in all, comprising 10,000 copies, had been printed when he drew up his account. This last, we suppose, is the work to which allusion is made in a passage of one of her letters dated 1819 which Mr. Roberts has printed. "When we have no interruption," she there says, "I write about five hours a-day, but it is truly what the late Duke of Cumberland said when he saw Gibbon at work or

his laborious history, 'Scribble, scribble, scribble!' I believe I shall make a very honest volume as to the quantity of paper and printing, but a very cheating one as to the matter." She adds, "You will hardly be able to read this, which I have scrawled by candle-light. It is a great loss to me that I can make no use of the second half of the day, except by knitting, which is perhaps the portion best employed."* In the latter part of this same year, after the death of her last sister, she collected and re-published, with some alterations, all her political tracts and ballads. In the spring of 1820 she had a severe attack of illness, from which it was not thought that she would recover. Writing to a friend in June, she herself gives the following relation:—"In the midst of my illness Cadell wrote to entreat me to preface a new edition of 'Moral Sketches' with a short tribute of [to?] our late lamented king. My friend wrote him word it was utterly impossible; that I might as well attempt to fly as to write. A week after, supposing me to be better, he again renewed his entreaty. I was not better, but worse. I fancied, however, that what was difficult might not be impossible. So, having got everybody out of the way, I furnished myself with pen, ink, and paper, which I concealed in my bed; and next morning, in a

* Roberts, iv. 85.

high fever, with my pulse above a hundred, without having formed one idea, I began to scribble. I got on for about seven pages, my hand being almost as incompetent as my head. I hid my scrawl, and said not a word, while my doctor and my friends wondered at my increased debility. After a strong opiate, I next morning returned to my task, and finished seven pages more, and delivered my almost illegible papers to my friend to transcribe and send away. I got well scolded, but I loved the king, and was carried through by a sort of affectionate impulse; so it stands as a Preface to the seventh edition." * This Preface, written in such extraordinary circumstances, is regarded by Hannah More's admirers as one of her most spirited performances. The next year, after her recovery, she produced a little volume of 'Bible Rhymes on the Names of all the Books of the Old and New Testament, with allusion to some of the principal Incidents and Characters.' In 1822, and again in 1824, she was confined to her bed for many months by severe illness. On the last occasion her physician pronounced her recovery hopeless: but, in her bodily weakness, her mind was still strong enough to direct and superintend the arrangement of various passages from her already published works so as to form

* Roberts, iv. 154.

a treatise to which she gave the name of 'The Spirit of Prayer.' "From a sick, and in all probability a dying bed," the Preface, with the dictation of which she finished her task, began, "the writer of these pages feels an earnest desire to be enabled, with the blessing of God, to execute a little plan which has at different times crossed her mind, but which she never found leisure to accomplish till the present season of incapacity." This last work of Hannah More's was one of the most successful of her publications. "The first edition of 'The Spirit of Prayer,' " Mr. Thompson records, "was sold while in the press, and the first three editions in as many months. It has gone through eleven editions, and 17,500 copies have been printed. It was immediately translated into French, and had a great circulation in Paris." The venerable authoress had not expected to live till the printing was completed; but several years were still added to her length of days. Nor did she spend this closing period of her life either in inactivity or in retirement. Although she wrote no more for the press, she still kept up an extensive correspondence. In fact, from the constantly increasing circle of her friends, she had, Mr. Thompson observes, in her later years, less leisure than she had enjoyed even when living, at the commencement of her public career, in the midst of all the bustle of the fashionable and literary society of

the metropolis. "To save her own time," says this biographer, "as well as to accommodate her numerous visitors, she opened her house daily from twelve or one o'clock to three, for what she not inappropriately termed her *levee*. This, however, was far from securing the rest of her time for solitude; as friends from distant quarters were frequently besetting Barley Wood, and making importunate and irresistible demands on her leisure. Ingenious, however, to do good, she now employed herself in manufacturing little useful and ornamental articles to be sold at fancy fairs for charitable purposes; the fact that they were the produce of her industry investing them with many times their intrinsic value. The same industry which distinguished her literary pursuits was conspicuous in this humbler path of usefulness. On one occasion of this sort she knitted so assiduously as to produce an abscess in her hand. Such too was her desire to be useful in as many ways as possible, that she frequently made devices of this kind to plead the cause of freedom and humanity. A favourite contribution was a drawing of a negro slave in a supplicating attitude, under which was written and signed by herself some short metrical appeal." She continued, also, with the assistance of a female friend who constantly resided with her after the death of her sister Martha, to superintend the affairs of her three schools at Nailsea, Shipham,

and Cheddar, containing about 600 children; and likewise to take an interest in the three female benefit societies established in the same parishes, which, we are told, had been so successfully managed that by the year 1825 they had saved funds amounting to very nearly 2000*l*.

In a letter to a friend written in August 1826, and enclosing some verses which she had recently composed, she says, "You must not suppose that I am grown poetical in my old age. I have long abjured all attempts at works of imagination. The only one of my youthful fond attachments which exists still in its full force is a passion for scenery, raising flowers, and landscape-gardening, in which I can still indulge in some measure, as far as opening a walk from my chamber window among a little grove of trees I myself planted twenty-four years ago. I wish you could come and see how I flourish in my small territory." She did not, however, end her days in this home where she had lived so long, and which she had taken so much pleasure in fashioning and adorning. Some disorderly proceedings of her servants, who appear to have taken advantage of the confidence reposed in them, and of the inability of their mistress any longer personally to superintend their conduct, determined her in the spring of 1828 to break up her establishment at Barley Wood. On the 18th of April in that year she removed to a house in Windsor

Terrace at Clifton. Unexpected as this change was, and severely as such a severance from many old and strong attachments could not but be felt, she did not suffer any weak regrets to master her. The first remark that she made when she found herself in her new house was an expression of delight at the bold and varied prospect it commanded. "I was always," she said, "delighted with fine scenery; but my sight of late years has been too dim to discern the distant beauties of the Vale of Wrington. It has pleased Providence to ordain me, in my last days, a view no less beautiful, all the features of which my eye can embrace." "In this state of calm acquiescence in the lot appointed her," continues Mr. Thompson, who reports this incident, "her elastic mind soon recovered from its depression, and she was again able to hold intercourse with the social and intelligent. Her conversation had lost nothing of its brilliancy; her manner nothing of its liveliness and intellectual character. . . . Such, however, was the multitude of visitors whom this more public sojourn brought her (nearly 400 in the first three weeks), that she was obliged to restrict her *levées* to two days in the week only, while on the rest she was only accessible to her most intimate friends. In September 1828 she writes to Mr. Cadell,—'I have sold my beautiful place, and find Clifton very pleasant. I have fewer cares, and more comfort.' Her charities

continued to flow, but, of course, no longer under her immediate inspection. The press she had abandoned; and correspondence, conversation, and study formed the business of her day." To Mr. Wilberforce we find her writing on the 27th of October:—"I am diminishing my worldly cares. I have sold Barley Wood, and have just parted with my copyright to Cadell of those few of my writings which I had not sold him before. I have exchanged eight 'pampered minions' for four sober servants. I have greatly lessened my house expenses, which enables me to maintain my schools, and enlarge my charities." *

A decay of mental vigour was perceptible in her last years; but this was all. Her habitual cheerfulness never forsook her; and in some other respects she was at near the age of ninety what many have ceased to be at seventy. Mr. Roberts has printed a letter from her physician Dr. Carrick, of Clifton, in which that gentleman says,—“It seems worthy of remark, that, as it pleased the Almighty to protect this distinguished woman to a very advanced period of life from the infirmities of temper which often tend to render age both unamiable and unhappy, so it likewise accorded with his goodness to spare her from many of those bodily infirmities which usually accompany length of years. To the

* Roberts, iv. 340.

very last her eye was not dim ; she could read with ease, and without spectacles, the smallest print. Her hearing was almost unimpaired ; and, until very near the close of life, her features were not shrunk, nor wrinkled, nor uncomely, and her person retained to a considerable degree its wonted appearance, as at a much earlier period. Even to the last, her deathbed was attended with few of the pains and infirmities which are almost inseparable from sinking nature." She survived till the 7th of September 1833, by which date she had attained to within five months of the completion of her eighty-ninth year.



CHAPTER VIII.

Mrs. Grant of Laggan.

THE late excellent Mrs. Grant of Laggan—as she continued to be designated to the end of her long life from the parish in Inverness-shire of which her husband had been clergyman, and with which her first publications were connected—affords another remarkable example both of the successful cultivation of literature by a woman in trying or unusual circumstances, and of the attainment thereby of many worldly in addition to higher advantages. She has herself told us the story of her early life and her first struggles in an unfinished Memoir, which has been published since her death. In the mere acquisition of knowledge she had no peculiar difficulties to encounter either from circumstances or from any deficiency in herself. On the contrary, her faculties were quick and early developed; and her opportunities, though not affording her a regular education, were well suited to nourish and strengthen those tendencies and powers which naturally gave her mind its distinctive character. “I was born to live,” she observes, “to the purposes of

feeling, observation, and recollection much earlier than children usually do. I was not acute, I was not sagacious, but I had an active imagination and uncommon powers of memory. I had no companion; no one fondled or caressed me, far less did any one take the trouble of amusing me; I did not till the sixth year of my age possess a single toy. A child with less activity of mind would have become torpid under the same circumstances. Yet, whatever of purity of thought, originality of character, and premature thirst for knowledge distinguished me from other children of my age, was, I am persuaded, very much owing to these privations. Never was a human being less improved, in the sense in which that expression is generally understood; but never was one less spoiled by indulgence, or more carefully preserved from every species of mental contagion. The result of the peculiar circumstances in which I was placed had the effect of making me a kind of anomaly very different from other people, and very little influenced by the motives, as well as very ignorant of the modes of thinking and acting, prevalent in the world at large." It was this anomalous character, in her case happily free from any kind of grotesqueness or absurdity, and allied to everything virtuous and noble, that both directed her to literature and authorship in the first instance, and gave much of its interest to what she wrote.

Anne Macvicar—such was her original name—was of Highland lineage, both by the father's and the mother's side. Her father, Duncan Macvicar, she describes as having been "a plain, brave, pious man." He appears to have been respectably connected, and to have been brought up to an agricultural life, but, at the same time, with those military habits which in that day were still nearly universal among the Scottish Highlanders of all classes. His apparent means of livelihood were derived from some farming concern which he carried on in conjunction with a relation, styled Captain Macvicar, near Fort William, in Inverness-shire; where he married, in 1753, a granddaughter of Mr. Stewart, of Invernahyle, the head of an old Argyleshire family. But the farm, probably, did not prosper; for, soon after his marriage, he removed with his wife to Glasgow, and there his daughter was born, on the 21st of February, 1755. She was, immediately, however, sent off to Inverness-shire to be nursed in the house of her grandmother; so that she was a Lowlander only by the mere accident of her birthplace, and the earliest sights and sounds with which she was familiar were those of Highland scenery and the Highland tongue. She was not brought back to Glasgow till she was eighteen months old, and then it seems to have been only that her father might have a parting look of her before leaving his native country for America,

which he did soon after, with a commission in a regiment of foot; though his ultimate object appears to have been that of settling in the New World. His wife and daughter remained in Glasgow till the beginning of 1758, and then followed him. The next year they were all collected together at a Dutch settlement, called Claverock, a little way below the town of Albany, in the province of New York; where Mr. Macvicar was stationed with a party of Highlanders. Here Anne was taught to read by her mother; of whom her description is, that she never knew a person of more perfect integrity, or more deficient in imagination. She learned to read, she tells us; very rapidly. "Here too," she adds, "among the primitive worthies of the settlement, I learned that love of truth and simplicity, which I found a charm against artifice and pretension of every kind." Meanwhile her father had been again called away to active service.

They were afterwards, for a short time, in the town of New York, then at Claverock again, then in the town of Albany. From the latter place, in October, 1760, Anne, as yet only in her sixth year, was taken by her father and mother to Oswego, on the banks of Lake Ontario. They set out, with a party, up the Hudson in boats. "We had," she says, "a most romantic journey; sleeping sometimes in the woods, sometimes in forts, which formed a chain of posts in the then trackless wilderness. We had

no books but the Bible and some military treatises ; but I grew familiar with the Old Testament ; and a Scotch sergeant brought me Blind Harry's ' Wallace ;' which, by the aid of such sergeant, I conned so diligently, that I not only understood the broad Scotch, but caught an admiration for heroism, and an enthusiasm for Scotland, that ever since has been like a principle of life."

They returned to Albany in the following year ; and, on their way back, a Captain Campbell, an old friend of her father's, then stationed at a fort on the Mohawk river, gave the child a handsome copy of Milton ; " which," she continues, " I studied, to very little purpose no doubt, all the way down in the boat ; but which proved a treasure to me afterwards, as I never rested till I found out the literal meaning of the words ; and, in progress of time, at an age that I am ashamed to mention, entered into the full spirit of it. If I had ever any elevation of thought, expansion of mind, or genuine taste for the sublime or beautiful, I owe it to my diligent study of this volume." This, and other similar instances, are worth the consideration of those whose principle of education is, that nothing ought ever to be put into the hands of children, or attempted to be taught to them, except what has been completely brought down to the level of their understanding. It does not appear to be in this way that the growth of mind is best furthered. We believe that what most fertilizes

and excites young minds is that which they are at first capable of understanding only partially, and which, instead of descending to them, gradually draws them up towards itself. Little good, indeed, is to be got by any of us out of anything except what is more or less beyond us and above us when we first apply ourselves to it. Nothing else can teach us anything that is really new, or at least can make the mind put forth any new powers. The dimness and perplexity at the commencement are the earnest of clearness and extent of vision to come.

Let us hear Anne Macvicar's own account of what in no long time she made out of her childish, and as many would say useless or worse, study of *Paradise Lost*. The most distinguished inhabitant of Albany in those days was the widow of Colonel Schuyler. "Madame Schuyler's house at Albany," writes Mrs. Grant, "was the resort of all strangers whose manners or conduct entitled them to her regard. Her ancestors on both sides constituted the aristocracy of the province, and her descent, her understanding, and education gave her great weight in society, which was increased by the liberal use she made of a comparatively large fortune. In her, the warmest family affection and the kindest heart were entirely under the control of the soundest practical good sense. . . . Some time after our arrival at Albany I accompanied

my parents one evening to visit Madame Schuyler, whom I regarded as the Minerva of my imagination, and treasured all her discourse as the veritable words of wisdom. The conversation fell upon dreams and forewarnings. I rarely spoke till spoken to at any time; but of a sudden the spirit moved me to say that bad angels sometimes whispered dreams into the soul. When asked for my authority, I surprised every one, but myself most of all, by a long quotation from Eve's fatal dream infusing into her mind the ambition that led to guilt. After this happy quotation I became a great favourite, and Madame Schuyler never failed to tell any one who had read Milton of the origin of her partiality." At this time the child would appear to have been hardly yet seven years old. We much question if any more customary or more plausible-looking plan of education could have awakened in her mind at that age so much feeling of the highest things as this quotation from Milton implied. A larger or more exact acquaintance with the mere mechanical dexterities of scholarship might no doubt have been acquired by another method. But that would have been comparatively worthless. "While we remained in America," she proceeds, "I enjoyed much of Madame Schuyler's society, and after my father removed from Albany I spent two winters with her in that city. Indeed, if my parents would have parted with me, she

would have kept me entirely with herself. Whatever culture my mind received, I owe to her."

In 1768, her father, whose health was beginning to give way, and who thought he had secured a provision for himself and his family by some land which he had purchased in America on easy terms, and the market value of which was every day rising as the surrounding country became cleared and inhabited, determined to return with his family to Scotland. They arrived at Glasgow in May. Anne was now in her fourteenth year. "I was first sought after," she says, "as something curious and anomalous, having none of the embellishments of education, knowing only reading, writing, and needle-work—writing, indeed, very imperfectly—yet familiar with books, with plants, and with trees, with all that regarded the face of nature; perfectly ignorant of the customs and manners of the world; combining, with a childish and amusing simplicity, a store of various knowledge, which nothing less than the leisure of much solitary retirement, and the tenacity of an uncommonly retentive memory, could have accumulated in the mind of an overgrown child,—for such I appeared to those who knew my age." And in a letter written in 1809 to a friend who had rallied her on her bad spelling—which, curiously enough, it would appear, stuck to her, authoress as she was, to the end of her life—after observing that she was delighted with the

pleasantry of her correspondent's observations upon a defect, which was the less to be excused, inasmuch as orthography was a thing to be learned merely by a common degree of observation, she informs her that the first unshackled letter of her own diction that she ever wrote in her life was actually the one dated in 1773 which makes the first of her printed 'Letters from the Mountains.' The original of this, she says, she has still beside her, "written in the most childish and unformed hand imaginable." And then she gives the following naïve and amusing account of her early education:—"I was taught to write, when a girl in America, by a soldier in my father's regiment, who began life in the character of a gentleman, but, being an incorrigible sot, retained nothing but a fine hand to distinguish him from his fellows when he was chosen my teacher;—this tutor of mine visited the black hole so often that I got copies—perhaps twenty—at long intervals, when he was removed into another regiment. I was thus deprived of all instruction of this and of almost every other kind; but then it was intended to send me to a convent in Canada, where officers' daughters got some sort of superficial education. This was deferred from year to year, and then dropped, because we thought of coming home, where I was to learn everything; but by that time I was grown very tall, very awkward, and so sensitive that a look

disconcerted me, and I went to no school except that where dancing was taught, which I very soon left from the same miserable conscious awkwardness.* She adds that she then used to exercise her handwriting principally in little poems of her own composition, in noting down which, with no one to direct or overlook her, she employed the first spelling that came to hand.

After she returned to Scotland she spent part of three summers at the country house of a family of the name of Pagan on the banks of the river Cart near Glasgow. Her visit to these friends she declares that she looks back upon as a valuable part of her mental or rather perhaps her moral education. "Minds," she observes, "so pure, piety so mild, so cheerful and influential, manners so simple and artless, without the slightest tincture of hardness or vulgarity, such primitive ways of thinking, I have never met with, nor could ever have supposed to exist, had I not witnessed. Here were the relics of the old Covenanters all round us, and here I enriched my memory with many curious traits of Scottish history and manners by frequenting the cottages of the peasantry, and perusing what I could find on their smoky bookshelves.

* *Memoir and Correspondence of Mrs. Grant of Laggan*; edited by her son, J. T. Grant, Esq., 3 vols. 8vo., 1844. Vol. i. p. 211.

Here was education for the heart and mind, well adapted for the future lot which Providence assigned to me."

In 1773, when Anne was eighteen, her father accepted the office of Barrack-master at Fort Augustus in Inverness-shire, and removed thither with his family. Here she first met Mr. Grant, who held the appointment of chaplain to the garrison, and whom she describes as "connected with some of the most respectable families in the neighbourhood, possessing great personal advantages, and adding that of much refinement of mind, sound principle, and a most correct judgment." The young clergyman was appointed to the neighbouring living of Laggan in 1776, and three years after he and Miss Macvicar were married. "His popularity," continues his widow, "was secured by his manners and conduct; mine was of more difficult attainment, because I was not a native of the country, and Highlanders dislike the intrusion of a stranger. However, I had both pride and pleasure in overcoming difficulties. Thus, by adopting the customs, studying the Gaelic language, and, above all, not wondering at anything local and peculiar, with the aid of a most worthy and sensible mother-in-law, I acquired that share of the good will of my new connexions, and the regard of the poor, without which, even with the fond affection of a fellow-mind, such a residence would have been

scarcely supportable. My father soon afterwards removed to Fort George, near Inverness, and had generally one or two of my children residing with him and my mother. I acquired a taste for farming, led a life of fervid activity, and had a large family of children, all promising, and the greater number of them beautiful. I felt much at home among our neighbours and the tenantry, and many things occurred that might give interest to a more extended biography, but must be here passed over. I generally passed some weeks every summer at Fort George with my parents, and kept up a constant correspondence with my friends in the South."

In this way life passed not only happily, but, as matters turned out, in the constant, though imperceptible and unconscious accumulation of what was to prove to be the very means of existence in other circumstances. It is a striking illustration of the remark that, let one acquire any branch of useful knowledge or skill whatever, and a day will come when it will be of service. The rule is, to take advantage of every opportunity of making any such acquisition. Everything that Mrs. Grant was now doing was growing, without her being aware of it, into a fund for the future;—the correspondence she kept up with her friends, her study of the Gaelic language, and of the character and customs of the Highlanders, even more than, what might have

seemed at the moment to be of more immediate utility, the knowledge which she attained of agricultural operations and the habits of activity to which she inured herself. The "pride and pleasure in overcoming difficulties," of which she speaks, and whatever other present gratification or profit attended her exertions, were only the promise of the full repayment they were eventually to bring her.

Many years thus flowed on, not in unclouded sunshine, but with no more than the usual human allotment of shadow and vicissitude. They had been married about twenty-three years, and of eleven children had lost three in early infancy, when their eldest son, a most amiable and promising boy, for whom the interest of a friend had already obtained a commission in the army, was carried off by consumption in his sixteenth year. His father, whose health had been always precarious, and from whom his children seem to have inherited the insidious disease that was to steal them nearly all away one after another in the spring of their days from their mother's eyes, sank under this blow, and after eighteen months more Mrs. Grant was a widow. This was in 1801, when she would be in her forty-sixth year. Another boy had been born a fortnight after the death of his brother. "I was thus," she says, "left with eight children, not free from debt, yet owing less than might be

expected, considering the size of our family, and the decent hospitality which was kept up in a manner that, on looking back, astonishes even myself, as it did others at the time. I was too much engrossed with my irreparable loss, on the one hand, and too much accustomed to a firm reliance on the fatherly care of Him who will not abandon the children of a righteous man, on the other, to have any fears for the support of so many helpless creatures. I felt a confidence on their account that to many might appear romantic and extravagant." Yet, apparently, it was upon what she might be able to earn by her own exertions, woman as she was, that she had mainly to depend for bread to herself and her children; for her father had nothing to give her or to leave her;—his American property had all been swallowed up in the gulf of the Revolution. All the certain income that she had was a small pension from the War Office, to which she was entitled in consequence of her husband having obtained a military chaplaincy a few years before his death. She says nothing of any allowance from the Widows' Fund, to which it is now obligatory upon every clergyman of the Scottish church to subscribe; so that her husband had probably neglected to secure her that benefit. At all events the thirty or forty pounds a-year which she might have had from that source would have afforded a very insufficient support for so numerous a family

One additional source of income only she had for a short time after the loss of her husband, in a cheap farm which they had rented from the Duke of Gordon, and which his Grace kindly allowed her to retain at the old rent not only for the year after that in which Mr. Grant died, but for the ensuing one also. Here she herself remained with the younger portion of her children; her elder daughters finding meanwhile a home with her father and mother, who had some time before this returned to Glasgow.

Such were the circumstances in which Mrs. Grant was led to try whether she could not better her fortunes by the exercise of her literary talents, hitherto employed only in private for her own amusement and the gratification of a few intimate friends. "I should now mention," she relates, "that I very early discovered a faculty of rhyming, scarcely worthy to be dignified with the name of poetry, but easy and fluent. My first essay was scrawled in a kind of Miltonic verse, when I was little more than nine years old. I meant it for a secret; but my father showed it to some of our friends, which made me very much ashamed; and I think, whatever I might have meditated, I never wrote more till I wandered on the banks of the Cart, and afterwards at Fort Augustus, and again upon my way home to Laggan, after spending some months among my friends at Glasgow. All these occa-

sional scraps I gave away, never having preserved a single copy. My friends were more apprehensive of pecuniary distress for me than I was for myself, and well knew how reluctant I should be to appear before the public as a writer ;—this, perhaps, as much from pride as from modesty. I had been often urged by partial friends to write for the booksellers ; but, in the first place, I had more dread of censure than hope of applause ; and, besides I could not find leisure, devoted as I was to a tenderly affectionate husband, whose delicacy of constitution, and still greater delicacy of mind, made my society and attendance essential to him. It still is gratifying to me to think of my steadiness in this refusal. I had, during some of the years which tasked my faculties of every kind to intense exertion, much aid and comfort from a young lady [Miss Charlotte Grant] related to my husband's family, whom particular circumstances had separated from her nearer relatives ; yet, owing to her absence during winter in town, my duties grew every day more arduous. Nothing indeed but the deepest gratitude to the invaluable friends of my early days would have induced me to carry on the frequent correspondence now known to the public ; it was only in early summer mornings, and late winter ones, that I could find time to write. An excellent constitution, and equal, cheerful spirits, for which I could never be thankful

enough, bore me through a great deal." But the brave exertions, thus originally made from a disinterested motive, were now, as often happens, unexpectedly to become productive in the hour of need. The bread cast upon the waters was about to return after many days. The friends among whom Mrs. Grant had scattered her verses had carefully treasured them, though she herself had kept no copies, and it was now determined that steps should be taken for having a volume of them published by subscription. The zeal with which they set about the good work, and their extraordinary success, are honourable both to themselves and to her. Before she had herself even heard of the project, and indeed before the materials for the publication were collected, the proposals were dispersed all over Scotland. "My personal friends," she says, "were not only zealous themselves, but procured new friends for me, who afterwards showed the warmest interest in my welfare. Being very much attached to my humble neighbours, I had at one time written, as part of a letter, a page or two of poetical regret at the hard necessity that forced so many to emigrate. The friend who had preserved this effusion sent it home, and advised me to enlarge and complete the sketch. I did so, and thus was finished 'The Highlanders,' the principal poem in the published collection; the rest I did not see again till I saw them in print." The volume,

under the title of 'Original Poems, with some Translations from the Gaelic,' appeared in 1803, with a list of subscribers extending to the unprecedented number of three thousand. "Some of these," says Mrs. Grant, with her characteristic frankness, "I owed to esteem, but certainly the greatest number to compassion or to influence; so that my gratitude was mingled with a sense of humiliation." But, although something of the latter feeling was natural enough in the circumstances, the same good sense, and even the proper pride, from which it sprung would protect her from being too much depressed by it. The view that she took of the fact was no doubt the correct one, and evinced a just appreciation of the really slight merit of her verses; but she would be thereby only the more roused to endeavour to produce something on another occasion which would have more intrinsic value, and be more deserving of the public patronage on its own account.

Her troubles and sorrows, however, were far from being yet over. She had already, indeed, been menaced with a new blow. A short time before the publication of her Poems, her eldest daughter, Mary, had been invited by an English lady, Mrs. Protheroe, wife of the late Edward Protheroe, Esq., M. P. for Bristol, to come and reside with her as a friend, receiving at the same time such an

allowance as would put it in her power to assist her family. Her mother did not feel justified in declining this proposal, and Miss Grant was accordingly sent to Bristol, where everything conduced to make her feel herself most agreeably established in her new position. But before very long news came to her mother that she was dangerously ill, and that it was absolutely necessary she should herself go to take charge of her. "I was obliged," she writes, "to set out immediately, in a state of mind impossible to describe, and to leave my family under the care of two trusty and most attached servants and a daughter of eighteen—that incomparable daughter Isabella, who, while she remained on earth, was like a guardian angel to us all." It was the middle of winter; and when she arrived in Bristol she found her daughter very ill, and was plainly told by her friends that she was not likely to recover. The physician who attended her declared that her only chance of recovery was by residing for some months at the hot wells in the neighbourhood, and drinking the waters. "This," continues her mother, "was a formidable proposal to me; but I trusted in the hand which had hitherto upheld me, and took lodgings at the hot wells, where I found myself repaid for what was certainly very inconvenient by seeing my daughter in a great measure restored to health." After spending a fortnight with a friend in Plympton, the two set

out together for Scotland ; it appears to have been considered that Miss Grant was incapacitated by the precarious state of her health for retaining her situation. "It was the end of April (1803)," says Mrs. Grant, "when we arrived in Glasgow. I found my father suffering from an illness in that city, which proved his last ; and I left my daughter with him. Returning to my home at Laggan, after seeing all the luxury that wealth affords, I set out, mounted on a horse that was sent to meet me, on a dark showery day, and travelled over the bleak unvaried heath of Drumochter with unspeakable delight. I was going from a world where I was a sorrowful unknown wanderer, to a place where every countenance brightened at my approach, and where affectionate children were to meet me with rapture."

A few weeks after this Mrs. Grant removed with her family from Laggan to a house called Woodend, near Stirling, having attached to it some garden-ground and a lawn, on which she could feed a couple of cows. About the same time her father died, upon which her mother came to live with her. She thus describes her life at Woodend in a letter to a friend written in July 1804 :—"I live in a great hurry, notwithstanding my aide-de-camps, whose diligence in performing their several duties I have no reason to complain of ; but I have dedicated this summer to making certain arrange-

ments in the way of gardening and household affairs, which will leave me at leisure to apply to a new literary task when these beautiful days shorten; for I really cannot think of shutting myself up with my own gloomy reflections, while all nature smiles invitation around me. You can't think, too, how many little rural employments I create to myself by the help of three cows which I graze this summer, and which constitute no contemptible dairy. The love of farming is cousin-german to the love of nature: no person that has ever tasted the sweets of weeding turnips and pulling lint, not to mention the transports of marking the first bloom nodding on potatoes,—no such agricultural enthusiast can give up these pursuits without a pang like that of a defeated general or a neglected beauty."

But, as she remarks in her autobiographical sketch, she never was long without a trouble of one kind or another. In the end of the year 1804 she was suddenly summoned again to the south. The eldest of her two surviving sons, Duncan, had, much to his mother's regret, chosen the army for his profession, and, having been shortly before appointed a cadet for Woolwich, had, within a few days of completing his preparatory course of study at the military academy at Marlow, become involved in a mutiny of a number of the young men, had occasioned his expulsion, although, as it

appears, he had taken no active part in the affair, but only, having unfortunately had the design confided to him, had from a feeling of honour kept the secret and afterwards refused to give up the names of the others. "Until," says his mother, in a letter written some time after, "I heard the circumstances truly explained from his patron, Mr. Charles Grant of the India House, I was inexpressibly wretched; for disgrace was new to me, and I could not support it." Meanwhile, through Mr. Grant, who was then Chairman, an East India cadetship had been obtained for her son—the Duke of York, the Commander-in-chief, being persuaded to remain quiescent. It was this affair, according to the account she gives in her autobiographical fragment, that led to her next literary adventure. "I was detained," she says, "heavy-hearted enough, for some months in London, to see him prepared for going to India. The equipment of my son was a new and heavy expenditure, for which I was not well provided. In this situation my friends strongly advised me to publish my Letters; a resource in which I had little faith; and, had I thought it available, such a disclosure was very grating to my feelings, for two reasons. First, because I always thought it extremely indelicate to publish letters in the lifetime of the author; and next, because, to suit them for public perusal, and avoid misconstruction in my own circle, I saw that I should find it ne-

cessary to exclude the most amusing and interesting passages, namely, those that related more particularly to my friends and their friends, as well as much harmless badinage and veritable narrative." It appears, however, from her correspondence that the new destination of her son had been arranged some time before she left Scotland, and also that the publication of her Letters was one of the objects of her journey to London. Writing from Woodend to a friend in Glasgow on the 13th of December 1804, she says,—“I am now going to set out on another less distressing journey, though my time of life and state of health make every journey severe. My son sets sail for India in the beginning of January. . . . And there are certain literary plans, &c., to be promoted by this journey.” We are to understand, then, that she had been prevailed upon to lay aside her scruples about sending the letters to the press before her expenses were increased by the unexpected postponement of her son's departure for India, which did not take place till March. In a subsequent letter to her Glasgow correspondent dated from London, the 28th of January 1805, she mentions that she is to go the next day to Richmond, there to remain for six weeks to finish her literary task. Writing again from Richmond on the 8th of April, she says, “My literary task is not yet finished. I meet with many interruptions from my friends, ill health, &c.

I am, as usual, very busy to little purpose." The rest of the story she has thus told in her autobiography:—"After arriving in London I was at the utmost loss, knowing no bookseller, how to dispose of my defective and ill-arranged manuscripts. Happily, I met with a Scotch friend, who knew something of Messrs. Longman and Rees, and promised to introduce me. I went to them with no enviable feelings, being fully as much ashamed of my shabby manuscript as Falstaff was of his ragged recruits. Mr. Longman, however, took it graciously, submitted it to his invisible critic, and in a few days I heard the glad sound that it would do very well for publication. I was told that it would be set about immediately, and would be ready in three or four months, it being arranged that I should receive half of the profits, the booksellers bearing the risk of printing. This was in spring 1805. Summer and autumn passed; winter came; spring returned;—still not a word of my book. I thought my papers had been lost, or thrown aside as useless, and, occupied with a thousand other cares, I had almost forgotten them, when I received at Woodend a letter informing me that my book was printed, and nothing was wanted but the Preface, which, it seems, was the last thing required. Certainly never was Preface more expeditiously written. In half an hour after the letter was received the Preface was away to Stirling to

overtake the evening post. I had declined to give my name to the public as the author of the Letters, and therefore could not be much affected, farther than a pecuniary disappointment, by their being overlooked. Yet I have been seldom so much surprised as when my kind neighbour Lady Stewart casually mentioned her hearing from London that a book called 'Letters from the Mountains' divided with some other new publications the attention of readers that summer. No person, I believe, was so astonished at their success as myself. My booksellers dealt liberally with me, and many persons of distinguished worth interested themselves in me, and sought my acquaintance, in consequence of perusing those Letters."

A few additional facts relating to this publication and its results may be gleaned from her correspondence. Thirty years before, when she was a girl of seventeen, Mr. Hatsell, now become principal clerk of the House of Commons, had, when on a visit to Fort Augustus, resided in her father's house, and taken some notice of her. When her new book was about to make its appearance she wrote to that gentleman, with a copy of her Poems, expressing a hope that he might not altogether have forgotten her, and briefly detailing what had befallen her since they had met. She seems to have had no answer at the time: but nearly a year after, when her book had been published, we find

her again writing to Mr. Hatsell from Woodend, as follows:—"Sir, I have just been greatly surprised, as well as deeply affected, by your very kind letter. The pressure of very peculiar circumstances emboldened me to solicit your protection for my most unwilling publication when I was in London; but I was so little satisfied with myself for thus exposing my motives to the mercy of unkind conjecture, that I endeavoured to forget that I had written. So far I succeeded, that for months I have not recollected this indiscretion, for such indeed I accounted it. Judge, then, besides being dazzled by generosity, and soothed by delicacy, how much I am relieved to find I have not been misconstrued . . . So far from refusing, from a mistaken notion of dignity, your offered kindness, I am proud to owe an obligation conferred by such a character, and in such a manner." And from a letter written a few months later to her friend Mrs. Smith of Jordanhill (one of the correspondents to whom the 'Letters from the Mountains' had been originally addressed) it may be collected that Mr. Hatsell's exertions in her behalf were not confined to the present in money he had made her in the first instance. She had removed with her family from Woodend to a house in the town of Stirling in the latter part of this year. "My dear friend," she writes from Stirling to Mrs. Smith, in October, "I write at this particular

time to give you what I know you will think very pleasing intelligence. The Countess of Harcourt, Lady Charlotte Finch, formerly governess to the Royal Family, and many other distinguished people, have been stirred up by the letters addressed to the Lady of Jordanhill, and other such letters, to take a most active interest in the family of the writer. They have made Mr. George Chalmers write down for a list of all my family, their names and ages, with a view, I am told, of doing them good. Charlotte [her daughter, who had now been nearly a year domiciled with her mother's friends at Richmond] writes me that she has had many visits from different ladies of high fashion, but higher merit, whom she enumerates, who are very anxious to know, among other particulars, the exact size, complexion, and air of her mother! I have a letter, too, from my good friend Mr. Hatsell, who says he has just had a visit of two days from Dr. Porteus, the Bishop of London, and cannot say how highly he speaks, &c. &c.; and, moreover, his lordship offers to forward another edition of said Letters, which he is to compress into two volumes Mr. H. tells me he now sees a fair prospect of my arriving, by good management, at a state of comfortable independence." Her publishers, too, dealt with her in a manner that gave her great satisfaction. Writing to Mr. Hatsell in December of this same year, she says, "If gratitude

were payment, you should be as liberally dealt with as I have been by my booksellers. Further I cannot proceed without disburthening my mind of the wonder and admiration which the liberality of these most generous booksellers has excited. Know then, dear sir, that Longman and Company sent me their account stated, in which they have allowed me a handsome sum, out of their own half of the profits, as a free gift." Meanwhile, in March 1807, we find Mr. Chalmers transmitting her a post bill for 300*l.*, the sincere tribute of three gentlemen, Mr. Angerstein, Mr. Thomson, and Mr. Bonar, the opulent merchants, to her virtues and her talents, and to the useful application of both to the best interests of society. Again, to Mr. Hatsell in October 1807, after the second edition of the 'Letters' had appeared, she writes,—“ Longman, who is doubtless the prince of booksellers, has written me a letter expressed with such delicacy and liberality as is enough to do honour to all Paternoster Row: he tells me that the profits of the second edition of the 'Letters' amount to 400*l.*; of which they keep a hundred to answer for bad debts and uncalculated expenses, and against the beginning of next year I get the other three He urges me for the Errata, saying, and possibly thinking, the third edition will be out in a month. Meantime I buy stock, calculate and wonder at my own wealth,—to which,

however, you may believe the sad occurrences of this summer did not add."

These last words were full of terrible meaning. In the beginning of March her daughter Charlotte had been attacked by an influenza then general in London. About three weeks after a letter arrived strongly urging her to come to Richmond immediately. When she arrived in the beginning of April she found her daughter in an almost hopeless state. On Sunday the 19th of that month she writes to a friend in town from Brompton, whither the invalid had been removed,—“Charlotte, since you saw her, has been better than I hoped . . . I trust we shall be equal to to-morrow's proposed removal into town, and that it will be a prelude to comfort, either earthly or divine.” But the poor girl breathed her last soon after daylight on the morning of the 21st. She was only in her seventeenth year, and, beautiful, amiable, and of an understanding beyond her age, she was a general favourite, and the darling and pride of her mother's heart. “Her letters still remaining,” says her surviving brother, “show her to have been possessed of much of her mother's energy of character, and abound in expressions of warm affection, and sentiments of piety and truth.” “Daily and hourly,” we find her mother writing to a friend after she had returned home from her melancholy journey, “I seem to feel more deeply the loss of my

incomparable Charlotte, whose sterling worth, besides her warm affections and premature abilities, was beyond what you can imagine." This was on the 12th of June. Another daughter, Catherine, her second, now in her twenty-fifth year, was already in a state which awakened the most serious apprehensions. "Catherine's illness," this letter goes on, "sinks deeper into my heart than all my other sorrows, and has for the time disconcerted all my plans. Charlotte's death greatly aggravated her distress." Meanwhile the anxious mother was called away on a short visit to the north of England. On the 20th of July she writes to a friend from Fellfoot in Westmoreland,—“When it pleases God to restore Catherine to health, we shall all breathe again; and I have a letter from my medical friend, saying he doubts little of my finding her much better when I return.” And, after saying that if she should find her daughter better she will lose no time in giving her the advantage of a sea-voyage, she adds, “If I had none but myself to think of, I should be the happiest of human beings; for there is nothing enjoyable—‘no wholesome fruit that borders virtue’s way’—but what I taste with the keenest relish, and every short interval of ease is to me like a child’s holiday.” Very short was her present interval of ease and hope. On the 3rd of August she writes to the same friend from Glasgow,—“Catherine,

my admired and truly admirable Catherine, is at rest! I found a letter addressed, by my desire, to Fellfoot, in which they told me that she had not at any rate been worse than when I saw her, and that they hoped she would be better by the time I returned. Some days after I got a letter at Rokeby from Mrs. Hall. I opened it, and found the first lines a preparation for some wounding intelligence. I feared it might affect me so powerfully as to force me to distress a house full of strangers, and particularly alarm Mary, whose mind had suffered so much from former distress, that she was ill prepared for a new shock. I put the letter, unread, in my pocket, and feigned indisposition to Mary, to account for the tremors I felt, which shook me every now and then almost to fainting. I sent Mary to bed before me, and when she was asleep opened the fatal letter. I will not describe my anguish on finding the dear creature had got beyond my cares and tenderness at the very time I was languishing to clasp her to my breast."

Nothing could be finer than the manner in which this admirable woman bore herself under these accumulated strokes. All her conduct showed how deeply she felt that she lived not for herself but for those whom Heaven had made dependent upon her exertions. Her late journey to England, which separated her from her dying daughter, had been undertaken to bring home a little boy, a

nephew of Mr. Morritt of Rokeby, whose education she had agreed to take charge of for a few years, for the sake of adding to her income and means of bringing up and providing for her family. And now, when she had returned to her mourning household, there was no selfish indulgence of grief on her part. All her efforts were applied and all her mental resources called into requisition to sustain the spirits of the rest. Nor, inspired by her example, did they fail to second her endeavours. On the 10th of August she writes again as follows to the same friend to whom the letter we have just quoted was addressed:—"I wrote to you from Glasgow after having gone through the distress of communicating this most unlooked-for stroke to Mary. The telling it to Isabella was still more terrible, and its effect was really beyond my fears; so that, instead of indulging the sorrows of nature, or even that sad peace that so often succeeds a violent mental conflict, I am forced to exert unnatural spirits to comfort others, and tremble all over with terror for some new infliction. . . . Anne, that truly amiable creature, is my chief consolation; deeply does she feel, and bitterly does she weep, though silently; yet her anxiety about my health and peace so far conquers her own distress, that she constantly watches my looks, reads me asleep at night, and is at a very early hour at my bedside to read to me again: in short, nothing can exceed the

industrious tenderness of her attention." And afterwards she adds,—“I do indeed suffer very deeply; my affection and my vanity are both wounded in thus suddenly losing the ornament of our family, of whom we were all too proud. Yet I will not forsake the living, nor omit anything that can do good or give pleasure to my friends, while life or ability are left me.”

Very soon after we find her occupied in the preparation of a new literary work, her ‘Memoirs of an American Lady,’ in which she embodied her recollections of the scenes, events, and friends of the earliest portion of her life. In a letter to the same friend written on the 5th of September she describes the difficulty she had in pursuing this labour amid the bustle and confusion of so large a family cooped up in a small house in winter, when the younger members cannot go out to play. “My room,” she says, “has the nursery above it, and the kitchen below it, and my nerves are torn to pieces with noise and running out and in; the only other habitable room is occupied by my mother: I except the dwellings of Misses and Masters. The drawing-room is liable to a succession of morning visitors, and the dining-room wants but ‘armed knights and whistling hawks’ to be like Branksome Hall. Where, then, could the Memoirs of an American Lady be born and nursed? More of this again.” But soon after this the alarming illness

first of her youngest girl, Moore—who had been a pet of her father's—and then that of the next youngest, Anne, a “model of patient sweetness,” for a time drew her off from everything else. They both, however, recovered for the present; and their mother returned with her wonted buoyancy to her task. To her friend Mr. Hatsell she writes on the 21st of December,—“I find, upon retracing the scenes once so familiar, many long-departed images rise to my recollection, and that in this instance memory ‘is not dead, but sleepeth.’ In short, I begin to write *con amore*, and hope to succeed. This new occupation of mine I find very useful in blunting the stings of painful recollection, and erasing for a time ‘the written troubles of the brain.’” She found it expedient at last, however, partly that she might have a greater command of quiet and leisure, partly in the hope that change of air and scene would be advantageous to the drooping health of her daughter Isabella, whom she took with her, to pay a visit of a few months to her friend Sir John Legard at Sunbury, near Richmond, in whose hospitable mansion, it may be remembered, Elizabeth Smith had spent some of the last days of her life two years before; and there she completed her book. It was published at London, in three volumes, in the summer or autumn of 1808. “I trembled for the fate of this book,” she writes to her son in India, in May

1809; "but it has gone off with great success: the whole impression of fifteen hundred copies was sold in three months, and the second edition is now printed, and selling rapidly, I believe."

In 1810 Mrs. Grant removed from Stirling to Edinburgh, in which city she passed the remainder of her days. In one of her first letters from her new residence she informs Mr. Hatsell that she had just received a second bill for a hundred pounds, the first having been sent her about a year before, from some ladies of Boston, in the United States, who had had her last book reprinted there, and had remitted her these sums as the profits of the sale. In 1811 she published her 'Essays on the Superstitions of the Highlands of Scotland, with Translations from the Gaelic,' in two volumes. In the beginning of 1812 her mother died at the age of eighty-four. She had intended that her 'Essays' should be her last work; but in 1814 she published a trifle entitled 'Eighteen Hundred and Thirteen, a Poem,' which attracted very little attention. After this she employed her pen only in a few occasional magazine contributions, and in her correspondence with her friends, which she kept up with unabated activity and spirit to the end of her life. In August 1814 she lost her daughter Anne, after an illness that had lasted nearly a year. "What a heavenly treasure she has been to me!" she says, in a letter to a friend written the day

after the blow had fallen on her. "Whatever vexed or harassed me, I always found a balm from her lips and a cordial in her eyes to soothe and cheer me; her last words were a fervid expression of the unequalled affection she bore me." A fortnight before, her eldest son had died, at the age of twenty-seven, at Surat in India; and the sad intelligence arrived to darken the opening of the next year. In a letter to a friend a few weeks after the unhappy mother thus writes:—"Excepting the cloud of disgrace dwelling on a beloved memory, which I consider as the most dreadful of evils, my late misfortune has wanted no aggravation. For months, for more than a year, letters that truly spoke the flowing heart had poured in from my son in India by every ship,—all the yearnings of family affection seeming only increased by time and distance; all the heart-sickness which this love of those left behind could produce—all the prospects of success, growing reputation, powerful and deeply interested friends; and, to me of all other things the most grievous, a constant complaint of not hearing from me, though I had repeatedly written with assurances of undiminished affection. All this retrospection I have to endure, and, wonderful to tell, have been enabled to endure it, with a firmness, upon the whole, that surprises myself, though at times strong pangs of recollection, aided by fancy too active, and memory too faithful, put

me for a while upon the rack, from which I gladly escape by trying for an interest in every ordinary thing, but more successfully in any limited exertion for the good of others." She had firmness at the same time to check the excessive grief of her eldest daughter, struck to the earth for the moment by this last calamity. "My dear Mary," she writes to her, "I have just read your letter, and, with every allowance for human frailty, sisterly affection, and the sinking effect of many sorrows, I must affectionately reprove you for indulging, under any circumstances, the feeling, or expressing the language, of despair. Had we been reduced by the death of your dear brother to extreme poverty, and deprived of the daily society of a beloved relative, as has been the case with many other more deserving persons, we should not be entitled to speak of 'the extinction of every hope;' because even then the gates of a blessed immortality would have been still more visibly open to us for our transient though severe sufferings. But here we had no right to rest any hopes on him so early taken from us, but those of knowing at a distance that he loved and remembered us. I never meant that we should subsist upon the price of blood, as I think all do who live at ease on what prolongs the exile of their relatives in that fatal Indian climate. We have the same worldly views of subsisting by our own exertions as we had before; and our views of futur-

ity, if we improve and patiently submit to the divine will, are improved by this severity from that fatherly hand which chastens in love." For some years after this she was visited by no new sorrow ; but, in July 1821, her youngest daughter, Moore, was taken away, in her twenty-fifth year ; and two years after Isabella followed her sister. One daughter alone, Mary, the eldest, now survived ; and her too the grave received in November 1827. " My dearest Mary," her mother writes to an old friend on the first day of the following year, " might almost be said to have died with Isabella ;—with that angelic being the life of life was extinguished. Since that time Mary was not a moment absent from my thoughts, and the object of perpetual solicitude. The chapter of sorrow and anxiety is now closed." Of her twelve children the youngest alone, the son who was to fulfill the pious duty of editing her *Memoirs and Correspondence*, now remained. Yet the strong-hearted old woman lived on for a good many years longer. It was not till the 7th of November 1838, when she was within a few months of the completion of her eighty-fourth year, that her earthly existence terminated.

Mrs. Grant's life, for some years after she gave up writing for the public, had been in part devoted to an intellectual employment of another kind : the superintendence of the education of a succession of young persons of her own sex, who

were sent to reside with her. From the year 1826, also, her means had been further increased by a pension of 100*l.*, which was granted to her by George the Fourth, on a representation drawn up by Sir Walter Scott, and supported by Henry Mackenzie, Lord Jeffrey, and other distinguished persons among her friends in Edinburgh, who therein declared their belief that Mrs. Grant had rendered eminent services to the cause of religion, morality, knowledge, and taste; and that her writings had “produced a strong and salutary effect upon her countrymen, who not only found recorded in them much of national history and antiquities, which would otherwise have been forgotten, but found them combined with the soundest and best lessons of virtue and morality.” During the period of nearly thirty years that she resided there, she was a principal figure in the best and most intellectual society of the Scottish metropolis; and to the last her literary celebrity made her an object of curiosity and attraction to strangers from all parts of the world. Even after the loss of the last of her daughters, her correspondence testifies that she still took a lively interest in everything that went on around her. An American gentleman, the Rev. E. D. Griffin, who was introduced to her in 1829, thus describes her in a letter which is printed in his ‘Remains,’ published at New York in 1831:—
“I have seen Mrs. Grant of Laggan. She is a

venerable ruin ; she is so lame as to be obliged to walk with crutches [this was the consequence of a fall down a stair, which she had had nine years before], and even with this assistance her motions are slow and languid. Still she is not only resigned but cheerful ; her confidence in divine goodness has never failed. I think I shall never forget that venerable countenance, so marked by suffering yet so tranquil, so indicative at once both of goodness and of greatness. The broad and noble forehead, above all, relieved by the parted grey hair, exceeds in interest any feature of youthful beauty which it has yet been my fortune to behold. Her conversation is original and characteristic ; frank, yet far from rude ; replete at once with amusement and instruction." " Though I begin a letter with reluctance," she herself writes to a friend towards the close of this same year, " I kindle as I proceed, and always look back on the day on which I do not write as a dull one. I do think the intercourse I thus continue with persons I have long loved and valued has a tendency to prolong my life. If the heart retains its wonted feelings, if the fancy sheds its tremulous light on the edge of the grave, we should be peculiarly grateful for a blessing which diffuses a happy influence on all around us." And a year later, writing again to the same old friend, she says, — " With all its increasing infirmities, and even with the accumulated sorrows of my peculiar lot, I do

not find age so dark and unlovely as the Celtic bard seems to consider it. However imperfectly my labour has been performed, we may consider it nearly concluded ; and, even though my cup of sorrow has been brimful, the bitter ingredient of shame has not mingled with it. On all those who were near and dear to me I can look back with approbation, and may tenderly cherish unspotted memories, fond recollections, and the hopes that terminate not here. I feel myself certainly not landed, but in a harbour from whence I am not likely to be blown out by new tempests. I am most thankful for having thus far preserved to me the use of my faculties ; my ever-waking imagination will, I hope, prevent the tranquillity that has succeeded a stormy life from sinking into apathy, the worst symptom of growing indolence." Even after this she was destined to receive another severe shock from the death, in April 1837, in her twenty-eighth year, of her daughter-in-law, who had been married only three years before, and to whom she was strongly attached. Still her courageous heart bore her up, and the zest with which she enjoyed intellectual pleasures continued almost as keen as ever. In June following we find her writing to a friend that she is engaged in reading Lockhart's Life of Sir Walter Scott with lively interest: "It has done me a great deal of good," she says, "to see that beautiful mind so clearly displayed to us in

all its truth, ardour, and kindness,—in all its humble and graceful simplicity.” To another friend she writes in December of the same year,—“ I am now reading with eager attention Southey’s *Life of Cowper*, which I am sure you will read with equal interest.” Shortly before this she had sat to Mr. Watson Gordon for her picture, to be sent out to America. To her old friend Mrs. Smith of Jordanhill, who, Mr. Grant tells us, in December 1843, when his mother’s *Correspondence* was going through the press, still survived in the eighty-ninth year of her age, “ retaining the cheerful temper and all the amiable and benevolent feelings of her earlier life,” she writes in July,—“ What has occasioned this long interval of silence? Should auld acquaintance be forgot, and days of lang syne? Certainly not while memory remains; and it is cause for gratitude that it does remain as to everything important or useful, and is still a faithful record of past kindness, mutual affection, mutual sympathy in joy and sorrow, and, I may add, mutual improvement. While more than common health and more than common powers of recollection are still left us at this late period, how deeply thankful should we be for such great and prolonged mercies.” “ And, though we should, like many others of our age,” she goes on, reverting from the present to the past, “ be allowed to lie ripening for immortality, ‘withering on the stalk,’

alike exempt from suffering and incapable of enjoyment, I should still hope that some shadowy recollection would survive of a friendship so pure from every worldly motive, so lasting, and so beneficial to both; for, though from childhood impressed with a deep and awful sense of those principles which have enabled me hitherto to endeavour to work out my own salvation with fear and trembling, I never had a friend, or even companion (till my dear children grew up), whose humble and genuine piety so nourished the good originally sown in my mind as yourself. I could not confer equally precious benefits on you; but my busy restless imagination, my love of knowledge and good, because entirely unsophisticated, awakened in your mind that love of knowledge and refinement which only wanted encouragement to bloom in modest freshness." Afterwards, turning again to the present, she remarks,—“This truly glorious summer, ‘child of a dark and frowning sire,’ has not only gladdened the whole face of nature, including the lawn and grove opposite to my windows, but has afforded a rich and un hoped-for promise of harvest; while I, who generally abound in cheerful anticipations, was, like the ‘sad prophet of the evil hour’ foreseeing famine, merely because we never had so many successive seasons without an interval of scarcity.” Her son states that to the last she retained her love of nature; she was fond of having flowers and birds

in her sitting-room, and, until confined to bed a fortnight before her death, the fine view of the country from her windows in Manor Place was a never-failing source of delight to her. She also liked to collect parties of children about her; and, while she kept her sorrows within her own heart, "her thankfulness to God for the mercies she enjoyed," it is added, "often escaped in ejaculations from her lips when seated quietly with the few that latterly formed her domestic circle." "Her cheerfulness," says Mr. Grant, in another page of his brief memoir, "and the lively appreciation she had of everything done to promote her comfort, rendered her, till the latest period of her prolonged existence, a delightful companion to live with; while the warm interest she felt in whatever could contribute to the happiness, or even to the amusement, of others, kept her own feelings and affections ever alive." And he quotes an account of her conversational powers given by a friend, who says—"They were, perhaps, still more attractive than her writings. Her information on every subject, combined with her uniform cheerfulness and equanimity, made her society very delightful. There was a dignity and sedateness, united with considerable sprightliness and vivacity, in her conversation, which rendered it highly interesting. The native simplicity of her mind, and an entire freedom from all attempt at display, so-

made the youngest person with whom she conversed feel in the presence of a friend ; and, if there was any quality of her well-balanced mind which stood out more prominently than another, it was that benevolence which made her invariably study the comfort of every person who came in contact with her." This was not only to ward off decay and death, but to disarm old age of all its unloveliness, both to herself and to others. It is a fine example of how any darkness without can be conquered and dispersed by the light within.

No other words could be substituted without loss in giving an account of this estimable person for her own and those of the friends to whom she was intimately known ; but, largely as we have drawn upon her correspondence, we must still extract a few more sentences from one short series of letters which it contains. Her son tells us that, what with her pension, an annuity of the same amount bequeathed to her by her friend Sir William Grant, the late Master of the Rolls, and some other bequests, added to the emoluments of her writings, she was in her latter days, with her simple tastes and habits of self-denial, not only placed in easy circumstances, but enabled to gratify the generosity of her nature by giving to others. We have one remarkable instance of the exercise of her friendship in this as well as in every other way that lay in her power in her zealous patronage of

a Scottish artist, Mr. John Henning. The first letter relating to him is dated in October 1811, and is addressed to Sir Walter Farquhar, Bart., Conduit Street, London. Mrs. Grant therein states that Henning, by whom the letter will be presented, was brought up in his native county, Renfrewshire, to his father's business of a joiner, or cabinet-maker—that he first indicated his peculiar talent by modelling the countenance of one of his fellow-workmen in clay—that, having afterwards come up to Edinburgh and practised portrait-painting, he had made himself a great and general favourite, not only by his talents in his profession, but by “the moderation and simplicity of his habits, the strength and power of his pure and independent mind, and the native candour and gentleness of his unpretending manners”—that he had been patronized and esteemed by Dugald Stewart, Walter Scott, Mr. Jeffrey, and every other person of any eminence there—that, nevertheless, the wants of a young and numerous family had pressed hard upon him, and induced his friends to concur in advising him to try the wider field of London—and that there accordingly he was wanting employment. “Now, dear sir,” the warm-hearted letter concludes, “if you could let this deserving man model your countenance, or if you would, upon seeing the perfect resemblance of his models, recommend him to others, it would be a divine

charity. Your very speaking to him and showing some interest in him would help to support his spirits. Here he was not a little cherished and caressed; but the anxiety produced by having his large family here dependent on him, and himself to support in London, will, I fear, be too much even for his cheerful and buoyant spirit." Other letters follow to Henning himself, full of the soundest advice, as well as of everything that can help to sustain and encourage him. In one, after telling him frankly that she sees clearly how the case stands—he would do well in London, could he but procure the means of supporting himself there till he should be known—she assures him that all will yet be well. "We think," she adds, "too much of contingencies; a lively faith in the Giver of all good is, not only in a strictly pious sense, but morally and physically, beneficial. . . . I can never believe that such innocence and integrity as yours could be so severely tried, unless a rich harvest was hid in the stores of futurity to compensate the present suffering." In another, written on New Year's Day 1812, she enjoins him not to make himself uneasy about the necessities of his family whom he has left behind him. "If your chagrin," she says, "is augmented by a difficulty in affording them the present supplies, let me know by return of post, and I shall—not generously, but in a worldly and prudent way—advance a present

supply, which my gift of second sight assures me you will soon be able to repay. If that does not happen in a year, you know I have but to take one of the little girls as a pledge for the debt." "Keep up your spirits," she concludes; "fame and profit stand on an eminence before you. But you are at this juncture like one crossing, with pain and fear, a narrow bridge of one tottering plank, to arrive at the desired abode; the chasm is deep, and the apprehended miscarriage terrible, but the passage is very short; I would fain hold the torch of hope before your steps, and imagine I already see you over." Three weeks after, having had a letter from her protégé, couched in desponding terms, she writes again:—"We will not suffer your children to want a present supply; nor will He in whom you trust suffer you or them to want a future supply, though your faith and patience be severely tried in the mean time." Soon after this Henning seemed to have made at least the first step on his way to fame and fortune, the Princess Charlotte having been pleased to sit to him. In her next letter Mrs. Grant writes to him half playfully, half seriously—"We rejoice over your new coat; dress you yourself, and we shall dress your children. My second sight assures me you will be well; but if you always look back, who knows but you may turn to a pillar of plaster-of-Paris, or some such thing. Look forward, and, above all, look to

God." But the poor artist's actual circumstances continued still as bad as ever. A statement which his steady friend received from him to that effect in the latter end of July 1812 drew from her a reply commencing thus:—"I am glad, dear Henning, that in your last distressing letter you have showed me the bottom of your wound, that, as sympathy and experience can direct me, I may search, and peradventure heal it. Before I touch upon the disease of your mind I must alleviate your present anxiety by informing you that I shall provide, to a certain extent, for the immediate occasions of your sister and your children. I am sure you know I would have much more pleasure in giving than lending, if I could, in justice to others, spare it: as it is, however, it is less painful to your feelings, and touches not on your independence. Always think of me as a person who has felt all that you feel, and suffered all that you suffer,—all privations of heart, of circumstances, and of accustomed scenes. Your children live; so do not mine: half only remain of the fair and hopeful flowers that bloomed around me. How many of these were torn from my bosom under the most aggravating circumstances, in the full bloom of uncommon beauty, and almost in the maturity of talents and virtues that might fill a mother's proudest hopes! All this I felt as much as I could feel any thing after the loss of their amiable

and worthy father, whose tenderness and attachment to me were beyond all description. All this I have deeply, bitterly felt; yet all this I have outlived, because I never permitted my mind to dwell on the past, further than as a spur to perform my active duties to the beloved children, the brothers and sisters, of so much departed excellence. The God in whom I trusted has blessed my endeavours; and here am I, after all my struggles, offering to you that comfort which in a few years, by similar exertions and self-government, you may have it in your power to offer to others." Henning still continued to struggle with pecuniary difficulties, and nearly two years afterwards we find her writing to him again as follows:—"I know it is a heavy grief to you that you have not been able to repay my advances on your account. Shake off that encumbrance from your over-burthened mind, and consider the debt as cancelled, and believe that in acting thus I regard myself merely as an instrument in the hand of the master whom you have ever faithfully served, to administer comfort to his afflicted worshipper." And she adds, "I have something more than a presentiment that when I write to you next I shall be able to convey (not from myself) a sum for which no return will be expected but such as your ingenuity will enable you to make from the productions of your art. I tell you this, that it may strengthen your depend-

ence on Him who has already wrought wondrously in your behalf." "Adieu, dear Henning," the letter concludes; "your unwearied friend will never be discouraged by adverse circumstances; be true to yourself for many sakes, as well as that of ANNE GRANT."



CHAPTER IX.

Literary Women in their Social Relations.

THE preceding biographical sketches may be held, we think, to make out our case. They prove not only that their sex interposes no insuperable bar in the way of the pursuit of knowledge by women, but also that mental cultivation, however far it may be carried, has no real or inherent tendency to injure the nature of a woman any more than that of a man. On the contrary, the cultivated woman, or, if you will, the literary woman, or the learned woman, will be found to have in the great majority of cases, as well as in those that we have here detailed, gained by her study and scholarship an increase both of happiness and of usefulness in full proportion to her increase of knowledge. She has come thereby to be in all respects a more satisfying companion both for herself and for others. It would be impossible to point out any estimable or agreeable quality that was either destroyed or impaired in Elizabeth Smith, or Elizabeth Hamilton, or Mrs. Grant of Laggan, by either their literary tastes or their literary celebrity. Where was there to

be found a truer or higher womanhood than in these women? Instead of having been in any degree or respect unsexed by literature, it is evident that all that there was of good in them was thereby brought out into fuller and more beautiful development, that every natural grace of character was heightened in them, their female delicacy of feeling only made quicker and more unerring as well as more comprehensive, every warm and kindly affection strengthened, their performance of every duty of their position both facilitated and improved, by their communion with higher minds and higher subjects of thought than they would have been familiarized with if they had not given themselves as they did to literary pursuits.

The few biographies which we have given at full length, though with the exclusion of whatever did not bear upon the subject of the present work, are sufficiently various to include a large portion of the field of ordinary experience, and may serve for encouragement and guidance in most circumstances in which a woman is likely to find herself placed in entering or proceeding upon any path of intellectual enterprise. The examples have been selected mainly with a view to such general applicability. With that view, cases of extraordinary genius or precocity on the one hand, and those on the other in which the struggle has been with difficulties and hardships of some peculiar character and only of

very rare occurrence, have been equally avoided. We have sought to exhibit such instances of successful perseverance and the conquest of circumstances as might in some degree serve as lessons for all. For obvious reasons, too, English have been preferred to foreign examples; and recent ones to those belonging to another time and a different state of society. Our choice has also, of course, been to a certain extent directed by the quantity and quality of the materials that were at our command.

There is still, however, a part of our subject which seems to demand some further illustration, and a more distinct presentment. One of the strongest considerations which make it desirable that a high mental cultivation should be more generally attained by women is that of the more equal and suitable association which they would thereby be enabled to maintain with the other sex, and the important services which their acquirements might qualify them to render, sometimes in the education of their children or other younger relatives, sometimes in assisting the studies of their fathers, husbands, or brothers, sometimes in bearing part of the burthen of supporting their families. We have seen how Madame Dacier easily found time amidst all her learned labours to act as preceptress both to her daughters and to her son; how Mrs. Carter, while she was translating Epic-

tetus, prepared her nephew for the university ; how Madame Lepaute aided her husband, and Miss Herschel her brother. Such accomplished women, instead of neglecting any duty of their sex or station, have not only in by far the greater number of instances performed every duty in a superior manner, but have often performed, with the highest success, duties which the generality of their sex cannot attempt. It is a mistake, indeed, to suppose that the Gracchi were taught Greek, as is often asserted, by their excellent mother Cornelia ; what Cicero says in the passage of his treatise entitled *Brutus*, which is referred to as the authority for the story, is only that the boys, or rather Tiberius, the elder of the two, was taught Greek from his boyhood by the diligent care of his mother ; and it is immediately added that this was effected by her procuring for him the best masters that Greece could supply, of one of whom the name is mentioned. But, in a subsequent passage of the same treatise, Cicero commemorates Cornelia and other Roman ladies, not for their knowledge of Greek, but for the purity with which they spoke and wrote their native tongue, and the advantages which their sons derived from them on that account. "It is of great consequence," he observes, "whom any one daily hears at home, with whom he converses from boyhood, how fathers, preceptors, even mothers speak. We have read the Letters of

Cornelia, the mother of the Gracchi ; and it is apparent that her sons were brought up not so much on her lap as on her lips (*non tam in gremio educatos, quam in sermone matris*). We have often heard Lælia, the daughter of Caius Lælius ; whence we have seen that she was imbued with all her father's elegance of taste ; and that so also were both her daughters the Muciæ, whose manner of speaking was also well known to us ; and her granddaughters the Liciniæ, both of whom we have sometimes heard speaking, as you too, Brutus, I believe, have her who became the wife of Scipio." This was the daughter, by one of the Liciniæ, of Lucius Licinius Crassus, the celebrated orator, and the great-granddaughter of Lælia.

To these names we may add those of several other ancient ladies who are memorable for their intellectual association with persons of the other sex. Porcia, the daughter of Cato of Utica, and the noble wife of Brutus, is said to have been, as well as her husband, devoted to the study of philosophy ; and Plutarch, in the speech which he puts into her mouth when she appealed to Brutus, after she had given herself the wound, to allow her to share with him his fatal secret, makes her refer to the education she had received as one of the grounds on which she might be trusted. "I confess," she says (as the words are rendered in the hearty old translation by North), "that a woma-

wit commonly is too weak to keep a secret safely ; but yet, Brutus, good education, and the company of virtuous men, have some power to reform the defect of nature." Mrs. Jameson, in her ' Romance of Biography,' speaks of an Epistle of Ovid addressed from Pontus to his wife Perilla ; and one of the Epistles from his place of exile is addressed by the poet to his wife ; but her name is not given, and Perilla, to whom one of the Elegies in the *Tristia* is addressed, was certainly a different person. She is generally supposed to have been his daughter. He speaks of her with the tenderest affection, celebrates her love of and skill in poetry, and lingers over the recollection of the happy days when they used to carry on their studies together. His letter, he says, will find her either sitting beside her gentle mother, or among her books and her Muses. At her birth, he goes on, nature had bestowed on her both purity of heart and rare powers of genius. He himself it was who in her tender youth had first conducted her to the waters of Hippocrene, making himself at once her leader and her companion. Often, he exclaims, while yet it was permitted by Heaven, we used to read our verses to one another, while sometimes I played the part of your critic, sometimes of your master. And then, addressing her by the epithet Most Learned (*Doctissima*), he exhorts her not to allow his misfortunes to weigh upon her spirits so as to

deaden that lyric fire which, if it continued to glow as of old, might burst forth in strains that would leave her without a rival in song save the Lesbian Sappho alone. The conclusion of the poem is very fine. Her youth and comeliness of face, he bids her remember, will decay and pass away with time; so would every earthly possession, were she ever so rich; so will life itself; the wealth of the heart and of the mind alone is immortal. "Look at me," he says, "deprived of country, of home, of you all, of whatever, in one word, could be taken from me; yet my genius remains my companion and my solace; Cæsar has no right that he can exercise here. Let even my life be taken; still, when I am dead my fame shall live, and so long as victorious Rome looks down from her hills upon the subject world shall I be read." Roman patriotism could not dare to look farther into the future than this; it would have scared even the high-hearted poet himself to have been told that his verses would outlast the empire of his country. Let his Perilla, he adds, in conclusion, upon whose studies a happier fate attends, thus, too, in so far as it may be possible, rescue herself from extinction and forgetfulness.

It is not, we believe, expressly recorded of Pompeia Paulina, the wife of Seneca, that she was eminent for learning; but her husband's answer to her when she offered to die along with him

given by Tacitus, would seem to imply that she had been his companion, or at least his pupil, in the study of philosophy. "I have instructed you," he said, "how to live well, and now I will not grudge you so honourable a death." On this they both opened their veins at the same time; but Paulina's wounds were bound up by the order of Nero before she could carry her resolution into effect; and she lived for some years after, though bearing, the historian tells us, on her countenance and her person the glorious marks of her conjugal affection, and declaring to all who beheld her by the paleness of her complexion the quantity of blood she had lost. We have more direct testimony to the literary qualifications of Polla Argentaria, the wife of Seneca's nephew, the poet Lucan, who was put to death by the same tyrant soon after his uncle. Her fame has been preserved both by Martial and by Statius, the latter of whom is said to have married her after the death of her first husband. It is told that she not only assisted Lucan in so much of the revision of his great work, the *Pharsalia*, as he lived to accomplish, but afterwards continued and completed alone the task she had thus begun, and brought the poem to the state in which we now have it. Martial has also commemorated in two of his epigrams, one addressed to herself, the other to her husband, the poetical talents of his contemporary Sulpicia the

wife of Calenus, and her employment of them in the celebration of her conjugal happiness. The rest of the life of Calenus, he says, is not to be computed as life at all beside the fifteen years that he has passed with his Sulpicia; he would rather, the poet knows, live over again any one day of that happy time than all the four ages of the Pylian Nestor. We may here mention also the two wives of the Philosopher Boethius, the great literary ornament of the sixth century—Helpis his first, and Rusticiana, daughter of the Senator Symmachus, his second,—both of whom appear to have shared his studies as well as his bed. Helpis in particular excelled both in philosophy and in poetry.

Nor ought we to forget Calpurnia, the second wife of Pliny the younger, of whom her husband has left us so high a character. It occurs in a letter to Hispulla, the widow of Corellius, who was the aunt of Calpurnia by the father's side; and Pliny's words are thus translated by Lord Orrery:—"As you are an example of every virtue, and as you tenderly loved your excellent brother, whose daughter (to whom you supplied the place of both parents) you considered as your own, I doubt not but you will rejoice to learn that she proves worthy of her father, worthy of you, and worthy of her grandfather. She has great talents; she is an admirable economist; and she loves me with an entire affection,—a sure sign of her chas-

tity. To these qualities she unites a taste for literature, inspired by her tenderness for me. She has collected my works, which she reads perpetually, and even learns to repeat. When I am to plead, how great is the anxiety she suffers! When I have succeeded, her joy is not less exquisite. She engages people to tell her what applauses I have gained, what acclamations I have excited, and what judgment is pronounced on my orations. When I am to speak in public she places herself as near to me as possible under the cover of her veil, and listens with delight to the praises bestowed upon me. She sings my verses, and, untaught, adapts them to the lute:—love is her only instructor. Hence I expect with certainty that our happiness will be durable and that it will daily increase. In me she is not captivated by youth or beauty, which are liable to accident and decay, but with the lustre of my name. These are the sentiments which become a woman formed by your hand, and instructed by your precepts. Under your roof she beheld only purity and virtue; it was your approbation that taught her to love me. Your filial affection for my mother led you in my childhood to praise and model me, to presage that I should one day be the man my wife now fancies me to be. We, therefore, mutually return you thanks:—I, because you have given her to me; she, because you have given me to her. You have

selected us as formed for each other." And the enduring strength of his affection is evinced by a subsequent letter to Calpurnia herself, in which he says,—“ My eager desire to see you is incredible. Love is its first spring; the next, that we have been so seldom separated. I pass the greater part of the night in thinking of you. In the day also, at those hours in which I have been accustomed to see you, my feet carry me spontaneously to your apartment, whence I constantly return out of humour and dejected, as if you had refused to admit me. There is one part of the day only that affords relief to my disquiet—the time dedicated to pleading the causes of my friends. Judge what a life mine must be, when labour is my rest, and when cares and perplexities are my only comforts.”

The histories of some more modern cases of a similar kind have been told by Mrs. Jameson in her eloquent and beautiful book, ‘The Romance of Biography,’ already referred to. Marguèrite-Eléonore-Clotilde, the wife of the Chevalier Berenger de Surville, is the greatest name in what is properly called French poetry, that is, poetry written not in the Provençal but in the northern or modern dialect of the language, down to the commencement of the sixteenth century. She was born in 1405 and was married to De Surville at sixteen. Her poetry, some of which dates from her

eleventh year, consists of pastorals, ballads, songs, epistles, and the fragment of an epic poem ; but the most interesting portion of it is a number of verses, remarkable for their tenderness, addressed to her husband, who left her for the wars soon after her marriage, and who fell fighting for his king, Charles the Seventh, at the siege of Orleans in 1429. She never married again, but, continuing to reside in the family château, in the Lyonnais, devoted herself to literature and the education of her son. Him also she survived, not dying till 1495, when she had reached the age of ninety. The greatest of a crowd of poetesses who illumined Italy in the sixteenth century was Vittoria Colonna, the wife of the famous Marquis of Pescara, the Imperialist Commander-in-chief who won the battle of Pavia. She and her husband had both been born in the same year, 1490 ; they were affianced at the age of four ; and their marriage took place when they were seventeen. The first four years after they were united they spent together in a palace and domain belonging to Pescara in the island of Ischia ; the Marquis then quitted her to join the Imperial army ; at the battle of Ravenna, fought soon after, where he commanded as General of Cavalry, he was taken prisoner, and detained for nearly a year ; after this, though he occasionally rejoined his wife at Ischia for a brief interval, she kept them mostly apart ; and he died of his

wounds a few months after his victory at Pavia, while yet only in his thirty-fifth year. During all the time of their separation the intellectual pursuits which they had followed together maintained a union and communication between them which external circumstances could not break: while he was detained at Milan after the battle of Ravenna, the Marquis is said to have addressed to his wife a prose discourse on Love, full of eloquence and instinct with delicacy of sentiment; and on her part the Marchioness, whose genius for poetry had early displayed itself, at once solaced her solitude and, as far as might be, made up to her husband for the want of her bodily presence, by "many a tender, many a lofty lay" in celebration of his worth and her own affection. Ariosto says that Alexander would have envied Pescara this celebration by his wife more than he did Achilles the fame conferred upon him by the song of Homer. Vittoria Colonna continued to bewail her husband when dead in strains as ardent as those in which she had poured out her heart to him when living; nor would she ever give her hand to another. To others, she said, the noble Pescara might be dead; to her he still lived. "To waste away, lamenting ever, grieves me not," she writes in a sonnet composed in the seventh year of her widowhood, "so that I may obtain the title of a faithful spouse, dear to me above every other honour. I will keep my

faith, here on this rock of the sea, which was loved by him who was my life's sun, and where, as I have seen my happy days end, I hope to see the end also of these days of sorrow." She survived her husband two-and-twenty years, dying at Rome in 1547. Among many devoted admirers of this illustrious woman Michel Angelo was one; and his adoration she returned with the tenderest friendship and esteem. But his various poems addressed to her show that his passion was as pure and reverential as it was deep and fervent. "He stood by her," writes Mrs. Jameson, "in her last moments; and, when her lofty and gentle spirit had forsaken its fair tenement, he raised her hand and kissed it with a sacred respect. He afterwards expressed to an intimate friend his regret, that, being oppressed by the awful feelings of that moment, he had not for the first and last time pressed his lips to hers."

Another of these excellent literary and poetical wives of Italy of whom Mrs. Jameson has given an account is Veronica Gambara, Countess of Corregio, who was born in 1485 and was the friend as well as the contemporary of Vittoria Colonna. She was already distinguished as a poetess when she became in her twenty-fifth year the second wife of Ghiberto Count of Corregio. He died in 1518 after a union of nine years, during which she had made him the happiest of husbands, as she was herself of wives. Her verses too, which have more

force and originality than those of Vittoria, though not so much sweetness, are principally occupied with the praises of her husband. "He gave her," says Mrs. Jameson, "an incontrovertible proof of his attachment and boundless confidence, by leaving her his sole executrix, with the government of Corregio, and the guardianship of his children during their minority. Her grief on this occasion threw her into a dangerous and protracted fever, which during the rest of her life attacked her periodically. She says in one of her poems that nothing but the fear of not meeting her beloved husband in Paradise prevented her from dying with him." She vowed, however, not only a perpetual widowhood, but a perpetual mourning; and kept her vow. For some years much of her time was given to the education of a daughter of her husband's by his first wife, and of her own two sons; the eldest of whom, Hypolito, became a celebrated military commander; the youngest, Girolamo, who was her favourite, a cardinal. She survived till 1550. Her niece, Camilla Valentini, was also a poetess, and had a history somewhat similar to that of her aunt. She married the Count del Verme, and, when he died after a union of some years, she threw herself in a transport of grief on the body, and was taken up herself a corpse. In subsequent chapters Mrs. Jameson relates the later stories of Faustina, the daughter of Carlo Maratti,

the painter; of Teresa Pichler, daughter of Pichler, the celebrated gem-engraver; and of Costanza Monti, her daughter. Faustina Maratti, who was very beautiful, became the wife of the great Roman advocate Giambattista Zappi; both were poets; and they devoted their gift of song each chiefly to the expression of affection and admiration for the other. Zappi, who was much older than his wife, died, at the age of fifty-one, in 1719; she survived him for many years, but never married again. Teresa Pichler, whom Mrs. Jameson says she has heard described by those who knew her in her younger years as one of the most beautiful creatures in the world, won the heart of the late eminent poet Vincenzo Monti, who was then a young man educating for the church. Monti never had reason to regret the abandonment of his original profession; his wife's great talent was music, and in many poems written during their union of more than forty years he has expressed his enthusiastic gratitude for all he owed to her voice and harp, as well as to her unflinching affection. Mrs. Jameson has given a translation of a part of one of the latest of these effusions, in which, after reminding his Teresa "that his long and troubled life is drawing to its natural close, and that she cannot hope to retain him much longer, even by all her love and care," he adds, "But remember that Monti cannot wholly die! Think, O think! I leave thee dowered

with no obscure, no vulgar name! For the day shall come when, among the matrons of Italy, it shall be thy boast to say,—‘I was the love of Monti.’” Monti died in 1828. His daughter, “Costanza Monti,” says Mrs. Jameson, “who inherited no small portion of her father’s genius, and all her mother’s grace and beauty, married the Count Julio Perticari of Pesaro, a man of uncommon taste and talents, and an admired poet. He died in the same year with Canova (1822), to whom he had been a favourite friend and companion; while his lovely wife furnished the sculptor with a model for his ideal heads of vestals and poetesses. Those who saw the Countess Perticari at Rome, such as she appeared seven or eight years ago, will not easily forget her brilliant eyes, and yet more brilliant talents. She, too, is a poetess. In her father’s works may be found a little canzone written by her about a year after the death of her husband, and, with equal tenderness and simplicity, alluding to her lonely state, deprived of him who once encouraged and cultivated her talents, and deserved her love.”*

Nor must one modern German wife be forgotten here. Meta, or Margaret, the wife of Klopstock, was first introduced to the English reader by the publication of some letters written by her in the

* Romance of Biography, Third Edition, 1837. Vol. ii. p. 217.

Correspondence of Richardson, the novelist, edited by Mrs. Barbauld in 1804. The Letters were in English; the foreign idiom of which Mrs. Barbauld fortunately had the good taste not to attempt to mend; and the interest which they excited led to Miss Elizabeth Smith soon after undertaking, on the suggestion of Mr. Sotheby, the translation, already mentioned, of the account of her and the selection from her writings, which had been published by Klopstock, at Hamburg, in 1759. Miss Smith's translation appeared, after her death, in 1808. Klopstock first beheld Meta Möller in passing through Hamburg in April 1751. In a letter to one of his friends, written soon after this, he describes her as mistress of the French, English, and Italian languages, and even conversant with Greek and Latin literature. She was then in her twenty-fourth year; he in his twenty-seventh. Their marriage took place about three years after. Here is Meta's own narrative of the rise and course of their true love, given in one of her letters to Richardson—a narrative which will bear a hundred readings, and a hundred more after that, and still be as fresh and as touching as ever:—"You will know all what concerns me. Love, dear Sir, is all what me concerns. And love shall be all what I will tell you in this letter. In one happy night I read my husband's poem the Messiah. I was extremely touched with it. The next day I

asked one of his friends, who was the author of this poem? and this was the first time I heard Klopstock's name. I believe I fell immediately in love with him. At the least, my thoughts were ever with him filled, especially because his friend told me very much of his character. But I had no hopes ever to see him; when, quite unexpectedly, I heard that he should pass through Hamburg. I wrote immediately to the same friend, for procuring by his means that I might see the author of the Messiah when in Hamburg. He told him that a certain girl at Hamburg wished to see him, and, for all recommendation, showed him some letters, in which I made bold to criticise Klopstock's verses. Klopstock came, and came to me. I must confess that, though greatly prepossessed of his qualities, I never thought him the amiable youth whom I found him. This made its effect. After having seen him two hours, I was obliged to pass the evening in a company, which never had been so wearisome to me. I could not speak; I could not play; I thought I saw nothing but Klopstock. I saw him the next day, and the following, and we were very seriously friends. But the fourth day he departed. It was an strong hour, the hour of his departure! He wrote soon after, and from that time our correspondence began to be a very diligent one. I sincerely believed my love to be friendship. I spoke with my friends of nothing but Klopstock, and

showed his letters. They raillied at me, and said I was in love. I raillied them again, and said that they must have a very friendshipless heart, if they had no idea of friendship to a man as well as to a woman. Thus it continued eight months, in which time my friends found as much love in Klopstock's letters as in me. I perceived it likewise, but I would not believe it. At the last Klopstock said plainly that he loved ; and I startled as for a wrong thing. I answered, that it was no love, but friendship, as it was what I felt for him ; we had not seen one another enough to love (as if love must have more time than friendship !). This was sincerely my meaning, and I had this meaning till Klopstock came again to Hamburg. This he did a year after we had seen one another the first time. We saw, we were friends, we loved ; and we believed that we loved ; and a short time after I could even tell Klopstock that I loved. But we were obliged to part again, and wait two years for our wedding. My mother would not let marry me a stranger. I could marry then without her consentment, as by the death of my father my fortune depended not on her ; but this was an horrible idea for me ; and thank Heaven that I have prevailed by prayers. At this time, knowing Klopstock, she loves him as her lifely son, and thanks God that she has not persisted. We married, and I am the happiest wife in the world." This was written in March, 1758, after

they had been about four years married. Writing again in the beginning of May, she thus sketches the life they led together:—"It will be a delightful occupation for me to make you more acquainted with my husband's poem. Nobody can do it better than I, being the person who knows the most of that which is not yet published; being always present at the birth of the young verses, which begin always by fragments, here and there, of a subject of which his soul is just then filled. He has many great fragments of the whole work ready. You may think that persons who love as we do have no need of two chambers; we are always in the same. I, with my little work, still, still, only regarding sometimes my husband's sweet face, which is so venerable at that time! with tears of devotion, and all the sublimity of the subject. My husband reading me his young verses, and suffering my criticisms." With this we may compare what Klopstock says, writing of her after her death, in his publication of her literary remains:—"How perfect was her taste! How exquisitely fine her feelings! She observed everything, even to the slightest turn of the thought. I had only to look at her, and could see in her face when even a syllable pleased or displeased her; and, when I led her to explain the reason of her remarks, no demonstration could be more true, more accurate, or more appropriate to the subject. But, in general, this gave us very

little trouble, for we understood each other when we had scarcely begun to explain our ideas." But all this happiness, too bright for earth or for long endurance, was about to be suddenly extinguished. There is another letter from Meta to Richardson, dated the 26th of August, in which she informs him that she has a prospect of being a mother in the month of November, and of thus attaining what has been her only wish ungratified for these four years. She writes from Hamburg, where she was on a visit to her family, while her husband had been obliged to make a journey to Copenhagen. It was the first time that they had been separated; he was absent during the months of August and September. It is remarkable that she seems to have had more than a mere apprehension, almost an assured foreboding, of what awaited her. Writing to Klopstock on the 7th of September, she says,—“I shall indeed be in continual misery if September passes without your return. I shall be always expecting to be confined, and to die without you. This would destroy all the peace of which I wish to tell you, for, God be praised, I am strong enough to speak of my death. I have omitted it hitherto only on your account; and I am happy that I need no longer refrain from it I ought not to have told you of my fears; but I find it as impossible in a letter, as when I am with you, to conceal anything which presses on my heart. I

have left no room to tell you of my peace and my courage, but I will do it another time." Again, on the 10th, she writes,—“ Let God give what he will, I shall still be happy. A longer life with you, or eternal life with Him!—But can you as easily part from me as I from you? You are to remain in this world, in a world without me! You know I have always wished to be the survivor, because I well know it is the hardest to endure; but perhaps it is the will of God that you should be left, and perhaps you have most strength At first perhaps the sight of the child may add to your distress, but it must afterwards be a great comfort to you to have a child of mine. I would wish it to survive me, though I know that most people would be of a different opinion. Why should I think otherwise? Do I not intrust it to you and to God? It is with the sweetest composure that I speak of this; yet I will say no more, for perhaps it may affect you too much, though you have given me leave to speak of it. How I thank you for that kind permission! My heart earnestly wished it, but on your account I would not indulge the wish. I have done. I can write of nothing else. I am perhaps too serious, but it is a seriousness mixed with tears of joy.” Klopstock rejoined her at last about the end of September; her last lines written to him before his return are dated the 26th of that month. The two following months they spent together at Hamburg.

From that place poor Meta was never to return. There, where she had first drawn breath, she died in childbed on the 28th of November. To her youngest sister, Eliza Schmidt, she said the night before her death, "O Eliza, how should I now feel, if I had not employed the whole nine months in preparing for my death!" The infant, a son, perished with the mother. Klopstock survived for many years, and after not many years loved again; but no other ever was to him what his Meta had been. In 1792, when he was in his sixty-eighth year, he married Johannah Elizabeth von Wenthem, a near relation of his first wife. He lived till the 14th of March, 1803, and was then buried under a lime-tree in the churchyard of Ottensen, near Altona, by the side of his Meta and the child that slept in her arms. "His second loving and beloved spouse," says the inscription on the tomb, "erected this marble to the Guide of her Youth, her Friend, her Husband." Over Meta and her infant had been inscribed, by her own desire, this verse from the Messiah:—

"Seed sown by God, to ripen for the harvest."

Her writings, as published by Klopstock the year after her death, consist only of eight 'Letters from the Dead to the Living,' in imitation of the well-known work of Mrs. Rowe, which was one of her favourite books, and a Fragment entitled 'A Dia-

logue on Fame.' "I have nothing more to say," observes her husband, "of these little pieces, than that they were not written with the intention of erecting a monument to herself. Some subjects are particularly interesting to us; we write our thoughts on them, and perhaps show them to a few friends, without ever thinking of publication. It is above two years since she thus began to write down some of her favourite ideas, during my absence; and she was confused and distressed when I surprised her at this employment, and prevailed with her to read to me what she had written."

There is a striking resemblance in some respects between the history of Meta Klopstock and that of an interesting countrywoman of our own, the late Mary Brunton, authoress of the novels of 'Self-Control' and 'Discipline.' Her literary remains too were published the year after her death, along with a Memoir of her Life, by her husband, the Reverend Dr. Brunton, of Edinburgh, who still survives. "It has been for twenty years my happiness," says the writer, in commencing his task, which he has executed with much good feeling and good taste, "to watch the workings of that noble mind—my chief usefulness to aid its progress, however feebly. Nothing is more soothing to me now than to dwell on the remembrance of her—nothing more dear than to diffuse the benefit of her example."

Mrs. Brunton was born in the island of Burra, in Orkney, on the 1st of November 1778, and was the only daughter of Colonel Thomas Balfour, of Elwick, and of Frances Ligonier, only daughter of Colonel Francis Ligonier, the brother of Field-Marshal the Earl of Ligonier. Her early education, we are told, was not conducted on any regular plan: her father, who was a man of extraordinary talents and acquirements, had little leisure for superintending it, and was often absent from home; and her mother, who at an early age had been left an orphan to the care of her uncle Lord Ligonier, had been trained rather for a court than for domestic life. Mrs. Balfour "was, however," says Dr. Brunton, "a person of great natural acuteness, and of very lively wit; and her conversation, original though desultory, had no doubt considerable influence in rousing her daughter's mind. She was assiduous, too, in conveying the accomplishments which she herself retained; and Mary became, under her mother's care, a considerable proficient in music, and an excellent French and Italian scholar. From these languages she was much accustomed to translate; and there is no other habit of her early life which tends, in any degree, to account for the great facility and correctness with which her subsequent compositions were written." French, we may remark, might almost be accounted Mrs. Balfour's native tongue; at least, her father and his

elder brother the Field-Marshal were born in France, though educated in England. They were two of the younger sons of Jean Louis de Ligonier, Lord of Monsouquet, &c., in the province of Languedoc, where the family, which was Protestant, had been seated for many centuries. Colonel Ligonier was carried off by a quinsy in January 1746, a few days after the battle of Falkirk, where he commanded the cavalry. He was Colonel of the 13th Dragoons, formerly Colonel Gardiner's Regiment.

All the other formal education which Miss Balfour is recorded to have had was what she got during a short attendance at a school in Edinburgh before she was sixteen. From her sixteenth year, although her mother is spoken of as still alive at a much later date, it is stated that the entire charge of her father's household devolved upon her and left her very little time for anything else. Thus matters continued till she was nearly twenty. Meanwhile her future husband and she had met, when or where we are not informed. Dr. Brunton merely says,—“About this time, Viscountess Wentworth (who had formerly been the wife of Mrs. Balfour's brother, the second Earl Ligonier) proposed that Mary, her god daughter, should reside with her in London. What influence this alteration might have had on her after life is left to be matter of conjecture. She preferred the quiet and privacy of a Scotch parsonage. We w

married in her twentieth year ; and went to reside at Bolton, near Haddington."

A love of reading had been an early passion with her ; but in her childhood it had spent itself mostly on poetry and fiction, and her want of leisure afterwards had withdrawn her to a great extent even from literature of that description. "Her time," Dr. Brunton continues, "was now much more at her own command. Her taste for reading returned in all its strength, and received rather a more methodical direction. Some hours of every forenoon were devoted by her to this employment ; and in the evening I was in the habit of reading aloud to her books chiefly of criticism and Belles Lettres. Among other subjects of her attention, the philosophy of the human mind became a favourite study with her, and she read Dr. Reid's works with uncommon pleasure. She renewed her acquaintance with our best historians. Her ear was peculiarly gratified with the music of Dr. Robertson's style, and she used often to say that she looked upon his account of the first voyage of Columbus as the most attractive and finished narrative which she had ever perused." It is added that she now also learned a little German, and repeatedly began the study of mathematics, without being able to make anything of it. What scared her, it seems, were the methods of demonstration by *reductio ad absurdum* (or showing that the

thing asserted must be true because the supposition that it is not involves an absurdity) and by the application of one figure to another in order to prove their identity, or equality in all respects. "Her reading," we are told, "was useful to her, rather as strengthening her general habits of attention than as leading to marked proficiency in any one branch of study. Her memory, not having been systematically cultivated in early life, was less powerful than her other faculties. She retained the substance of what she read, less by remembering the words of the author than by thinking over the subject for herself, with the aid of the new lights which he had opened to her mind." As yet the idea of writing anything beyond an ordinary letter had never entered her imagination. Even to letter-writing she had a strong dislike. Enticed, however, by the agreeable scenery around the manse (or parsonage) of Bolton, she now taught herself to draw, and came to sketch from nature with sufficient facility and correctness. From the first all her proceedings were conducted with that method and order which doubles the value of every day. "Her various employments," her biographer states, "were never allowed to interfere with each other. An arrangement of her time was made; to which, as far as is possible for the mistress of a family, she strictly adhered." Among her other occupations was the superintendence of

the religious education of two East Indian wards of her husband, who became inmates of the family. The performance of this duty had a decided effect in deepening her own religious convictions—which, however, continued always perfectly free from any kind either of gloom or narrowness.

In August 1803, “after six years tranquilly and happily spent in East Lothian,” Dr. Brunton was appointed to a church in Edinburgh; a change which his wife, as she tells a friend in a letter written soon after their removal, regretted for the loss of her little quiet residence, which many nameless circumstances had endeared to her, and most of all because she felt that she could no longer expect that her husband would continue to be as much as he had been her companion and instructor, but to which she reconciled herself because it gave him pleasure, and placed him in a wider and higher sphere. In this same letter she mentions that she is engaged in reading Froissart’s Chronicle, which she declares entertains her more than anything she ever read before. “The simplicity of the narrative,” she says, “its minuteness, its dramatic effect, if I may use the expression, make it more interesting than most true histories, and more amusing than most works of fiction.”

The new and more exciting society with which she was now brought into contact soon awoke her to what we may call a new intellectual life—to

some consciousness of powers her possession of which she seems never before to have dreamed of, and also probably to something of that ambition which is almost a part of intellectual superiority. Her husband thus describes the transformation which she gradually underwent, and in doing so brings out some points of her character of importance to a right and complete conception of what she was:—"Hitherto she does not seem to have been at all aware of the strength of her own mind. Our circle of acquaintance was small. She appeared among them scarcely in any other light than as an active and prudent young housewife; who submitted, with the most cheerful good humour, to the inconveniences of a narrow income; but who contrived, by method and taste, to join comfort with some share of elegance in the whole of her management. Few literary people were within our reach. It was chiefly with me that she talked of what she had read; and, as some of the subjects were new to her, she contracted, far more than enough, the habit of speaking as a pupil. It was otherwise in Edinburgh. Our circle widened. She mingled more with those whose talents and acquirements she had respected at a distance. She found herself able to take her share in their conversation; and, though nothing could be farther from the tone of her mind than either pedantry or dogmatism, she came by degrees, instead of receiving opinions

implicitly, to examine those of others, and to defend her own. There was a freshness and originality in her way of managing these little friendly controversies—a playfulness in her wit—a richness in her illustrations—and an acuteness in her arguments, which made her conversation attractive to the ablest. If they were not convinced by her reasoning, they were gratified by her ingenuity, and by her unpretending openness.”

The circumstance, however, to which, more than to any other beyond the range of her domestic intercourse, the development of her intellect is attributed, is an intimacy which she formed soon after she came to Edinburgh with a Mrs. Izett, a lady who happened to reside in her immediate neighbourhood. They spent much of their time with one another for about six years, working and reading together, as well as talking over every subject that interested either. Mrs. Izett left Edinburgh in the beginning of March 1810; but before this the novel of ‘Self-Control’ had been begun by Mrs. Brunton, “chiefly,” her husband states, “for the employment of accidental intervals of leisure occasioned by the more numerous engagements of her friend.” His narrative of the commencement and progress of the work is very interesting. “At first,” he says, “its author had no design that it should meet the eye of the public. But, as her manuscript swelled, this design, half

unconsciously, began to mingle with her labours. Perhaps, too, a circumstance, which I remember to have happened about this time, might have had more weight than she was aware of in prompting the attempt. She had often urged me to undertake some literary work ; and once she appealed to an intimate friend who was present, whether he would not be my publisher. He consented readily ; but added that he would, at least as willingly, publish a book of her own writing. This seemed, at the time, to strike her as something the possibility of which had never occurred to her before ; and she asked more than once whether he was in earnest. A considerable part of the first volume of *Self-Control* was written before I knew anything of its existence. When she brought it to me, my pleasure was certainly mingled with surprise. The beauty and correctness of the style—the acuteness of observation—and the loftiness of sentiment—were, each of them in its way, beyond what even I was prepared to expect from her. Any encouragement which my approbation could give her (and *she* valued it at far more than it was worth) she received in the fullest measure. From this time forward she tasked herself to write a certain quantity every day. The rule, of course, was often broken ; but habit had taught her that a rule was useful. Every evening she read to me what had been written in the course of the day ; and, when

larger portions were completed, she brought the manuscript to me for more accurate examination. I then made, in writing, such remarks as occurred to me; and left it to herself to decide upon them. Any little alteration on what had been recently written she was always willing to receive, if she thought it an improvement. But some changes which were suggested to her upon the earlier parts of the story she declined adopting. She had what appeared to me an undue apprehension of the trouble which it might have cost her to assimilate the alterations to the remainder of the narrative. But she had little hope, from the first, of the *story* being very happily combined; and she was only the more unwilling to aggravate, by any sudden changes, the harshness of its construction. To its moral usefulness she uniformly paid much more regard than to its literary character."

In order that it might be published at the most favourable season, the printing of *Self-Control* was begun in September 1810, while a very considerable part of the work still remained to be written. Mrs. Brunton, however, had now full confidence in her own powers, and felt no apprehension or hesitation about the race in which she was to be engaged with the press. "The necessity," continues the Memoir, "of finishing her work within a certain time served rather to animate than alarm her; and, whatever may be thought of the

probability or of the skilfulness of the concluding part of the narrative, there can be no doubt of its eloquence. Indeed, throughout the whole, whatever was written most rapidly was the best written. It was only when she was dissatisfied with what she was doing, or when she was uncertain what was to follow, that she wrote with difficulty. It is only in such passages that there is interlineation or blotting in the manuscript. The work was printed from the first copy."

Some additional particulars may be collected from several letters written by her during the composition of the work to her friend Mrs. Izett, with whom she kept up an epistolary intercourse to the last, being "the only close and confidential correspondence," says her husband, "beyond the bounds of her own family, in which Mary ever engaged." The first is dated the 10th of April 1810. "It is even so!" she begins: "You are sixty miles distant from Edinburgh, and I have lost what probably no time will restore to me." Then, after telling her friend how she spends her time—writing part of every forenoon, walking for an hour or two before dinner, and lounging over the fire with a book, or sewing or chatting, all the evening—she adds,—“Your friend Laura [the heroine of *Self-Control*] proceeds with a slow but regular pace; a short step every day—no more! She has advanced sixty paces, alias pages, since you left her.”

They had by this time been parted a month. Mrs. Brunton's next letter is dated the 30th of August. "If I have not answered your two letters," it sets out, "blame not me, who had all the will in the world to do so, nor Mr. Brunton, who has teased me every day to write to you. Blame your dear friend and favourite, Montague de Courcy" [the hero of the novel]. "The thirtieth chapter," she afterwards says, "is closed, and I mean that six more should bring all things to their proper issue. If I write *every* day, and *all* day, that may be done in fifty days. But I find that, in one way and another, half my time is abstracted from my business, as I now begin to consider this affair, at first begun for pastime! Besides, I must take more exercise, if I would not be sick; and must sew more, if I would not be ragged." Her hopes of the success of her work, she goes on to declare, are very low. But even if it should chance to become popular, she asks her friend whether one bitter sarcasm upon it, much more on its author, will not give her more real vexation than the praise of nine-tenths of the persons who read novels will give her pleasure? At all events, she is positive that not the smallest part of her own happiness can ever arise from the popularity of her book, except in so far as she thinks it may be useful. "I would rather," she exclaims, "as you well know, glide through the world unknown,

than have (I will not call it *enjoy*) fame, however brilliant. To be pointed at—to be noticed and commented upon—to be suspected of literary airs—to be shunned, as literary women are, by the more unpretending of my own sex, and abhorred, as literary women are, by the more pretending of the other!—my dear, I would sooner exhibit as a rope-dancer.” Here may be some exaggeration, or straining after effect; in the expression; but the sentiment is natural in the circumstances, and was no doubt, in the main, sincere. Even in the case of a practised writer, it is probably not on the eve of the publication of a new work that the vision of fame often assumes the brightest colours. Some exhalations of doubt and apprehension are apt to rise between and to obscure it somewhat at such a crisis to the most sanguine or the most firmly nerved. It is to be hoped; however, that both novel-writing and female authorship have now attained a less questionable position than Mrs. Brunton seems to have considered them to hold in her day. Even she does not profess, however, to have escaped the elevating thrill of the first moment of seeing herself in print. On the 4th of October she writes again:—“Know that I am one of the republic of letters. People are always great upon new dignities; and truly mine are new enough. This is the first day of them; this day the first page of fair print was presented to my eyes, and

they are to be feasted with four sheets a-week for three or four months to come."

The work was published in two large volumes, which were afterwards distributed into three post octavos, in January, or early in February, 1811, anonymously and after considerable precautions had been taken to preserve the secret of the authorship, which actually was, we are told, for a little time so well kept that she had frequent opportunities of hearing her work commented on. On the 20th of February, however, we have her writing to Mrs. Izett,—“It has come out, the evil spirit knows how, that I am the author of *Self-Control*. The report meets us at every turn; and is now so strong, that our only way is to turn it off, without either confessing or denying.” “Of course,” she subjoins, jestingly, “all the excellencies of the book are attributed to Mr. Brunton, while I am left to answer for all its defects.” Then, after mentioning the gratification she had received from the unqualified approbation of a respected friend distinguished for his piety as well as his general worth of character, she goes on, “Next, Mr. Miller [the publisher] states the sale to be unexampled here. In five days 240 went out of the hands of the publishers. The remainder of the edition are sent to London. How it may do there remains to be seen. Here, it is very much indebted for its success to the attention and

friendship of the publishers." The book was dedicated to Miss Joanna Baillie, who thereupon wrote to the publishers; and this led to a correspondence between her and Mrs. Brunton. "My dear Madam," the latter writes in March, "no circumstance connected with the publication of *Self-Control* has given me half so much pleasure as your very obliging letter, so kind, so natural, so different from some of the pompous strictures and bombastical praises which have been volunteered on the same occasion. I thank you most heartily and sincerely. . . . Till I began *Self-Control*, I had never in my life written anything but a letter or a recipe, excepting a few hundreds of vile rhymes, from which I desisted by the time I had gained the wisdom of fifteen years; therefore, I was so ignorant of the art on which I was entering, that I formed scarcely any plan for my tale. I merely intended to show the power of the religious principle in bestowing self-command; and to bear testimony against a principle as immoral as indelicate, that a reformed rake makes the best husband. For the rest, I was guided by the fancy of the hour—*me laissant aller doucement, selon la bonne loi naturelle*.* The incidents were inserted as they happened to occur to my mind, and were joined in the best way I could to those that went before and after. The thing was not meant at first to see the

* Letting myself go on gently, after the good natural law.

light; nor would it ever have done so, if I had not thought the time it came to cost me too much to be spent in mere unprofitable amusement. I cannot help laughing when I recollect the glowing face and oppressed breathing with which I read the first chapters to my husband; making, in order to please him, a strong effort against my reluctance to the task. Indeed, the book was far advanced before even he saw it." The impression was exhausted in about a month. On the 19th of April the authoress writes triumphantly to Mrs. Izett, "There is not a copy to be had either in Edinburgh or in London. I finished the corrections for the second edition last night. And now, what shall I do next? You know I have no great enjoyment in idleness. Meanwhile, the hurrying of that vile book into the world has put all my necessary and appropriate employments far behind. I have letters to write—books to read—presses to put in order—wine to bottle—gowns to make—and all manner of household linen and wearing apparel to mend." A third and a fourth edition of *Self-Control* followed in due time; nor is the novel even yet forgotten. It is not indeed to be ranked among our classic works of fiction; yet neither is it to be considered as having been a production of mere ephemeral popularity. Though very defective in plot, and having little that is novel or striking either in the characters or the dialogue,

it is so gracefully, and in some parts so eloquently written, as to be removed by that merit alone far out of the crowd of ordinary novels.

After making a visit to London in company with her husband in the summer of 1812, Mrs. Brunton upon her return to Edinburgh commenced, about the end of the year, another novel, under the title of *Discipline*, with the purpose of carrying out the moral lesson of her former one, though in a new story. "This work, too, like the former," her husband states, "was printed from the first copy; and with even less of interlineation and change in the writing than in *Self-Control*. It was composed, however, more slowly, and with more labour. While writing *Self-Control*, she attended to nothing else during those hours in which it engaged her. But amidst the composition of *Discipline* she had usually some female work going on. In the intervals of sewing or knitting she wrote down what she had first deliberately considered both in regard to sentiment and to style." Yet, although she drew up in this case a meagre outline of the story before she began, she allowed it actually to develop itself in its own way as the composition proceeded, much as in her first work. To Mrs. Izett she writes in the beginning of November 1812,—“Ellen [her new heroine] comes on slowly; but she will do better by and by, if I can adhere to my resolution of

writing a little every day." Afterwards, having observed that her former novel began as pastime, but that this has been *work* from the beginning, she adds,—“I find that the serious style best suits my talent and my inclination. I hope, therefore, that, when I come to the serious part of the book, I shall proceed with more ease and pleasure. It is not far off now.” About a month later we find her again writing to the same friend,—who had hinted to her that the little interest she took in her present work must proceed from indolence,—“I can, and often do, write, when I would much rather let it alone. But in these circumstances I never write well, nor can I by any exertion write better. The only fruit of my endeavours is strong disgust at the whole.” In August of the following year, while she was still in the midst of her labours, she thus describes her feelings to one of her aunts:—“If anybody had said to me three years ago, that, even to my brother, I should ever boldly avow myself an author, I would have fearlessly asserted the thing to be impossible; and if, before *Self-Control* went to press, I could have guessed that it would be traced to me, I would certainly have put it in the fire. . . . At first the book was written merely for my amusement. It was finished within two years, and scarcely at all altered from the first manuscript. I am ashamed to think how much

more slowly I proceed with my *work* than I did with my *play*." Gradually, however, she appears to have become somewhat more reconciled both to her present task and to her new position. Writing to the same lady in the end of May 1814, she says,—"Since *Self-Control* was fixed upon me, my circle of acquaintance has widened so unmercifully, that my time, in Edinburgh, is very little at my command. But, upon the whole, I am a gainer. I have gained associates among persons eminent for talents and respectability; while I have lost only the power of sitting at times dozing by my own fire-side, or of wandering out unnoticed among the crowd. I have lost the power of commanding my own time; but others command it pleasantly for me." *Discipline* was still in hand, but was now drawing to a close. "Six weeks of hard work," she says, "will finish my manuscript. But then the whole affair remains to be corrected and published; and in that way I might work, I suppose, *ad infinitum*. When I have ended 'I will dance on the top of it,' as the man in the song was to do with his dead wife. I am sure she was not half such a plague to him as my book has been to me." At last, on the 15th of August, she writes to Mrs. Izett,—“Ellen is at an end. She was finished at three o'clock one morning; and I waked Mr. Brunton out of his first sleep to hear of her wedding. I am correcting; which is not the part

of the business the most to my liking. I have a great aversion to blot a page of good clean writing." In this letter she also announces that she had begun the study of Gaelic, which it appears was Mrs. Izett's native language, the day before. "The pronunciation," she observes, "is terribly unintelligible. 'There is no sound like this in English' is a very spirit-breaking index. I fear I shall never make out the true croaking and spluttering." It is stated that she resumed this study some years afterwards, when she devoted to it a great part of her leisure for some months, and made considerable progress in it. She was fond of the study of languages, and, if her husband had not discouraged her, she would have gladly added Latin and Greek to her other acquirements. She herself makes the following remarks upon the subject of female classical scholarship in a letter to her sister-in-law written in the same year in which she died:—"I am glad you are teaching Mary Latin. It seems to me that nature itself points out the propriety of teaching women languages, by the facility with which we generally acquire them. I never knew a girl who, in learning the dead languages, did not keep above the boys in her class; nor did I ever happen to see this acquisition produce a female pedant." "I am clear," she adds, "for furnishing women with such accomplishments are absolutely incapable of being converted into

king. matter of exhibition; and such, in the present
and the state of society, are classical learning and mathe-
matics. These hard times compel so many women
to celibacy, that I should think it no bad specu-
lation to educate a few for respectable old maids;
especially such as have minds strong enough to
stand alone, and *romantic* enough not to choose to
marry merely for the sake of being married.
Luckily, the education which fits a woman for
leading apes with a good grace will not spoil her
for 'suckling fools, and chronicling small beer.'"

Before Mrs. Brunton's new novel was quite com-
pleted, *Waverley* appeared. It came into her
hands, her husband tells us, while she was in the
country, and when she had heard nothing of its
reputation; but she at once discerned its high
merit, and was so fascinated by it that she could
not go to bed til she had read it through. It hap-
pened that the scene of a part of her own work
too was laid in the Highlands, about which a uni-
versal interest had been for some years before this
awakened by Scott's 'Lady of the Lake' and other
poems; and her first impulse was to cancel the
Highland portion of her story altogether; but to
this sacrifice her husband strongly objected. If
not convinced by the reasons he urged, she at least
yielded to them. "She returned," says the me-
moir, "to her work, but she returned to it slowly
and hesitatingly; and it was finished with far less

both of spirit and of hope than attended the tracing of the original design." Writing to one of her female friends in December, a few days before it was to appear, she herself says—"It is very unfortunate in coming after *Waverley*, by far the most splendid exhibition of talent in the novel way which has appeared since the days of Fielding and Smollett. There seems little doubt that it comes from the pen of Scott. What a competitor for poor little me!" When *Discipline* at length came out, however, its success was far greater than she had anticipated. "But she was by no means gratified by it," we are told, "to the same extent as she had been by the reception of *Self-Control*. She was now well known to be the author, and therefore she was not so sure that the applause which reached her was all sincere." "Her standard for estimating skill in the delineation of character," it is added, "had been raised by the appearance of *Waverley*; and she felt—more perhaps than she ought to have done—how poorly her own sketches appeared beside those of that masterly work." The silence of the Edinburgh and Quarterly Reviews, too, it seems, annoyed and discouraged her.

All this indisposed her to attempting a third novel. "She had grown distrustful," as her husband expresses it, "of her own power to combine the incidents of a long-continued narrative; and

would not venture to engage again in anything exactly similar to what she had written before." But she never for a moment contemplated laying aside her pen. Writing, she observes in a letter to her brother in October 1815, was now become a part of her duty. Her meaning appears to be, that, having ascertained her possession of a certain power of influencing the public mind by what she wrote, she was bound to turn her talent to good account. A moral, she goes on to say, is necessary for her; and a lofty one is required for her style of thinking and writing. One advantage she conceived she possessed; the path she had chosen was almost exclusively her own. Other English novelists, including the very greatest, had all contented themselves with the inculcation, at the best, of maxims of mere worldly wisdom; she took a higher aim. At last she resolved to attempt a collection of short narratives, under the title of 'Domestic Tales.' Only a portion of one of these, however, was ever written, her fragment of 'Emmeline,' which was published after her death along with the Memoir from which our sketch is drawn. It appears to have been begun in the latter part of 1816. "Her time," says her husband, "was now very much broken in upon while we were in Edinburgh; her visitors were numerous; the share which she took in the management of some of the public charities was laborious; and.

above all, a resolution which she had early formed, of investigating personally every case of distress which claimed relief from her, led to extensive and increasing occupation. During the winter, therefore, *Emmeline* went on very slowly." Afterwards an attack of fever and other interruptions came to withdraw her altogether for a considerable time from literary labour. "Composition," continues her biographer, "had now long ceased to be a voluntary employment. It had come to be looked upon as a task; and she rather sought reasons to justify to her own mind her desertion of her former habits than opportunities of renewing them in their strength. During the summer of 1818, however, she had in a great measure conquered these feelings; and, had it pleased Providence to spare her life, I am convinced that she would at this hour have been returning to her former occupations with all her former ardour."

But the end of all was at hand. After being married for twenty years she had at last the prospect of becoming a mother. Her husband's interesting narrative proceeds,—“She was strongly impressed, indeed, with a belief that her confinement was to prove fatal; not on vague presentiment, but on grounds of which I could not entirely remove the force, though I obstinately refused to join in the inference which she drew from them. Under this belief she completed every the most

minute preparation for her great change, with the same tranquillity as if she had been making arrangements for one of those short absences which only endeared her home the more to her. The clothes in which she was laid in the grave had been selected by herself; she herself had chosen and labelled some tokens of remembrance for her more intimate friends; and the intimations of her death were sent round from a list in her own handwriting. But these anticipations, though so deeply fixed, neither shook her fortitude nor diminished her cheerfulness. They neither altered her wish to live, nor the ardour with which she prepared to meet the duties of returning health, if returning health were to be her portion. . . . Her anticipations, however, had been only too well founded. After giving birth to a still-born son, on the 7th of December, and recovering, for a few days, with a rapidity beyond the hopes of her medical friends, she was attacked with fever. It advanced with fatal violence, till it closed her earthly life on the morning of Saturday, December 19, 1818."

The case of Mary Brunton is not that of a wife actually taking part in her husband's literary labours; but the society of such a woman must nevertheless have been to him an aid and support above all estimation. She might truly be called, according to the Scriptural figure, a crown to him—an elevation and an adornment, strengthening his

heart and his hand every hour, making all life more beautiful and more noble, enriching to his eyes the very light of day. If she did not share in all his studies, he intimates that there were scarcely any of hers in which he was not her companion. Such a marriage of souls would have been the most blessed of all earthly things to both, even if Mrs. Brunton's name had never been heard of by the world. But the reputation which she obtained by her writings was also a light in her husband's dwelling. Nothing can be more delicate or becoming than the manner in which Dr. Brunton has spoken of the literary character of his wife. After observing that they who have merely heard of her as the author of two once popular novels may think that he has sketched her life at too great length, he adds that he will not attempt any criticism on her published works. "Were there no other reason," he says, "for my declining the task, I might well be deterred from it by the single circumstance of my having anticipated for her books so different a fate from that which they have experienced. I did not expect that they were to become rapidly popular; but I trusted that the calm good sense and discrimination of character which they display, and the pure and lofty sentiments which they breathe, and the flowing and natural eloquence which clothes them, would at last establish them, as much as works of the kind are ever established,

in public favour. The fact has been entirely the reverse. They rose very fast into celebrity, and their popularity seems to have as quickly sunk away." He goes on to express his opinion that it might perhaps have been otherwise if she had been permitted to increase their number; he is persuaded, he says, that, in all which she had done, she was only trying her strength. But it is upon the virtues and the beauty of her moral nature that he most dwells. She was a being overflowing with all warm affections. There are some intimations of unkindness which she had sustained in her early years; but that had only left some slight indisposition to admit strangers at once to her esteem. When her regard was once won, "never was there on earth," says he who best knew her, "attachment more implicit, more disinterested, more self-devoting than hers. Never was there openness more artless and confiding." Among her printed letters there is one written a few weeks before her confinement which is inexpressibly touching. It is addressed to Mrs. Balfour, the wife of her brother, and refers to one of her father's two sisters who was then understood to be dying. It had been mentioned before that when she was a girl at school in Edinburgh she was an object of affectionate care to these two aunts. She now requests her sister-in-law to write to her very circumstantially about the state in which her aunt is; "and

soon," she adds, "lest the letter be too late for me." Then adverting to the other sister, also still surviving, she says,—“Remember me most affectionately to them both, especially to Aunt Mary, who was the first love of my heart—who was the first person whom I recollect as showing me kindness—and who, since the time when I remember her singing to soothe me, till this moment of my sending her my blessing and farewell, has never ceased to be kind and dear to me! . . . I shall not write again. My husband will.” The aunt died a few days before her niece; “but not,” it is stated, “before she had received this affecting testimony of gratitude and attachment.”

We cannot help adding one other little memorial of her heart and mind. In the last years of her life she had begun again to write a little in verse, which she had been fond of doing in her very early youth; and sometimes, when she did not think herself equal to any literary exertion, she would amuse her leisure with music. “She attempted particularly,” says her husband, “to recall and to note down some airs peculiar to Orkney, which had pleased her in her childhood. Before she would play any new one to me, she used to exact a promise that I would write words for the tune. The promise was often forfeited; and I find among her papers some instances in which she herself has supplied the defect.” Three of these poems are printed in the *Memoir of*

her Life. Of these, one is stated to be, as far as is known, the last thing which she wrote. As it is probably very little known, we will transcribe it here. The execution shows some traces of an unpractised writer in verse; but the lines are nevertheless, we think, very beautiful:—

“ While thou at eventide art roaming
Along the elm-o’ershaded walk,
Where, past, the eddying stream is foaming
Beneath its tiny cataract,—
Where I with thee was wont to talk,—
Think thou upon the days gone by,
And heave a sigh !

“ When sails the moon above the mountains,
And cloudless skies are purely blue,
And sparkle in the light the fountains,
And darker frowns the lonely yew,—
Then be thou melancholy too,
When musing on the hours I proved
With thee, beloved !

“ When wakes the dawn upon thy dwelling,
And lingering shadows disappear,
And soft the woodland songs are swelling
A choral anthem on thine ear,
Think—for that hour to thought is dear !
And then her flight Remembrance wings
To by-past things !

“ To me through every season dearest !
In every scene,—by day, by night,—
Thou present to my mind appearest,
A quenchless star—for ever bright !
My solitary, sole delight !
Alone—in grove—by shore—at sea,
I think of thee !”

To her husband this little poem must have been almost like hearing again her living voice. "Before," he says, "it met my eye, the hand which had written it was in the grave."

Many other instances might be added, if our space allowed, of the important services which intellectual and literary women have been enabled to render by the exercise of their talents to those connected with them in every social relation. Among the wives of literary men Madame Dacier has been already mentioned. Two centuries earlier another Frenchman, a much greater Grecian than M. Dacier, the illustrious Budaens, was equally fortunate in a learned spouse. Mr. Disraeli has thus described their association in the same chapter of his 'Curiosities of Literature' in which he introduces the Duchess of Newcastle:—"The frequent companion of his studies, she brought him the books he required to his desk; she collated passages, and transcribed quotations; the same genius, the same inclination, and the same ardour for literature, eminently appeared in those two fortunate persons. Far from withdrawing her husband from his studies, she was sedulous to animate him when he languished. Ever at his side and ever assiduous, ever with some useful book in her hand, she acknowledged herself to be a most happy woman. Yet she did not neglect the education of eleven children. She and Budaens shared in the mutual cares they and their progeny." Afterwards Mr. Disraeli

notices the later case of the great Haller, one of the rare modern examples of eminence in both gifts of Apollo, renowned, indeed, in almost every department of science and literature as well as in medicine and in song. "Of Baron Haller," we are told, "it is recorded that he inspired his wife and family with a taste for his different pursuits. They were usually employed in assisting his literary occupations; they transcribed manuscripts, consulted authors, gathered plants, and designed and coloured under his eye." This may remind us of Dr. Martin Lister and the manner in which he was assisted by his daughters in the preparation of his 'Historia Conchyliorum.' Another case that Mr. Disraeli mentions shortly is that of our countryman John Evelyn, whose excellent wife, Mary, only daughter of Sir Richard Browne, Bart., was the companion of his studies, as well as of his fortunes, for nearly three score years, or from 1647 till the death of Evelyn in 1706, having in that time borne him five sons and three daughters. She survived till 1709, when she died, we are told, in her seventy-fourth year—in which case she must have been married at the age of twelve or thirteen. She is celebrated by Cowley in his Essay entitled 'The Garden' (partly in prose, partly in verse) addressed to Evelyn:—

"Happy art thou whom God does bless
With the full choice of thine own happiness ;

And happier yet, because thou 'rt bless'd
 With prudence how to choose the best.
 In books and gardens thou hast placed aright
 (Things which thou well dost understand,
 And both dost make with thy laborious hand)
 Thy noble, innocent delight!
 And in thy virtuous wife, where thou again dost meet
 Both pleasures, more refined and sweet;—
 The fairest garden in her looks,
 And in her mind the wisest books."

It was through his wife that Evelyn became possessed of his seat of Say's Court near Deptford, where his gardens were laid out, and where he spent the greater part of his long and happy life. The frontispiece to his translation in verse of the First Book of Lucretius, published in 1656, was designed by her.

In the former part of the present work some account has been given of one the most remarkable of the recent cases of this kind, that of the blind naturalist Francis Huber, the chief discoverer of the true economy both of bees and of ants.* Huber, who was born at Geneva in 1750, is said to have begun to lose his sight at fifteen, in consequence of hard study, and reading during the night with too feeble a light, sometimes that of a lamp, sometimes only that of the moon. His wife was Maria Aimée Lullin, a daughter of one of the Syndics of the Swiss Republic. They had fallen

* See 'Pursuit of Knowledge,' Part First; ii. 54, 55.

soon after their first publication in 1580, immediately entered into correspondence with the author. They did not meet, however, till 1588. She was possessed of great natural talent and had been carefully educated, and Montaigne conceived a strong attachment for her. In the conclusion of his Essay on Presumption, the Eighth of the Second Book, he thus writes of her:—"I have taken a delight to publish, in several places, the hopes I have of Mary de Gournay le Jars, my adopted daughter, and certainly beloved by me with more than a paternal love, and involved in my solitude and retirement as one of the best parts of my own being. I have no regard to anything in this world but her; and, if a man may presage from her youth, her soul will one day be capable of the noblest things; and, amongst others, of the perfection of sacred friendship, to which we do not read that any of her sex could ever yet arrive; the sincerity and solidity of her manners are already sufficient for it. Her affection towards me is more than superabundant, and such, in short, as that there is nothing more to be wished, if not that the apprehension she has of my end, being now five-and-fifty years old, might not so cruelly afflict her. The judgment she made of my first Essays, being a woman, so young, and in this age, and alone in her own country, and the famous vehemency wherewith she loved and desired me, upon the sole esteem she had of me, before she ever

saw me, is an accident very worthy of consideration." This must have been written in 1588, the same year in which they are said to have first met. Montaigne died in 1592; Mademoiselle de Gournay survived till 1645. Besides her tract on the equality of the sexes already noticed, she published several other pieces, which have been collected and several times printed.

Nor have many such instances been wanting in recent times. Henry Brooke, the author of 'The Fool of Quality,' was indebted to the pious care of his daughter Charlotte, the authoress of 'The Reliques of Irish Poetry,' for the first correct edition of his collected works. Brooke, who began life with the fairest prospects, and excited the highest expectations by his first dramatic production, his tragedy of 'Gustavus Vasa,' Pope especially being sanguine of the great figure he was destined to make in poetry, died in 1783 without having done anything to fulfil those anticipations, and after having dissipated, though not by any course of vice, an ample patrimony, leaving his daughter, the only survivor of a numerous family, in very straitened circumstances. His poetical works had been collected and printed in four volumes in 1778, but he was already so far gone both in body and mind that he could take no charge of the publication, and it had come from the press in the most disgraceful state. The reparation of this mischief his daughter considered

from the commencement of her own struggles as one of the first of her earthly duties; and she had the satisfaction of accomplishing it after striving for many years and overcoming a world of difficulties. The second edition of Mr. Brooke's Poetical Works, accompanied by a Memoir of his Life from the pen of his daughter, was published by subscription in 1792. "As to my affairs," says the editor in her Preface, with triumphant thankfulness, "I bless God I have succeeded beyond my hopes. After purchasing all my wishes, I have still enough left for my wants; what need I more? I have suffered considerably by the printer; also in many other instances of disappointment and loss; but still, in the grand points I am successful." Four years before she had published her 'Reliques of Irish Poetry;' and by that volume and her father's works together she had realized about three hundred guineas. With this sum she now purchased an annuity of forty pounds, which was all she had in the world; for the death of her brother and two bankruptcies had, since she lost her father, deprived her of all the little fortune that he had left her. She had intended to follow up the collection of her father's poetical works with a new edition of 'The Fool of Quality,' but that design she did not live to accomplish. She died in March 1793, we presume while she was still young, seeing that she was according to her biographer the child

of her father's old age, which is all the information touching the time when she was born which he thinks fit to afford us in the course of a memoir extending to about 130 pages. It is prefixed to the second edition of her *Reliques*, published in 1816. Another case is that of the self-taught William Hutton of Birmingham, of whose history we have given a sketch in the first part of the present work.* He died in 1815; and soon after his Life written by himself was published, with a continuation by his daughter, who had long been her father's associate and assistant in various of his literary pursuits. Miss Catherine Hutton, who was herself the authoress of several works of fiction, died a year or two ago at a great age. Nor can we help mentioning the freshest of all the instances of this vindication of the memory of a literary father by a literary and loving daughter—the publication within these few days of a new edition of Coleridge's 'Biographia Literaria,' with numerous annotations, by Mrs. Nelson Coleridge. And, even as these last pages are passing through the press, we are reminded of another beautiful literary association between a brother and a sister, dear friends of Coleridge's, by the announcement of the death, at the age of eighty-three, of Mary Ann Lamb, authoress of 'Mrs. Leicester's School,' and

* See Pursuit of Knowledge, Part First; i. 163-173.

of 'Poetry for Children,' and sister of Charles Lamb, the author of the golden 'Essays of Elia.'

But here we must stop. Many additional examples might be collected under every head of our subject, but those that have been given will probably be thought amply sufficient for the exhibition and illustration of it under all its aspects. It has been abundantly shown that the pursuit of knowledge may be successfully carried on by women, as by men, in almost any circumstances. It is a path of enterprise open to all, however they may be situated in respect to external things. And, as the power of entering upon and persevering in the pursuit of knowledge is independent of worldly circumstances, so also is the result. It is related of Cornificia, a Roman poetess who lived in the reign of Augustus, but none of whose writings have come down to us, that she used to assign as her great reason for devoting herself to literature and the acquisition of knowledge the indestructibility of the gain of which she thence possessed herself. It was something over which fortune had no power. It did not admit of being ever taken from her. It became literally and really a part of herself.

As for the adaptation to study, and the conquests of intellect, of the female mind in particular, one thing by which, as commonly perhaps as by any

other, it is distinguished for the worse from that of the other sex, is its inferior appreciation of the importance of minute accuracy. Milton has made Adam, with some quaintness of effect, qualify his impassioned description of our first mother by admitting that, highly endowed as she was in mind as well as in form, she was yet, although "in outward show elaborate, of inward less *exact*;" and the word may have been chosen with more meaning and point than is at first quite apparent. The very quickness of her understanding betrays a woman in regard to this matter. She catches rapidly such a general conception and comprehension of a subject as may suffice very well for many ordinary purposes, for talking or writing about it both fluently and amusingly, or even to a certain extent instructively, or for getting a considerable amount of practical advantage in various ways out of her acquaintance with it. Such being found to be the case, anything more is apt to appear superfluous and useless. A more exact knowledge is even despised as something pedantic. But pedantry lies in the unnecessary or unseasonable display of exact knowledge, never in the exactness itself. Women should understand more perfectly or more generally than they do that for all the higher purposes of study knowledge cannot be too exact or minute. There is nothing that can be learned with regard to any subject of study for which a use will not be

found somewhere or other in the further prosecution of the study, or an ignorance or indistinct conception of which will not in a greater or less degree obscure or vitiate the view that the mind takes of something that follows. The true student, knowing this, reverences accuracy and completeness of knowledge for its own sake, and without reference to any distinct utility which it may seem to have in the particular case; he believes that such utility is always inherent in it, whether it may be at once discernible or no. In this spirit he will no more put up with mere surface knowledge upon any point—with such knowledge as will just serve the immediate occasion—than he will put up with any other cheat or lie. For imperfect knowledge is in most cases not merely ignorance, or partial ignorance, but positive error or falsehood. It is often worse than no knowledge at all. One thing, for instance, that even clever and otherwise well-informed women who write books are apt to be very careless about is whatever has anything to do with dates or periods of time: one would think that they regarded dates as nothing more than customary formalities or ornamental flourishes, carrying little or no meaning, and any one of which was in any place nearly as good as another; whereas the date of an event is often one of its most material circumstances, and the length of time dividing the successive stages of a story what gives to many of

the incidents a principal part of their colour and significancy. If I am told simply that an individual did a certain thing, without any specification of the time when, the statement may convey hardly any idea at all; if it is stated that he did it at the age of twenty, the meaning will be something entirely different from what it would be if it had been said that he did it at the age of forty or fifty. But, at any rate, even when the right date is immaterial, a wrong one must always be misleading, must always produce some degree of misconception or confusion. Yet, whenever a date is given, it must either be right or wrong, true or false; whatever may be the case with other things, there are no dates which are indifferent, that is to say, which are neither good nor bad, or which are partly the one and partly the other. There are very few things, however, after all, any more than dates, which can be systematically regarded by a writer or student as merely decorative, or for some other reason unentitled to careful examination, without mischief coming of it. Nearly connected too with carelessness as to facts, of whatever kind they may be, is an inadequate feeling of what a serious, earnest thing all real study is—what close and persisting attention it demands. “Except some professed scholars,” Gibbon writes in one of his letters to Miss Holroyd, “I have often observed that women in general read much more than men; but, for want

of a plan, a method, a fixed object, their reading is of little benefit to themselves or others." They are apt to take up one part of a great subject with too little thought of or reference to the other parts of it, and to satisfy themselves too easily with the interest they may feel in so much of it as they are immediately engaged upon, without taking the requisite pains to combine their knowledge so as to obtain a mastery over the whole. Provided, however, that this bearing of one part upon another, and this survey of the subject in its entire extent, be always kept in mind, the particular course that may be taken will often be a matter of less importance; different methods will suit different minds. The examples that have been given in the Two Parts of the present work may furnish many suggestions; but there are ample materials in existence for another book, bearing some such title as **METHODS OF STUDY**, which, by the help of illustrative narratives and anecdotes, might more fully and distinctly indicate the various ways that have been and may again be successfully taken in that Pursuit of Knowledge, to set forth the pleasures, advantages, and general practicability of which is the purpose of what has been already written.

THE END.



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THE
PURSUIT OF KNOWLEDGE

UNDER DIFFICULTIES ;

ILLUSTRATED BY ANECDOTES.

CHAPTER I.

Amusement in the Pursuit of Knowledge; Pursuit of Knowledge by persons of rank or wealth: Democritus; Anaxagoras; Nicephorus Alphery; Marcus Aurelius; Julian; Charlemagne; Alfred; James I. of Scotland; Elizabeth; Alphonso X.

WE remarked, at the close of our former volume, that the moral habits which the Pursuit of Knowledge has a tendency to create and foster, form one of its chief recommendations. Knowledge is, essentially and directly, power; but it is also, indirectly, virtue. And this it is in two ways. It can hardly be acquired without the exertion of several moral qualities of high value; and, having been acquired, it nurtures tastes, and supplies sources of enjoyment, admirably adapted to withdraw the mind from unprofitable and corrupting pleasures. Some distinguished scholars, no doubt, have been bad men; but we do not know how much worse they might have been, but for their love of learning, which, to the extent it did operate upon their characters, could not have been otherwise than beneficial. A genuine relish for intellectual enjoyments is naturally as inconsistent with a devotion to the coarser gratifications of sense, as the habit of

assiduous study is with that dissipation of time, of thought, and of faculty, which a life of vicious pleasure implies.

But knowledge is also happiness, as well as power and virtue; happiness both in the acquisition and in the possession. And were the pursuit of it nothing better than a mere amusement, it would deserve the preference over all other amusements, on many accounts. Of these, indeed, the chief is, that it must almost of necessity become something better than an amusement,—must invigorate the mind as well as entertain it, and refine and elevate the character while it gives to listlessness and weariness their most agreeable excitement and relaxation. But, omitting this consideration, it is still of all amusements the best, for other reasons. So far from losing any part of its zest with time, the longer it is known the better is it loved. There is no other pastime that can be compared with it in variety. Even to him who has been longest conversant with it, it has still as much novelty to offer as at first. It may be resorted to by all, in all circumstances; by both sexes, by the young and the old, in town or in the country, by him who has only his stolen half hour to give to it, and by him who can allow it nearly his whole day, in company with others, or in solitude, which it converts into the most delightful society. Above all, it is the cheapest of all amusements, and consequently the most universally accessible. Causes which will suggest themselves to the reflection of every reader, and which, therefore, we need not here stop to explain, have hitherto, in a great measure, excluded our labouring population from the enjoyments of science and literature; but this state of things is passing away, and the habit of reading is extending itself rapidly, even among the humblest ranks. Nothing can be more natural than this. A book is emphati-

ally the poor man's luxury ; for it is of all luxuries that which can be obtained at the least cost. By means of itinerating libraries for the country, and stationary collections for each of our larger towns, almost every individual of the population might be enabled to secure access for himself to an inexhaustible store of intellectual amusement and instruction, at an expense which even the poorest would scarcely feel. As yet these advantages have been chiefly in the possession of the middle classes, to whom they have been a source not more of enjoyment than of intelligence and influence.

Among the highest orders of society, the very cheapness of literary pleasures has probably had the effect of making them to be less in fashion than others of which wealth can command a more exclusive enjoyment. Even such distinction as eminence in intellectual pursuits can confer must be shared with many of obscure birth and low station ; and on that account alone has doubtless seemed often the less worthy of ambition to those who were already raised above the crowd by the accidents of fortune. Yet, whatever enjoyment there may really be in such pursuits will not, of course, be the less to any one, because he happens to be a person of wealth or rank. On the contrary, these advantages are perhaps on no other account more valuable, than for the power which they give their possessor of prosecuting the work of mental cultivation to a greater extent than others. He has, if he chooses, a degree of leisure and freedom from interruption, greatly exceeding what the generality of men enjoy. Others have seldom more than the mere fragments of the day to give to study, after the bulk of it has been consumed in procuring merely the bread that perisheth ; he may make literature and philosophy the vocation of his life. To be enabled to do this, or to do it only in small part,

ately followed by the usurpation of Boris Godunow, after he had caused Feodore's only brother Demetrius, the heir to the crown, to be assassinated, was the occasion of protracted troubles to Russia. It appears to have been about the commencement of these convulsions that Alphery and his two brothers were sent by their friends for safety to England, and entrusted to the care of a merchant, connected by commercial relations with their native country. Their protector gave them a liberal education, and at the proper age they were all entered of the University of Oxford. Soon after this, however, two of them were attacked by small pox and died. Nicephorus, the survivor, now resolved to take orders in the English church; and, accordingly, having been ordained, he was appointed in 1618 to the living of Wooley, in Huntingdonshire, the income of which was barely sufficient to afford him a maintenance. By this time the throne of his ancestors was in the possession of Michael Fedrowitch Romanow, who was the son of a patriarch of the Greek church, and had, in 1613, when only sixteen years of age, obtained the imperial crown, which has ever since been worn by his descendants. Thus, while, on the one hand, the church had received into her ranks the heir of an empire, that empire, on the other hand, received a sovereign from the church. The disturbances that had so long distracted Russia, however, were not settled by the accession of Michael; and it is asserted that, subsequently to this period, Nicephorus was actually twice invited to return to his native country and put himself at the head of a powerful party who desired to place him on the throne. But, with a want of ambition which many will despise, although its wisdom might perhaps be defended, he preferred, on both occasions, his humble parsonage to this splendid temptation. Never having obtained any additional

preferment, he long made himself happy by the discharge of his duties in the lowly condition he had embraced; and his meek spirit was probably but rarely troubled even by a thought of the exalted station to which he once might have attained. After settling at Wooley he married, and had a family. Alphery was not destined, however, even by his relinquishment of the rights of his birth, to escape the storms of political commotion; for, on the ascendancy of the republican party after the civil wars, he was deprived of his living, and, with his wife and children, compelled to wander about for some time without a home; nor did he recover his benefice till the Restoration. By this time the infirmities of advanced age had left him but little strength for the performance of his wonted duties; and, leaving his parish in charge of a curate, he soon after retired to Hammersmith, to the house of one of his sons who was settled there. In this retirement he lived for some years, unnoticed, but not unhappy; and when his death took place at last, his singular fortunes had been so much forgotten by all the world that nobody has recorded the date of the event.

We read nothing of any remarkable acquirements in literature made by this individual; but if moderation of desires be a quality of the philosophic spirit, he is entitled to be regarded as no ordinary philosopher. Many others, however, might be enumerated, who even on a throne have cultivated science and letters, and intermingled the occupations of study with those of sovereignty. We may mention among the Roman emperors the excellent MARCUS AURELIUS, a prince who, with some failings, manifested many virtues that have rarely adorned in the same degree either a public or a private station. Called to the imperial dignity contrary to his own wishes, Aurelius, who had been a philosopher before his exaltation,

books of that age,—a statement which has been erroneously interpreted as importing that all his progress in the art of writing consisted merely in these ineffectual essays. It can scarcely be doubted, from other circumstances, that he was familiar with this art. The greatest service, however, which Charlemagne rendered to learning, was his munificent patronage of its professors, and the readiness and zeal with which he lent himself to various schemes for its restoration and diffusion. The University of Paris, as is well known, sprang from a seminary which he established in his palace, (hence called the Palatine school,) and in the institution of which his principal adviser and assistant was our countryman, the able and accomplished Alcuin. This school was opened about the year 780, while its projector was yet in the very midst of his wars. While letters, long forgotten both in courts and general society, were thus enjoying the protection of Charlemagne in the West, the famous Haroun Al Raschid (or the Just), whose name the Arabian Nights' Entertainments have made so familiar to every reader, and whose extensive dominions entitled him to be regarded as Emperor of the East, was affording them equal encouragement in that quarter of the globe. Haroun was himself, indeed, an excellent poet, and distinguished for his proficiency in various branches of learning. But at this time the Moors were very considerably a-head of the nations of Christendom in civilization and the knowledge of the arts. The two great potentates we have mentioned, between whom so large a portion of the earth was divided, are recorded to have corresponded with each other; and in the year 807 an ambassador from the Caliph arrived in France, bringing with him various presents for Charlemagne. Among these was a clepsydra, or water-clock, which excited especial admiration, as a contrivance beyond

anything which ingenuity had yet invented in Europe. Another of Haroun's presents was a set of chess-men, some of which are still preserved in the Royal Library at Paris. Charlemagne reigned from the year 768 to 814, when he died at the age of seventy-one; and Haroun Al Rasehid died at the age of forty-seven in 809, after a reign of twenty-three years.

But our own ALFRED, whose extraordinary attainments in learning, made in the latter portion of a short and very busy life, we have already briefly noticed*, sheds a much brighter glory over the ninth century, than Charlemagne and the Caliph Haroun do over the eighth. Alfred was born in the year 849, succeeded to the crown in 871, and his reign extended to the close of the century. Even the unusual lateness of the period at which his acquaintance with books commenced, was but the least of the untoward circumstances with which this wonderful man had to contend in his pursuit of knowledge. Born, as he was, the son of a king, how scanty were the means of education of which he had it in his power to avail himself, compared with those which, in our happier days, are within the reach of the poorest peasant! In that age it demanded the price of a goodly estate to purchase a book; and in England, especially, teachers were so scarce, that Alfred, so long as he continued merely a prince dependent upon his father or his elder brothers, actually seems to have been without the requisite resources to procure their services. Nothing, as his biographer, Asser, informs us, was a more frequent subject of regret with him, than that, during the only time of his life when he had either health or leisure for study, he had thus been left utterly without the means of obtaining instruction. For as soon almost as he had passed his boyhood, he was obliged to engage in active duty as a soldier; and the incessant toils of a military life, in the course

* See vol. iv p. 63.

of which he is recorded to have fought no fewer than fifty battles, as well as to have undergone a succession of hardships and sufferings, under which an ordinary mind would have broken down in despair, consumed not a few of the best of his succeeding years. And even after he succeeded to the throne, when we consider that, in addition to the extensive literary labours which he accomplished, he not only attended to his multifarious public duties with a punctuality that has never been surpassed, but, notwithstanding his harassing bodily ailments, signalized himself by his prowess and dexterity in every manly exercise, we may well ask by what mysterious art did he find time for all this variety of occupation! The answer is, that he found time by never losing it. Time is the only gift or commodity of which every man who lives has just the same share. The passing day is exactly of the same dimensions to each of us, and by no contrivance can any one of us extend its duration by so much as a minute or a second. It is not like a sum of money, which we can employ in trade, or put out to interest, and thereby add to or multiply its amount. Its amount is unalterable. We cannot "make it breed;" we cannot even keep it by us. Whether we will or no, we must spend it; and all our power over it, therefore, consists in the manner in which it is spent. Part with it we must; but we may give it either for something, or for nothing. Its mode of escaping from us, however, being very subtle and silent, we are exceedingly apt, because we do not feel it passing out of our hands like so much told coin, to forget that we are parting with it at all; and thus, from mere heedlessness, the precious possession is allowed to flow away as if it were a thing of no value. The first and principal rule, therefore, in regard to the economising and right employment of time, is to habituate ourselves to watch it. Alfred knew this

well ; and we may here relate the method he adopted to measure the passing hours, in his want of those more artificial time-pieces which we possess. Having made his chaplains, as Asser in his simple narrative informs us, procure the necessary quantity of wax, he ordered six candles to be prepared, each of twelve inches long, which he had found would together burn for four and twenty hours. Having marked the inches on them, therefore, he ordered that they should be lighted in succession, and each three inches that were consumed he considered as recording the flight of an hour. "But finding," continues the historian, "that the candles burned away more quickly at one time than at another, on account of the rushing violence of the winds, which sometimes would blow night and day without intermission, through the doors and windows, the numerous chinks in the walls, or the slender covering of the tents, he bethought him how he might prevent this inconvenience, and having contrived artfully and wisely, he ordered that a lanthorn should be fairly fashioned of wood and horn ; for white horn, when scraped thin, allows the light to pass through even like glass. The candle, therefore, being placed in the lanthorn, thus wonderfully constructed, as we have said, of wood and horn, was both protected from the wind, and shone during the night as luminously without as within." Every heart will acknowledge that there is something not a little interesting, and even touching, in these homely details, which paint to us so graphically the poor accommodations of every kind in the midst of which Alfred had to pursue his studies, and the humble matters with which his great mind was often obliged to occupy itself in contriving the means of gratifying its noble aspirations. This illustrious man, indeed, seems almost to have lifted himself quite above the tyranny of circumstances ;

realizing, in the most disadvantageous, nearly all that could be expected or desired in the most favourable. The difficulties with which he had to contend, in truth, formed the very soil out of which no small portion of his greatness grew. Among kings he is not only the Great, but the very greatest. If we look merely to his zeal and services in behalf of literature, it is impossible to name any royal personage that can be compared with him, either in classic antiquity or in modern times. A genuine love for letters, and a proficiency in them, in the possessor of a throne, is worthy of our admiration, in whatever age or country the phenomenon may be recorded to have been witnessed; because it must always be considered as a striking example of a triumph over seductions that are generally, of all others, found the most difficult to resist, and have, accordingly, been of all others the most seldom resisted. But of the other learned kings of whom we read in history, some were literary in a literary age; others, naturally unfitted for the more active duties of their station, took to philosophy, or pedantry, as a refuge from insignificance; some had caught the love and the habit of study before they had mounted a throne, or had dreamed of mounting one; above all, most, if not all of them, had been carefully educated and trained to letters in their youth. But it is told only of Alfred, that, without an example to look to, without even the advantages of the very scantiest education, in an unlearned age, and a still more unlearned country, he, who had been only a soldier from his youth upwards, withdrew himself of his own accord from the rude and merely sensual enjoyments of all his predecessors and all his contemporaries, to devote himself to intellectual pursuits, and to seek to intertwine with the martial laurels that already bound his brow, the more honourable wreath of literary distinction.

Of the royal personages of our own country who have distinguished themselves by their love and cultivation of letters, the most eminent, next to Alfred, is JAMES I. of Scotland, whose poem, entitled the "King's Quhair," composed by him during his imprisonment in Windsor Castle, we have already mentioned*. James was born in 1394, but having been taken prisoner by the king of England in 1405, was detained in that country, mostly in close confinement, till his thirtieth year; after which, having been allowed to return to Scotland, he reigned for thirteen years, and was at last cruelly assassinated in the Carthusian monastery, at Perth, on the 20th of February, 1437, by a faction of his nobles, whom his attempted reforms dissatisfied. Literature had been the principal solace of James's long imprisonment, and he brought with him to the throne the tastes which he had acquired in his exile. He certainly contributed very essentially, even during his short reign, to promote the civilization of his native country. Nothing can exceed the warmth of the admiration with which all the old historians speak of his genius and accomplishments, and of the effect which his example had in diffusing among his people that spirit of literary cultivation, and love for all elegant and intellectual accomplishments by which he was himself distinguished. He was a proficient, we are told, in the Latin language, and some authorities add, even in the Greek, although this last statement must be regarded as apocryphal, all things considered. His mastery over his native tongue was, at all events, his most remarkable endowment. The songs and other metrical pieces which he composed in the Scottish dialect, long continued to be the delight of all classes of his countrymen; and to their influence we are, in all probability, to trace much of

* See vol. i. p. 283.

that universal sensibility to poetry, which has ever since distinguished the Scottish peasantry, and which has displayed itself in the creation of a body of traditional verse, of wonderful extent and richness. Give me, some one has said, the making of a people's ballads, and I care not who has the making of their laws. If the opinion conveyed in this remark be correct, James I. perhaps influenced the character of his countrymen quite as much as any of their legislators. Some authorities also claim for this prince the honour of being the father of the music, as well as of the poetry, of his country. He is recorded by our old chroniclers to have been eminently skilled both in vocal and instrumental music, and to have performed on no less than eight different instruments, of which the one on which he most excelled is stated to have been the harp. But it is certain that from the time of James we may date the birth at least of the literature of Scotland; to which, indeed, he seems to have also given not a little of the peculiar character that long distinguished it. His own writings, as has been stated, were poetical compositions, in the style that had been so recently introduced by Chaucer, whom, in his *Quhair*, he expressly mentions as his master. Those of them that have come down to us, evince powers both of pathos and of humour of the very highest order, and such as no other Scottish poet, with the exception of Burns, can be considered as having equalled. Before his day, Fordun had written his prose chronicle of Scottish kings, and Barbour his metrical work entitled *The Bruce*; but these, notwithstanding some passages of vivid description in the latter, which certainly give its author considerable pre-eminence among the class to which he belongs, were merely such works as have been produced among every people having the use of letters, as soon as they have acquired for themselves

what may be called a history; and indicate not so much that a national literature has taken root among them, as simply that they have reached a certain antiquity, and have a past national existence to look back upon. That which alone we can properly call the authorship of Scotland commences with the works of king James, and is continued by those of Dunbar, Gavin Douglas, and Sir David Lyndsay; who may all in some sort be considered as his imitators, or at least as having, like himself, taken their inspiration from that new-born poetry of England with which he, there can be little doubt, was the first to make his countrymen acquainted.

Few kings, therefore, in spite of the failure of many of his projected political reforms, have done more for their subjects than James did for his. He regenerated them by means more powerful than any merely political contrivances, when he exhibited before them for the first time the graces and attractions of intellectual cultivation, and gradually seduced them by the charm of his example to the love of the arts and elegances of civilized life. Laws and institutions are, after all, in themselves but the dead skeleton of society, and can only derive their life and efficiency from the spirit breathed into them by the character and moral condition of the people. They are the body; this is the animating soul. In giving, therefore, to his countrymen the first impulses of literary refinement, he gave them something better even than good laws, because it was that which, while it would eventually enable them to secure good laws for themselves, at the same time could alone fit them for their enjoyment. His life, not less than his death, was a sacrifice to his zeal for their improvement; for, with tastes and habits that tended to separate him so completely from his subjects, his residence, even as a king, in Scotland, must have been

felt by him as far more truly exile than even his previous imprisonment. Yet we have no reason to think that, although his days were spent first in durance abroad, and then in worse than durance at home, he ever indulged in any weak or undutiful murmuring at his fate. On the contrary, we gather from all that is related of him, that, during the short period of his life when he was permitted to mix with the world, he shewed himself of a cheerful and even joyous spirit, and found the means of making himself happy even in the midst of the hardest fortune that was dealt out to him. With his intellectual endowments and his love of letters, he had sources of happiness which few in his station have ever enjoyed, and these were blessings which the vicissitudes of outward fortune had but little power to affect.

We might add several names to the list of learned kings, even from the monarchs of our own country. HENRY I., in the early part of the twelfth century, obtained the surname of *Beauclerc*, or the Learned, from his proficiency in the literature of the times. During the sixteenth century, classical and theological erudition was so much in fashion, that persons of the very highest rank, and of both sexes, very generally received what is called a learned education. It is related of the emperor Charles V., that having been upon one occasion addressed by an ambassador in a Latin oration, he was so much affected at finding himself unable perfectly to follow the speaker, that he publicly reproached himself for his inattention, when a boy, to the instructions of his tutor*, who, he remarked, had often warned him, that a day would come when he would regret his negligence. So universally in those days was this sort of learning expected in crowned heads. Accordingly we find al-

* The same who afterwards became Pope, under the title of Adrian VI.—See vol. i., p. 269.

most all our sovereigns of that age proficient in the ancient languages, and adepts in polemical divinity. Henry VIII. disputed, through the press, with Luther, in Latin. His son, Edward VI., had he lived, would probably have given proofs of still greater accomplishments in the same department of scholarship. One of his tutors was Sir John Cheke, of whom Milton speaks, in a well-known sonnet, as having taught "Cambridge, and King Edward, Greek;" and it is a curious illustration of the times, that this learned individual was soon after selected to fill the office of Secretary of State. Queen ELIZABETH, we need hardly remark, is famous as a learned princess. She also, like her royal predecessor, King Alfred, completed an English translation of Boethius's *Consolations of Philosophy*—a work which, in addition to having been thus rendered into the vernacular tongue by two of the greatest of our monarchs, had the honour of receiving the same service from Chaucer, the father of our poetry*. Elizabeth's successor, JAMES, had more learning than good sense, and was a pedant rather than a scholar; but, with less learning, he certainly would not have been a wiser king. He is the instance, however, that has perhaps contributed more than any other to confirm the common prejudice, that a taste for letters is, after all, no very desirable quality in the possessor of a throne. If it be meant that literary kings have generally been bad kings, the notion is certainly not borne out by the facts of history. It may be asserted with much greater truth that, in all of those who, notwithstanding their scholarship, have shewn themselves unworthy of their high station, that scholarship has yet been a

* The original copy of Queen Elizabeth's translation of Boethius, partly in her majesty's hand-writing, and partly in that of her secretary, was discovered, about five years since, in the State Paper Office.

redeeming quality, both in itself, and in its effects. If, again, all that is meant be only that learning has some tendency to become pedantic on a throne, this may be admitted; for it is a natural consequence of the possession being so unusual: but even this result, where it has happened, has, in by far the majority of cases, formed but a very trifling drawback upon the good with which it was connected. James certainly has not gained much credit to his name by his authorship; though it deserves to be remarked, that it is posterity that has been least indulgent to his pretensions. In his own day his learning procured him great admiration, not only from the mere courtly flatterers of the time, but from many of its most distinguished scholars—for evidence of which, we need go no farther than to the dedication of their work addressed to him by the authors of our admirable translation of the Bible, and still commonly printed at its head. The character of the man, however, the species and quality of the learning which he had acquired, and above all the spirit of the age, had more share in making James the pedant that he was, than any disadvantage under which his station placed him.

Another name, which is sometimes quoted as that of a king to whom learning was a misfortune rather than a blessing, is that of the celebrated ALPHONSO X., king of Castile and Leon, commonly called the *Wise*. This prince, who lived in the thirteenth century, was certainly unlucky in his schemes of political ambition; and the vain attempt he made to obtain possession of the imperial crown involved him in a series of calamities, and eventually led to his dethronement. But it does not appear that his literary and scientific acquirements, so extraordinary for his age, had anything to do in occasioning the errors to which he owed his ruin, or that, with less learning,

he would have been either more prudent, or more fortunate. As it was, Alphonso, notwithstanding the troubles in which his reign was passed, conferred such services, both upon his own country and upon the world at large, as few royal names have to boast of. Spain owes to him, not only her earliest national history and translation of the scriptures, but the restoration of her principal university, the introduction of the vernacular tongue in public proceedings and documents, and the promulgation of an admirable code of laws; and science is indebted to this monarch for the celebrated astronomical tables known by his name, the earliest which were compiled subsequently to those given in the *Almagest* of Ptolemy, who flourished in the second century. According to some accounts, Alphonso spent the large sum of 400,000 crowns on the preparation of these tables, in which he was assisted by others of the most learned astronomers of the time. They went through several editions, even after the invention of printing, and continued, indeed, to be generally used by astronomers till the commencement of the sixteenth century.

CHAPTER II.

Peter the Great, (Czar of Russia.)

BUT the pursuit of knowledge is not necessarily confined to the study of books ; and, therefore, although we pass over many other names that might be here introduced, we must not omit that of a sovereign who distinguished himself by his ardour in this pursuit in a variety of ways, and was, in all respects, one of the most extraordinary men that ever lived,—the Czar **PETER I.** of Russia. Peter was born in 1672, and at ten years of age found himself in nominal possession of the throne ; although, for some time, all the actual power of the state remained in the hands of his sister, the princess Sophia, who was about five years older than himself. But his boyhood was scarcely expired, when he gave proof of the energy of his character by ridding himself of this domination ; and in 1689 the princess was already removed from the government, and immured in a monastery. From this moment the young czar, now absolute in reality as well as in name, directed his whole efforts to the most extraordinary enterprize in which a sovereign ever engaged ; being nothing less than to change entirely the most settled habits and prejudices of his subjects, and not so much to reform them, as to transform them, almost by main force, from barbarians into a civilized people. For the Russians at this time—not more than a century and a half ago—were, in truth, little better than a nation of savages. Nay, Peter himself was born and reared a savage ; and to his last days the passions and propensities of his ori-

ginal condition remained strong in his nature. It speaks the more for his wonderful genius that, throughout his whole history, he forces us to feel that we are reading the adventures of the chief of a barbarous country, struggling to civilize himself as well as his people. And undoubtedly we do not follow his progress with the less interest on that account. Nothing, in fact, in his proceedings or his character so much engages our curiosity, as to watch the astonishment with which his own ignorance was struck on the first view of those arts of civilized life which he was so anxious to introduce among his less ambitious, but hardly more ignorant, subjects. It is exactly the case of a strong-minded and enterprising leader of some tribe of wild Americans, or South Sea islanders, setting out to see with his own eyes the wonders of those distant lands of which his white visitors have told him, and, after all, viewing the scenes which civilization presents to him with an intoxication of surprise, which shews how imperfectly even his excited fancy had anticipated their actual nature. But, however he was at first struck with what he beheld, Peter did not continue long lost in mere amazement. The story which is told of the occasion which awakened him to the ambition of creating a Russian navy is very illustrative of his character. While looking about one day among some old stores and other neglected effects, he chanced to cast his eye upon the hulk of a small English sloop, with its sailing tackle, lying among the rest of the lumber, and fast going to decay. This vessel had been imported many years before by his father, Alexis Michelovitch, also a prince of distinguished talents, and who had nourished many schemes for the regeneration of his country; but it had long been forgotten by every body, as well as the object which it was designed to promote. No

sooner, however, was it observed by Peter than it fixed his attention; he made inquiries of some of the foreigners by whom he was surrounded, as to the use of the mast and sails, even the general purposes of which he did not know; and the explanations which he received made him look on the old hulk with new interest. It immediately became, in his imagination, the germ of a magnificent national marine; and he could take no rest till he had made arrangements for having it repaired and set afloat. With some difficulty the Dutch pilot was found out whom Alexis had procured at the same time with the sloop to teach his subjects the method of managing it; the man, like the vessel, of which he was to have the charge, had long been forgotten by all the world. Once more, however, brought out of his obscurity, he soon refitted the sloop; and the Czar was gratified beyond measure by at length beholding it, with its mast replaced and its sails in order, moving on its proper element. Delighted as he was he went himself on board, and was not long before he became a sufficiently expert seaman to take the place of his Dutch pilot. For several years after this his chief attention was given to maritime affairs; although his first ships were all of foreign construction, and it was a considerable time before any issued from his own docks. From so small a beginning as has been described, Russia has since become, after England, one of the greatest naval powers in the world*.

* The most detailed account we have met with of the story told in the text is one preserved among the MSS of Sir Hans Sloane, in the British Museum (No. 3,168). It appears to have been written shortly after the death of Peter the Great, and by a person who was either a native of Russia or had resided in that country. According to this authority the incident took place in the flax-yard at Ishmaeloff, an old seat of the royal family near Moscow. The writer gives us also an account of a great naval show, at which he was himself present, in honour of this celebrated

But the most extraordinary of the plans which Peter adopted in order to obtain an acquaintance with the arts of civilized life, was that which he put in execution in 1697, when he set out in the suite of his own ambassador to visit the other countries of Europe. On this occasion, passing through Prussia, he directed his course to Holland, and at last arrived in the city of Amsterdam. His embassy was here received by the government of the United Provinces with all manner of honour and distinction; but he himself refused to be recognized in any other character than as a private individual. The first days of his visit were spent in perambulating the different streets of the city, the various wonders of which were probably never viewed by any eye with more astonishment and gratification than they excited in this illustrious stranger. The whole scene was nearly as new to him, and as much beyond anything by which he had ever before been surrounded, as if he had come from another world. The different arts and trades which he saw exercised, and the productions of which met him, wherever he turned, in such surprising profusion, were all attentively examined. But what especially attracted his attention was the great East India dock-yard in the village of Saardam (situated a few miles from Amsterdam), which was then the principal establishment of this description in Hol-

vessel, which took place by the emperor's command at St. Petersburg, on the 12th of August, 1723. On this occasion the sloop, or ship's boat, as it is here called, having been repaired and beautified, was received by about 200 yachts, and, having advanced to the harbour attended by that numerous convoy, was then saluted by a general volley from the twenty-two men-of-war, which might be considered as forming its progeny. The emperor, of course, was present, and the day was altogether one of the greatest festivals that had been known in Petersburg. "A few days after," it is added, "the boat was brought to Petersburg, and laid up in the castle, where she is to be taken the greatest care of."

but he found this both a very noisy place of abode and not conveniently situated for the object on account of which principally he had come to England,—his improvement in the art of ship-building. After a short time, therefore, he removed to Deptford; and here he spent several months in the dockyard, employing himself in the same manner as he had done in that of Saardam. He was so much pleased, it is said, with the superior method of working which he found pursued here, that he used to declare he never should have known his trade had he not come to England. While at Deptford he lodged in the house of the celebrated John Evelyn, author of the “*Sylva*,” which stood on the site now occupied by the Workhouse of the parish of St. Nicholas. We find the circumstance noticed in Evelyn’s Diary under the date of 30th January, 1698: “The Czar of Muscovy being come to England, and having a mind to see the building of ships, hir’d my house at Say’s court, and made it his court and palace, new furnished for him by the king.” He remained here, it appears, till the 21st of April. Some notion of his manner of living may be obtained from a letter written during this time to Evelyn by his servant: “There is a house full of people, and right nasty. The Czar lies next your library, and dines in the parlour next your study. He dines at 10 o’clock and 6 at night, is very seldom at home a whole day, very often in the king’s yard or by water, dressed in several dresses. The king is expected there this day, the best parlour is pretty clean for him to be entertained in. The king pays for all he has*.”

While the dockyard, however, was the place in which the Czar spent the greater part of the day, he employed many of his leisure hours in taking lessons in mathematics, navigation, and even anatomy, which

* Bray’s *Memoirs of Evelyn*, ii. 60.

he had begun to study while in Holland under the instruction of the eminent professor Frederick Ruysch, whose museum he afterwards purchased for the sum of thirty thousand florins. Peter, indeed, neglected no opportunity, during his travels, of forming the acquaintance of distinguished individuals; and both in Holland and England many of the ablest men of the time were introduced to him, some of whom he persuaded to accompany him home to Russia. He also expended considerable sums in purchasing such curious productions of art as he conceived might best excite the emulation of his subjects.

Among other persons who were made known to him when in England was Bishop Burnet, who does not seem, however, to have comprehended the character of the extraordinary man with whom he was on this occasion brought into contact. In the History of his own Times he tells us the impression the Czar made upon him. "He wants not capacity," says he, "and has a larger measure of knowledge than might be expected from his education, which was very indifferent;" but immediately after he adds that he "seems designed by nature rather to be a ship-carpenter than a great prince." He did not at that time appear to the bishop to be capable of conducting so great a design as the attack upon the Turkish empire, which he was understood to be meditating; although it is acknowledged that he afterwards displayed a greater genius for warlike operations than the writer then imagined him to possess. Bishop Burnet had a good deal of conversation with him upon religious matters, and remarks that "he was desirous to understand our doctrine, but he did not seem disposed to mend matters in Muscovy." He allows, however, that he was "resolved to encourage learning, and to polish his people by sending some of them to travel in other countries, and to

draw strangers to come and live among them." The learned prelate concludes his account by the following curious reflection : " After I had seen him often, and had conversed much with him, I could not but adore the depth of the providence of God that had raised up such a furious man to so absolute an authority over so great a part of the world."

We cannot here enter into any detail of the various reforms in the customs of his people, which this extraordinary man proceeded to introduce on his return to his own dominions, with the view of assimilating them more to those which he had found prevailing in the other countries of Europe. Suffice it to say, that by a series of the most energetic and frequently violent measures, he succeeded in effecting a complete change in some of the oldest institutions of his empire, and even commenced a revolution in the habits and manners of general society, which, from that beginning, has since gone on till it has established, in what was before almost a barbarous country, all the benefits of a flourishing civilization. Peter may be said, indeed, to have given to his subjects nearly every art of civilized life, of which they were some time afterwards found in possession. He taught them navigation, commerce, and even agriculture and the management of flocks, having imported from Saxony and Silesia both herds of sheep and shepherds to take care of them. He called to him artists of all descriptions from other countries, and employed them in contriving, each in his appropriate department, how best to bring into development the natural resources of the country. He built a new capital, the first truly European city that had been seen in Russia, on a site which did not form part of the empire at his accession. Finally, he founded schools, academies, colleges, libraries, and museums, and thus laid the surest of all foundations

for the permanent and progressive improvement of his people.

A college of physicians, a dispensary, an observatory, and a botanical garden, were among the establishments with which he adorned his two capitals *. The art of printing had been introduced into Russia about the middle of the sixteenth century; but this early press seems to have hardly left any trace of its operations, and Peter, at his accession, found his country without books. To supply this deficiency, he had some scientific works translated into Russian; and, when he was in Amsterdam, he employed a printer of that city to print them, giving him a monopoly for the sale of them in Russia. His majesty himself, some time after this, remodelled the alphabet of his native language, considerably simplifying the forms of the characters, and established several printing-houses in Petersburg, at which various elementary works were thrown off, mostly translated from foreign tongues. From this beginning the literature of Russia has so much increased, that in M. Sopikof's *Essai de Bibliographie Russe*, no fewer than thirteen thousand two hundred and forty-nine works are enumerated as having appeared in the native language up to the year 1813. In the three years from 1822 to 1824 inclusive, there appeared two hundred and seventy-five translations from French, German, English, Greek, Latin, Italian, Slavonic, Dutch, Danish, and Armenian, and five hundred and fifty-eight original works; in all eight hundred and thirty-three publications, besides works in foreign languages †.

In 1717, the Czar set out on a second foreign tour,

* *Eloge de Pierre le Grand*, par Fontenelle.

† These particulars are extracted from the *Aperçu sur la Littérature Russe*, at the end of M. Balbi's *Introduction à l'Atlas Ethnographique*.

attended on this occasion as became his rank. In the course of his progress he visited successively, Hamburgh, Berlin, Amsterdam, and Paris; in the last of which cities especially he found all that the arts had yet contrived for the use and enjoyment of man, in the highest state of advancement. He no longer now applied his hand to the practice of the different crafts which he inspected; his days of apprenticeship were over; but he was not on that account less diligent in visiting every workshop and manufactory in which anything novel or curious was to be seen. He went also to see the observatory, the libraries, and the different learned institutions; and was present at a sitting of the Academy of Sciences, which admitted him one of its members.

This great man's education in his youth had been worse than neglected. His sister and her counselors had even surrounded him with every seduction most calculated to deprave both his moral and intellectual nature, and to stifle in him the desire of knowledge. The bad parts of his character were undoubtedly, in a great measure, the result of the manner in which he was treated at this time of his life. Yet, violent and ungovernable as his passions continued to be, in some respects, to the last, making him act often with a ferocity unsurpassed by anything that is told of the excesses of infuriated savages, he succeeded in completely overcoming that one of his evil habits which he found would have interfered most with the conduct of his great schemes. In his youth he was a slave to the love of ardent spirits, but he had weaned himself entirely, in his maturer days, from that destructive vice; nor was he insensible to the other defects of his original character which he had failed to correct. "Alas!" he would sometimes exclaim, on recovering from one of those paroxysms of rage by which he was liable to be carried away, "I have re

formed my people, but have not been able to reform myself." Perhaps, however, no man in any station ever did more than this illustrious monarch to repair the mischievous consequences of a neglected youth, as far as intellectual acquirements are concerned. In addition to a competent knowledge of mathematics, mechanics, navigation, medicine, and anatomy, he appears to have made himself master of more than one of the modern languages of Europe. He translated several works from the French, the manuscripts of which are still preserved at Petersburg. He had even made himself familiar with the Latin tongue, if we are to believe an anecdote told by M. Stählin *, of his detection, upon one occasion, of the inaccuracies of a monk whom he had employed to translate a work written in that language into Russian. But as the original of the work in question (Puffendorff's Introduction to the History of Europe) is in fact not in Latin, but in German, it is probable that it was by his acquaintance with the latter tongue, or with the French, into which the book had also been translated, that Peter was enabled to discover the defects of the Russian version. M. Stählin tells another anecdote, which shews how fully his majesty understood the value of that early instruction which he had not himself enjoyed. Finding two of his daughters one day reading a French author, he desired one of them to translate the passage before her into Russian,—when, struck with the facility with which the task was performed, he exclaimed, " Ah, my children, how happy are you, who are thus taught to read in your youth, and enjoy all the advantages of an education which I totally wanted." He used often to say that he would willingly have lost one of his fingers to have had a good education in his youth.

* Original Anecdotes of Peter the Great; London, 1788.

When he began at last to educate himself he did not neglect even the more elegant and ornamental acquirements. During his first visit to Holland, he had an opportunity of seeing many good pictures ; and this gave him a taste for painting, to which he was ever afterwards much devoted. Even while at Amsterdam, many of his hours were spent in the working-rooms of the eminent artists who then resided in that city, some of whom he engaged to accompany him to Russia. He afterwards expended very considerable sums in the purchase both of pictures and sculptures ; and commenced the formation of a gallery of these works of art at Petersburg. He also formed a valuable collection of medals. Every department of liberal knowledge, indeed, found in Peter a munificent patron, and, so far as his leisure and opportunities permitted, even an ardent cultivator. When passing through any country interesting from its historical recollections, were he conducting his army on a warlike expedition, he would go many miles out of his way to examine a celebrated ruin, or to tread a spot that fame had consecrated. In the same spirit, he was especially solicitous for the preservation of the old historic memorials of his own country. While travelling, his constant habit was to obtain as much information as he could beforehand, with regard to every place he was about to visit ; and even when he approached the smallest village, he would inquire if it contained any thing remarkable. If those about him told him it did not, he would reply "Who knows? if it be not so to you, perhaps it is to me ; let me see all." When setting out on his investigations, on such occasions, he carried his tablets in his hand ; and whatever he deemed worthy of remembrance was carefully noted down. He would often even leave his carriage, if he saw the country people at work by

the way side as he passed along, and not only enter into conversation with them on agricultural affairs, but accompany them to their houses, examine their furniture, and take drawings of their implements of husbandry *. He obtained in this manner much minute and correct knowledge which he could scarcely have acquired by other means, and which he afterwards turned to admirable profit in the improvement of his own country.

M. Stählin, whose notices are in general well authenticated, and may be depended on, except where it is likely that his authority was deceived, relates some curious anecdotes in illustration of the Czar's predilection for operations in surgery, which shew at least that he had made no inconsiderable proficiency in the art. He was rarely absent when a dissection took place in Petersburg; and occasionally he assisted as one of the operators. He let blood and extracted teeth with great expertness; and he is recorded to have once tapped a patient for dropsy. These may not seem the most appropriate accomplishments for a king; but we must remember the peculiar circumstances of Russia during the reign of this great author of her civilization. On the one hand, the simplicity of the national manners was such that it was not held at all indecorous for the emperor to mix in the domestic circles of his subjects, almost as one of themselves; and, on the other, the prejudices of the people were so strong, and their aversion to innovation so bigotted, that probably nothing less than the actual example of their sovereign would have roused them to take any interest in the new arts he wished to introduce among them. Peter, therefore, rightly felt that the consideration of the undignified nature of some of the occupations in which he engaged was far more than overbalanced by the advantages that his

* Stählin's Anecdotes.

personal exertions gave him, in overcoming the inertness and positive opposition on the part of his countrymen which his reforms had to encounter.

This must be his apology also (if the case shall be thought to require any) for certain other labours to which he was sometimes wont to apply his hand. He once passed a month, M. Stählin tells us, at Müller's iron-works at Istia, about seventy miles from Moscow, during which time he employed himself in learning the business of a blacksmith; and so much progress did he make, that on one of the last days of his stay he forged, with his own hand, 720 pounds of iron, making his mark on each bar. On his return to Moscow he proceeded to Müller's house, and, having received from that gentleman the same pay for his labour which would have been allowed to any other workman, about two shillings of our money, he immediately went and purchased a pair of shoes with it, which he ever afterwards took great pleasure in shewing. One of the bars he forged on this occasion is still to be seen at Istia. He was also accustomed, according to Voltaire *, to take his place sometimes among the men employed in cutting canals, a species of public labour on which he expended large sums, in order to encourage and animate them in the more difficult parts of their work. But his favourite art was that of ship-building, his lessons in which, learned in Holland and England, he took care not to forget on his return home. The writer of the manuscript narrative in the British Museum, to which we have referred in a note on a former page, gives us some curious information in relation to this matter. The Czar, he tells us, as soon as he got back from England, went down to Veronez, whither he carried two English builders, named Dean and Noy, whom he had brought out with him. Of these,

* *Histoire de Russie*, ii. 186.

however, "the first," the narrative continues, "soon after desired a discharge, which was granted, without giving any proof of his art. The Czar himself and Joseph Noy received orders from the Lord High Admiral, Theodore Alexowitz Golovin, to build each of them a man of war. The Czar, having taken upon himself the title of a master ship-builder, was pleased to subject himself to the condition of that character; and, in compliance with that order, gave the first proof of his skill in the art which he had learned abroad; and continued afterwards to bear that title, and had, at all times, notwithstanding his great engagements in many other affairs, one ship upon the stocks; and at his death left one ship half built, one of the largest in Europe, 180 feet long upon the deck, 51 broad, and 21 deep, and mounts 110 guns, and is by relation one of the finest bodies that has ever been seen; as were, indeed, all the rest he built. He himself drew the draught of this great ship at Riga, where was no master ship-builder but himself; and when he returned to Petersburg, he gave the surveyor an account that he had drawn his draught of the great ship which he had orders to build from the surveyor's office, and, according to the regulations of the navy, presented his draught to be examined."

The emperor, this writer adds, collected the results of his experience and reading upon the subject of shipbuilding, and formed them into a regular treatise on the art. This work, however, has not been published, although it is probably preserved, with the other literary productions of the writer, in the Imperial Library at Petersburg. The only work from the hand of Peter the Great which has been printed, is his Journal from 1698 to the peace of Neustadt in 1721. Of this document, which is almost entirely occupied with military transactions, a French trans-

lation by M. Formey was published at Berlin in 1773, in one volume, quarto.

Peter died in 1725, in the fifty-third year of his age. His history presents us with, perhaps, as remarkable a case of the conquest of difficulties in the pursuit of knowledge as it would be possible to quote. In his noble resolution to educate not only himself but his country, he had to contend with obstacles at every step, which nothing could have overcome but that determination to succeed which overcomes all things. Few monarchs have better deserved the epithet of Great, if he is to be appreciated either by the great powers of mind he displayed, or the great effects he accomplished. And of these last it is to be remarked that none have passed away; all have been permanent and productive. Compare Peter the Great, in this respect, with many other characters who during their time have filled the earth with the noise of their exploits; and how high must he be placed above them! Alexander's mighty empire fell to pieces as soon as his own hand had resigned its sceptre; so did that of Charlemagne; so did that of Buonaparte. These all, after moving everything, established almost nothing*. But whatever the Russian planted still grows and flourishes, and bears fruit more plentifully every year. The reason is, that while other builders up of empires have trusted, for the support of their institutions, alone or chiefly to the sword, he based his on the moral strength of knowledge and civilization.

* The Code of Laws, called after his name, is the only permanent monument of his power which Napoleon has left in France. Where he applied his ability to the real advancement of civilization, the traces of his career were not to be effaced by changes of rulers or of opinions.

CHAPTER III.

Advantages of Wealth in the Pursuit of Knowledge—Napier.

NOTWITHSTANDING the honourable reputation which the princes we have named, and others whom we have not room to notice, have acquired by their devotion to intellectual pursuits, it is to be observed, that science and literature have been much more indebted to the example and patronage, than to the actual performances, of the royal personages who are to be counted among their friends. No great discovery or immortal composition claims a king as its author. When the genius that might have accomplished such has been found on a throne, it has been otherwise occupied than with the quiet but divine pleasures of learning and philosophy. And doubtless this is only as it should be. Men have not crowns put upon their heads that they may write books or spend their lives in constructing philosophical theories. Every station has its peculiar duties which must first be attended to, even before the pursuit of knowledge; and those of sovereigns are sufficiently arduous to make it impossible, when they are fully performed, that this pursuit can be anything more than the avocation of their leisure. To this extent only, therefore, it is desirable that they should devote themselves to it. But if so, it cannot be expected that this class of persons should contribute many, or even any, names of first-rate distinction to the history of literature or science. It were not fitting, indeed, that the same individual should have supremacy at once in two worlds so

entirely different and unconnected, as that of political dignity and that of genius. All, therefore, we repeat, which philosophy and the arts usually have to ask of kings is, their protection and countenance, and an example which may at least evidence an attachment to intellectual pursuits, even while duties of another sort demand the chief attention. Whether letters, generally speaking, flourish best with or without the patronage of courts, we do not here stop to inquire. It is at all events certain, that in some cases the literary progress of a country has been greatly indebted to a love of literature in its sovereign. Thus it was that Alfred imported civilization into England, James I. into Scotland, and Peter the Great into Russia.

But other individuals in possession of wealth or rank are differently situated from kings. They have often no public duties to perform, or none from which they may not disengage themselves, in so far at least as they would interfere with the closest application to intellectual pursuits. In most countries, indeed, they are not called upon to take a part in the management of affairs in ordinary circumstances, by any need that the state has of their services, so much as by their own ambition for political distinction; and so numerous are almost always the competitors here, that an individual who chooses to withdraw from the throng, will rarely have cause to reproach himself with having deserted a post which there are not a hundred others ready, and as well qualified, to occupy. However, we would neither condemn nor depreciate any path of honourable enterprise; doubtless it is the duty of every man, who believes that he can most benefit his country by his political services, to endeavour to do so. But this is at least an ambition by which many are apt to be seduced, who look rather to its glittering prizes, than to their own qua-

fications; and it is also undeniably one in which something else than merit often contributes to success. There can be no danger therefore of too many persons deserting politics for philosophy. There will always be a sufficient number of our men of wealth and rank to serve the state, and contend for her honours and her offices, although as many leave the crowd as the love of study and speculation can possibly withdraw.

But political ambition, in truth, is not that seduction by which persons of this description are most apt to be enthralled. The besetting temptations attendant upon the possession of wealth and leisure (which, rightly employed, constitute such inestimable advantages) are the facilities which they afford to the indulgence of mere indolence and love of pleasure. A rich man, who can live without exertion of any kind, is apt to lose the power even of that degree of exertion which is necessary for the acquisition of knowledge. Besides, his money provides him with other enjoyments; and he often never even acquires a taste for those of an intellectual kind. A defective or misdirected education too frequently only prepares him the better for yielding to the unfortunate influences of his condition; and the habits and prejudices of society come also to assist their force and confirm their dominion. When an individual thus circumstanced, therefore, betakes himself in good earnest to the pursuit of knowledge, he also is entitled to be regarded as one who has exhibited much energy of character, and conquered many difficulties, as well as he who has had to struggle with poverty, or an uncongenial occupation, in his attempts to obtain an acquaintance with books. The impediments which have lain in the way of the former are different from those that have beset the path of the latter; but they may not have been less difficult to over-

come. The fact, at all events, is, that the temptations of wealth have often exerted as fatal an effect in repressing all ardour for intellectual pursuits, as ever did the obstructions of indigence.

Yet, where the love of knowledge has taken full possession of the heart, the rich man is in a much more favourable situation than the poor man for the prosecution of great enterprises in science or literature. Those demand both leisure and ease of mind—two good things, of the first of which generally but little, and of the second often not much, are his who has to provide for his daily bread by his daily labour. Hence some of the greatest names, in all departments of philosophy and learning, are those of persons who, unembarrassed by the toils and cares of obtaining a subsistence, have been free to lead a life of contemplation, having purchased to themselves that inestimable privilege by a relinquishment of the other pleasures or objects of ambition, ordinarily followed by those in their situation, and seeking no other advantage from their riches or their competence than that of being at liberty to devote their time and their powers of mind to labours of their own choosing. From the list of the illustrious of ancient times, we need mention no others, and we can mention no greater, than Plato and Archimedes—both of whom were of distinguished birth, (the former being a descendant of the family of Solon, the other a near relation of king Hiero)—and, there is every reason to suppose, opulent. But we pass from times so remote, that, even when the circumstances of the case are well ascertained, the changes that have taken place in every thing detract from the value of an example or illustration, in order to notice two or three of the more remarkable instances which belong to a state of society more nearly resembling our own.

The first name we shall mention is that of JOHN NAPIER—often, but erroneously, called Lord Napier. He was not a nobleman, but only what would in England be called a lord of a manor. Such persons, in Scotland, were formerly designated *barones minores*, or *lesser barons*; and to this class the baron of Bradwardine belonged as well as Napier, who in like manner was baron, or, as he himself expresses it, “Peer of Marchistown*,”—an old seat of the family in the neighbourhood of Edinburgh. Here, or, according to other authorities, at Gartness in Stirlingshire (an estate which also belonged to the family), Napier was born, in the year 1550, at which time his father, who lived for fifty-eight years after this, could not have been older than sixteen. In 1562 he entered St. Salvator’s college, St. Andrew’s, as appears by the books of the university †. At this time, of course, he was only twelve years old; but this was not an unusually early age in those times for going to the university in Scotland. Many entered even younger; and in the university of Glasgow it was found necessary to make a law that no student should be admitted to the degree of bachelor of arts before the age of fifteen, unless

* In his dedication of “A Plaine Discovery of the whole Revelation of St. John.” So, on the title-page of his “*Mirifici Logarithmorum Canonis Descriptio*,” (Edin. 1614,) he calls himself, “*Baro Merchistonii*.” He was not, on this account, however, either “the Lord Marchiston,” as he is described by Lilly the astrologer, or “the Lord Napier,” as he has been called by others. He was merely *laird* of Merchiston; a title which, although of course etymologically identical with the English *lord*, is applied in Scotland to any landed proprietor.

† Lord Buchan, in his *Life of Napier* (Edinb. 1788), conjectures that he did not go to college till 1566; and observes that the records of the university do not ascend higher than the beginning of the seventeenth century. The fact is that they reach to the year 1413, when the university was opened.

upon good reason appearing to dispense with a year in any particular case. Napier's own language, therefore, is not inappropriate, when, in his treatise on the Apocalypse, published in 1593, he tells us that it is "no few years" since he began to "preco-gitate the same," being then, as he adds, in his "tender years and barneage (childhood) at St. Androes, at the schools."

On leaving college, Napier is understood to have set out on his travels, in the course of which he visited France, Italy, and Germany. It is not known when he returned home; but he was probably a considerable time abroad, since we hear nothing farther of him till he was above forty years of age. On arriving again in his own country, although he had already acquired considerable reputation for abilities and learning, and might probably have entered upon a political career with many advantages, he declined interfering in public affairs, and retired to Merchiston, with the intention of devoting himself exclusively to study. A room in which he used to seclude himself for this purpose, at the top of the old tower of Merchiston, is still shewn. He also resided occasionally at Gartness, where he was looked upon by the common people, we are told, as a wizard—a common fate of learned and studious men, down even to an age so recent as this, although Napier's is probably one of the latest names that acquired this species of celebrity. As an evidence that his renown for more than mortal knowledge was not confined to the simple peasantry of Stirlingshire, we may mention that there is preserved in the British Museum, a small tract, printed in London, of which the following is the title: "A Bloody Almanack, fortelling many certaine predictions which shall come to pass this present year, 1647; with a calculation

concerning the time of the day of judgment, drawn out and published by that famous astrologer, the Lord Napier of Merchiston."

But the fact is, that although Napier did not himself profess to be either necromancer or astrologer, he cannot be altogether acquitted of pretending to this very insight into futurity which is here attributed to him. The first publication which he gave to the world was an exposition of the Revelations, which appeared at Edinburgh in 1593, prefaced by a dedication to James VI., which is characterized by singular plainness of speech. "Verily and in truth," says the writer, "such is the injury of this our present time, against both the church of God and your majesty's true lieges, that religion is despised and justice utterly neglected; for what by atheists, papists, and cold professors, the religion of God is mocked in all estates; again, for partiality, prolixity, dearth, and deceitfulness of laws, the poor perish, the proud triumph, and justice is nowhere to be found." He then beseeches his majesty to attend himself to these enormities, assuring him that, if he act justly to his subjects, "God will ministrare justice to him against all his enemies, and contrarily, if otherwise." In redressing the evils denounced, he goes on to exhort him to "begin at his own house, family, and court;" a step, the necessity of which he endeavours to impress upon him at considerable length, and with extraordinary intrepidity. There is not a word of flattery in the whole epistle. As for the work itself, it is of a similar character to many others that have been written upon the same mysterious subjects. The most important proposition which it professes to demonstrate is, that the end of the world is to take place some time between the years 1688 and 1700. It is a large and elaborate treatise, and is garnished occasionally with effusions in rhyme, sometimes ori-

ginal, and sometimes translated. Among other aids, the author presses the famous Sibylline Oracles into his service, ornamenting them with a metrical version and a commentary. This work appears to have attracted a great deal of attention on its first appearance, and to have retained its popularity for a considerable time. It did not, perhaps, cease to be generally remembered, till the termination of the seventeenth century effectually refuted its conclusions. A fifth edition of it, we observe, appeared at Edinburgh in 1645, which was, perhaps, not the last. It was translated into the French language, and published at Rochelle in 1602*.

Napier's mathematical studies, after all, however, probably did more to procure for him the reputation of being a magician than even these theological lucubrations. It was believed, it seems, that he was attended by a familiar spirit in the shape of a large black dog. A curious anecdote, for the truth of which undoubted evidence exists, would even lead us to suppose that he was not himself averse to being thought in possession of certain powers or arts not shared by ordinary men. A document is still preserved, containing a contract which he entered into, in July 1594, with a brother baron, Logan of Restalrig, to the effect that, "forasmuch as there were old reports and appearances that a sum of money was hid within Logan's house of Fastcastle, John Napier should do his utmost diligence to search and

* Napier's book probably occasioned some controversy. There is a MS. in the British Museum, entitled, "Porta Lucis, or the way to decypher the name, number, and mark of the Beast, by a method more rational, free, and unstrained, than ever any hitherto; occasioned by the peremptore determination of the Lord Napier of Merchistoun, upon the name Λεωσταυρος." The only part of the promised treatise, however, which the MS. contains is the Preface, in twelve and a half closely written folio pages.

seek out, and by all craft and ingine to find out the same, and by the grace of God shall either find out the same, or make it sure that no such thing has been there. For his reward he was to have the exact third of all that was found, and to be safely guarded by Logan back to Edinburgh with the same; and in case he should find nothing, after all trial and diligence taken, he refers the satisfaction of his travel and pains to the discretion of Logan*." This, it will be observed, is very cautiously expressed, and so as not distinctly to advance on Napier's part any claim to supernatural skill; but a person engaging in such negotiations could hardly be very much surprised, in that age, if he was held to be acquainted with more of the sciences than he chose to admit. The whole affair places before us a very curious picture of the times.

We do not know exactly when it was that Napier deserted theology for mathematics—having in this respect taken just the opposite course to that followed long afterwards by the celebrated Count Swedenborg, who, having been all his previous life a mere man of science, began, when between fifty and sixty years of age, to see visions of the spiritual world, and to converse with angels. But the work upon the Apocalypse was, at any rate, the last of his theological publications. He is understood to have devoted his attention in subsequent years chiefly to astronomy, a science which, recently regenerated by Copernicus and Tycho Brahe, was then every day receiving new illustration from the discoveries of Kepler and Galileo. The demonstrations, problems, and calculations of this science most commonly involve some one or more of the cases of trigonometry, or that branch of the mathematics which, from certain parts, whether sides or angles, of a triangle being given, teaches

* Douglas's Peerage, by Wood, ii. 291.

how to find the others which are unknown. On this account trigonometry, both plane and spherical, engaged much of Napier's thoughts; and he spent a great deal of his time in endeavouring to contrive some methods by which the operations in both might be facilitated. Now these operations, the reader, who may be ignorant of mathematics, will observe, always proceed by geometrical ratios, or proportions. Thus, if certain lines be described in or about a triangle, one of these lines will bear the same geometrical proportion to another, as a certain side of the triangle does to a certain other side. Of the four particulars thus arranged three must be known, and then the fourth will be found by multiplying together certain two of those known, and dividing the product by the other. This rule is derived from the very nature of geometrical proportion, but it is not necessary that we should stop to demonstrate here how it is deduced. It will be perceived, however, that it must give occasion, in solving the problems of trigonometry, to a great deal of multiplying and dividing,—operations which, as every body knows, become very tedious whenever the numbers concerned are large; and they are generally so in astronomical calculations. Hence such calculations used to exact immense time and labour, and it became most important to discover, if possible, a way of shortening them. Napier, as we have said, applied himself assiduously to this object; and he was, probably, not the only person of that age whose attention it occupied. He was, however, undoubtedly the first who succeeded in it—which he did most completely by the admirable contrivance which we are now about to explain.

When we say that 1 bears a certain proportion, ratio, or relation to 2, we may mean any one of two things; either that 1 is the half of 2, or that it is less than 2

by 1. If the former be what we mean, we may say that the relation in question is the same as that of 2 to 4, or of 4 to 8; if the latter, we may say that it is the same as that of 2 to 3, or of 3 to 4. Now in the former case we should be exemplifying what is called a *geometrical*; in the latter, what is called an *arithmetical* proportion: the former being that which regards the number of times, or parts of times, the one quantity is contained in the other; the latter regarding only the difference between the two quantities. We have already stated that the property of four quantities arranged in geometrical proportion is, that the *product* of the second and third, *divided* by the first, gives the fourth. But when four quantities are in arithmetical proportion, the *sum* of the second and third, diminished by the *subtraction* of the first, gives the fourth. Thus, in the geometrical proportion 1 is to 2 as 2 is to 4, if 2 be multiplied by 2 it gives 4; which divided by 1 still remains 4: while in the arithmetical proportion 1 is to 2 as 2 is to 3, if 2 be added to 2 it gives 4; from which if 1 be subtracted, there remains the fourth term 3. It is plain, therefore, that, especially where large numbers are concerned, operations by arithmetical must be much more easily performed than operations by geometrical proportion; for in the one case you have only to add and subtract, while in the other you have to go through the greatly more laborious processes of multiplication and division.

Now it occurred to Napier, reflecting upon this important distinction, that a method of abbreviating the calculation of a *geometrical* proportion might perhaps be found, by substituting, upon certain fixed principles, for its known terms, others in *arithmetical* proportion, and then finding, in the quantity which should result from the addition and subtraction of these last, an indication of that which would have

resulted from the multiplication and division of the original figures. It had been remarked before this, by more than one writer*, that if the series of numbers 1, 2, 4, 8, &c., that proceed in geometrical progression, that is, by a continuation of geometrical ratios, were placed under, or alongside of, the series 0, 1, 2, 3, &c., which are in arithmetical progression, the addition of any two terms of the latter series would give a sum, which would stand opposite to a number in the former series indicating the product of the two terms in that series, which corresponded in place to the two in the arithmetical series first taken. Thus, in the two lines,

1,	2,	4,	8,	16,	32,	64,	128,	256,
0,	1,	2,	3,	4,	5,	6,	7,	8,

the first of which consists of numbers in geometrical, and the second of numbers in arithmetical progression, if any two terms, such as 2 and 4, be taken from the latter, their sum 6, in the same line, will stand opposite to 64 in the other, which is the product of 4 multiplied by 16, the two terms of the geometrical series which stand opposite to the 2 and 4 of the arithmetical. It is also true, and follows directly from this, that if any three terms, as, for instance, 2, 4, 6, be taken in the arithmetical series, the sum of the second and third, diminished by the subtraction of the first, which makes 8, will stand opposite to a number (256) in the geometrical series which is equal to the product of 16 and 64 (the opposites of 4 and 6), divided by 4 (the opposite of 2).

Here, then, is, to a certain extent, exactly such an arrangement, or table, as Napier wanted. Having

* Namely, by H. Grammateus, in his *Commercial Arithmetic*, published in German, at Vienna, in 1518; and more clearly by M. Stifels, in his *Arithmetica Integra*, printed at Nuremberg in 1544. See Montucla, *Histoire des Mathematiques*, ii. 19. Even Archimedes was acquainted with these relations.

any geometrical proportion to calculate, the known terms of which were to be found in the first line or its continuation, he could substitute for them at once, by reference to such a table, the terms of an arithmetical proportion which, wrought in the usual simple manner, would give him a result that would point out or indicate the unknown term of the geometrical proportion. But unfortunately there were many numbers which did not occur in the upper line at all, as it here appears. Thus, there were not to be found in it either 3, or 5, or 6, or 7, or 9, or 10, or any other numbers, indeed, except the few that happen to result from the multiplication of any of its terms by 2. Between 128 and 256, for example, there were 127 numbers wanting, and between 256 and the next term (512) there would be 255 not to be found.

We cannot here attempt to explain the methods by which Napier's ingenuity succeeded in filling up these chasms, but must refer the reader, for full information upon this subject, to the professedly scientific works which treat of the history and construction of logarithms*. Suffice it to say, that he devised a mode by which he could calculate the proper number to be placed in the table over against any number whatever, whether integral or fractional. The new numerical expressions thus found, he called *Logarithms*, a term of Greek etymology, which signifies the ratios of numbers. The table, however, which he published, in the first instance, in his *Mirifici Logarithmorum Canonis*

* See especially Montucla, *Histoire des Mathematiques*, ii. 16, &c.; Delambre, *Histoire de l'Astronomie Moderne*, i. 491, &c.; and, where the most complete history of logarithms is to be found, the Preface to Hutton's *Mathematical Tables*, London, 1785; which is reprinted in the first volume of Baron Maseres's *Scriptores Logarithmici*.

Descriptio, which appeared at Edinburgh in 1614, contained only the logarithms of the sines of angles for every degree and minute in the quadrant, which shews that he chiefly contemplated, by his invention, facilitating the calculations of trigonometry. These logarithms differed also from those that are now in use, in consequence of Napier having chosen, originally, a different geometrical series from that which has since been adopted. He afterwards fixed upon the progression, 1, 10, 100, 1000, &c., or that which results from continued multiplication by 10, and which is the same according to which the present tables are constructed. This improvement, which possesses many advantages, had suggested itself about the same time to the learned Henry Briggs, then Professor of Geometry in Gresham College,—one of the persons who had the merit of first appreciating the value of Napier's invention, and who certainly did more than any other to spread the knowledge of it, and also to contribute to its perfection. Lilly, the astrologer, gives us, in his *Memoirs*, a curious account of the intercourse between Briggs and Napier, to which the publication of the logarithmic calculus led. "I will acquaint you," he writes, "with one memorable story, related unto me by John Marr, an excellent mathematician and geometrician, whom I conceive you remember. He was servant to King James and Charles the First. At first, when the Lord Napier, or Marchiston, made public his logarithms, Mr. Briggs, then reader of the Astronomy Lectures at Gresham College, in London, was so surprised with admiration of them, that he could have no quietness in himself until he had seen that noble person, the Lord Marchiston, whose only invention they were; he acquaints John Marr herewith, who went into Scotland before Mr. Briggs,

purposely to be there when these two so learned persons should meet. Mr. Briggs appoints a certain day when to meet at Edinburgh; but failing thereof, the Lord Napier was doubtful he would not come. It happened one day, as John Marr and the Lord Napier were speaking of Mr. Briggs; 'Ah, John,' said Marchiston, 'Mr. Briggs will not now come.' At the very instant one knocks at the gate; John Marr hasted down, and it proved Mr. Briggs, to his great contentment. He brings Mr. Briggs up into my lord's chamber, where almost one quarter of an hour was spent, each beholding other, almost with admiration, before one word was spoke. At last Mr. Briggs began; 'My lord, I have undertaken this long journey purposely to see your person, and to know by what engine of wit or ingenuity you came first to think of this most excellent help into astronomy, viz. the logarithms; but, my lord, being by you found out, I wonder nobody else found it out before, when now known it is so easy.' He was nobly entertained by the Lord Napier; and every summer after that, during the lord's being alive, this venerable man, Mr. Briggs, went purposely into Scotland to visit him."

Napier's discovery was very soon known over Europe, and was every where hailed with admiration by men of science. The great Kepler, in particular, honoured the author by the highest commendation, and dedicated to him his Ephemerides for 1617. This illustrious astronomer, also, some years afterwards, rendered a most important service to the new calculus, by first demonstrating its principle on purely geometrical considerations. Napier's own demonstration, it is to be observed, though exceedingly ingenious, had failed to satisfy many of the mathematicians of that age, in consequence of its

proceeding upon the supposition of the movement of a point along a line—a view analogous, as has been remarked, to that which Newton afterwards adopted in the exposition of his doctrine of fluxions, but one of which no trace is to be found in the methods of the ancient geometers.

Napier did not expound the process by which he constructed his logarithms in his first publication. This appeared only in a second work, published at Edinburgh in 1619, after the death of the author, by his third son, Robert. In this work also the logarithmic tables appeared in the improved form in which, however, they had previously been published at London, by Mr. Briggs, in 1617. They have since then been printed in numberless editions, in every country of Europe. Nay, in the year 1721, a magnificent edition of them, in their most complete form, issued from the imperial press of Peking, in China, in three volumes, folio, in the Chinese language and character. As for the invention itself, its usefulness and value have grown with the progress of science; and, in addition to serving still as the grand instrument for the abridgment of calculation in almost every department in which figures are employed, it is now found to be applicable to several important cases which could not be managed at all without its assistance. Some of the greatest names in the history of science, we may also remark, since Napier's time, have occupied themselves with the subject of the theory and construction of logarithms; and the labours of Newton, James Gregory, Halley, and Eüler, have especially contributed to simplify and improve the methods for their investigation.

Napier, however, did not live long to enjoy the reputation of his discovery, having died at Merchis-

ton on the 3rd of April, 1617, in the sixty-eighth year of his age. That same year he had published at Edinburgh a small treatise in Latin, of about one hundred and fifty pages, which he entitled, "*Rabdologiae seu Numerationis per Virgulas Libri Duo.*" It contained an account of a method of performing the operations of multiplication and division, by means of a number of small rods, having the digits inscribed upon them according to such an arrangement that, when placed alongside of each other in the manner directed, in order, for instance, to multiply any two lines of figures, the several lines of the product presented themselves, and had only to be transcribed and added up to give the proper result. This was not, however, nearly so convenient a contrivance as that of logarithms, even for multiplication, and it was still less useful in division; on which account it has been supposed that, although given to the world so late, it was probably an expedient which had suggested itself to Napier for the abridgment of calculation before his great invention. It has been thought, too, of so little practical utility as, in all likelihood, never to have been actually employed for the purposes of calculation*. A little tract, however, it may be remarked, appeared at London so late as the year 1684, entitled "*Enneades Arithmeticae,*" containing, among other things, an account of "the Numbering Rods of the Right Honourable John, Lord Nepeer, enlarged;" and this work bears to be "printed for Joseph Moxon, at the sign of the Atlas in Ludgate street, *where also these numbering rods (commonly called Napier's bones) are made and sold.*" These rods, or bones, we may add, are what Butler alludes to in his *Hudibras*, where, in the account of the "rummaging of Sidrophel," he speaks of

* Montucla, *Histoire des Mathematiques*, ii. 26.

“ A moon-dial, *with Napier's bones*,
 And several constellation stones *,
 Engraved in planetary hour,
 That over mortals had strange power †.”

It was principally, as we have seen, with a view to the simplification of operations in trigonometry that Napier proposed the logarithmic calculus. This was not the only improvement which he contributed to that branch of science. Among others, it owes to him a formula of great elegance and convenience, by which the solution of all the cases of spherical trigonometry is comprehended under a single rule. This, with several other new views in the same department of the mathematics, appeared for the first time in his second work on logarithms, published at Edinburgh, as we have already mentioned, in 1619.

But his ingenious and contriving mind did not confine itself merely to speculative science, if we may believe the very curious statements which he makes with regard to some of his other inventions, in a paper with his signature, which is preserved among the manuscript collections of Anthony Bacon (the brother of the Lord Chancellor Bacon), in the archiepiscopal library at Lambeth. This paper, which has of late years been several times printed †, is en-

* A correspondent informs us that he has seen at Gartness, the place before-mentioned, globular stones with the circles of the sphere and constellations engraven on them, and concave stones with engravings of a like character, said to have been made by Napier. They were certainly not of modern date, and one is built into the wall of a mill, where it is still to be seen.

† Part ii. canto 3, v. 1095. See also Part iii. canto 2, v. 409. Professor Napier, of Edinburgh, who is descended from Lord Napier, is in possession of the set of bones used by his great ancestor.

‡ In Dr. Anderson's *Bee*, vol. iii. p. 133,—in Lord Buchan's *Life of Napier*,—and in *Tilloch's Philosophical Magazine*, vol. xviii. pp. 53, &c. There is also a copy of it in the *British Museum*, among the MS. collections of Dr. Birch.

titled "Secret Inventions, profitable and necessary in these days for the defence of this island, and withstanding of strangers, enemies to God's truth and religion." Of these, the first is stated to be "a burning mirror for burning ships by the sun's beams," of which the author professes himself able to give to the world the "invention, proof, and perfect demonstration, geometrical and algebraical, with an evident demonstration of their error who affirm this to be made a parabolic section." The second is a mirror for producing the same effect by the beams of a material fire. The third is a piece of artillery, contrived so as to send forth its shot, not in a single straight line, but in all directions, in such a manner as to destroy every thing in its neighbourhood. Of this the writer asserts that he can give "the invention and visible demonstration." The fourth and last of these formidable machines is described to be "a round chariot in metal," constructed so as both to secure the complete safety of those within it, and, moving about in all directions, to break the enemy's array, "by continual charges and shot of the arquebuse through small holes." "These inventions," the paper concludes, "besides devices of sailing under the water, and divers other devices and stratagems for harassing of the enemies, by the grace of God and work of expert craftsmen, I hope to perform. John Napier, of Merchiston, anno dom. 1596, June 2."

From this date it would appear that Napier's head had been occupied with the contrivances here spoken of, long before he made himself known by those scientific labours by which he is now chiefly remembered; and, indeed, we might perhaps have inferred, even from the general nature of the inventions, and the object which the author avows he had in view by them, that they were the produce of that part of his life in which his apprehensions of the encroachments

of popery contributed to animate his studies. Some of the announcements are certainly very extraordinary, and would almost lead us to suppose that the writer in this paper rather intended to state what he conceived to be possible, than what he had himself actually performed. Yet several of his expressions will not bear this interpretation ; and there are not wanting other attestations which go to confirm what he asserts as to his having really constructed some of the machines he speaks of. There is a passage in a strange work, entitled "The Jewel," written by Sir Thomas Urquhart, and first published in 1652, which seems manifestly to allude to the third invention here enumerated. Sir Thomas, although certainly not the most veracious of authorities, would scarcely, one should think, have ventured to publish what we are now going to quote, only five and thirty years after Napier's death, if there had not been some foundation for his statement. His description may be sufficiently overcharged (for he writes, it will be observed, in an extravagantly bombastic and hyperbolic strain), without being altogether a fiction. After eulogizing Napier's mathematical learning in very high-sounding terms, Sir Thomas proceeds to remark, that he deems him especially entitled to remembrance on account of "an almost incomprehensible device, which, being in the mouths of the most of Scotland, and yet unknown to any that ever was in the world but himself, deserveth very well to be taken notice of in this place ;"—"and," he adds, "it is this ; he had the skill (as is commonly reported) to frame an engine (for invention not much unlike that of Archytas' dove), which, by virtue of some secret springs, inward resorts, with other implements and materials fit for the purpose, inclosed within the bowels thereof, had the power, if proportionable in bulk to the action required of it (for he could have made it of all sizes),

to clear a field of four miles circumference, of all the living creatures exceeding a foot of height that should be found thereon, how near soever they might be to one another; by which means he made it appear that he was able, with the help of this machine alone, to kill 30,000 Turks, without the hazard of one Christian. Of this it is said that (upon a wager) he gave proof upon a large plain in Scotland, to the destruction of a great many heads of cattle and flocks of sheep, whereof some were distant from other half a mile on all sides, and some a whole mile*."

It were to have been desired, certainly, that our author had been a little more particular in his description of the scene of this devastating exploit among the cattle—"a large plain in Scotland," being rather an unsatisfactory form of expression, even in reference to a country where there are not a great many large plains; but this indefinite mode of writing is only Sir Thomas's usual style. We are not inclined, indeed, to put much faith in the rumour here recorded that Napier actually put the power of his machine to the proof in the manner described; but the whole statement, taken in conjunction with what we have found the alleged inventor asserting under his own hand, seems to put it beyond doubt that he had at least imagined some such contrivance as that alluded to in the above passage, and even that his having done so was matter of general notoriety in his own day, and for some time after. Sir Thomas Urquhart was born in 1613, some years before Napier's death, and his "Jewel," was first published in 1652. Napier, he informs us, when requested on his death-bed to reveal the secret of this engine of such extraordinary potency in the destruction of cattle, sheep, and Turks, refused to do so, on

* The Discovery of a most rare Jewel, &c. second edit. Edinburgh, 1774, pp. 57, 58.

the score of there being too many instruments of mischief in the world already for it to be the business of any good man to add to their number*. This will remind the reader of the story told respecting a machine of somewhat similar pretensions constructed at a later period by the celebrated James Gregory, of which Sir Isaac Newton, when it was shewn to him, is said to have expressed his disapprobation on the same ground which Napier is here made to take. But the truth is, as has been often remarked, that the introduction of machines capable of producing the tremendous effects ascribed to those in question, would, in all probability, very soon put an end to war,—which has not become more destructive, but the reverse, since the invention of a more formidable artillery than that anciently in use; and which, waged with such contrivances as those of Napier and Gregory, would certainly never be resorted to by nations as a mode of settling their differences, until they had become literally insane. Another consideration, however, which might suggest itself to a man of very scrupulous feelings on such a matter, is, that it would be unfair for him to put even his native country in possession of an instrument which would, in fact, give her an advantage in her disputes with the rest of the world, against which there would be no possibility of contending. If it put an end to war, which is one great evil, it would do so by enabling a single nation to triumph over the prostration of the rest.

There appeared, some years ago, in one of our periodical works †, a very able and learned commentary on Napier's "Secret Inventions," the writer

* There is a common report amongst the people at Gartness, that this machine is buried in the ground, near the site of the old castle said to have been occupied by Napier.

† Tilloch's Philosophical Magazine, vol. xviii., pp. 53—65, (published Feb. 1804). See also p. 245, &c.

of which has collected, with great industry, whatever notices the annals of science afford of achievements similar to those which the Scottish mathematician is asserted to have performed. In regard to the mirror for setting objects on fire at a great distance by the reflected rays of the sun, he adduces the well-known story of the destruction of the fleet of Marcellus, at Syracuse, by the burning-glasses of Archimedes, and the other (not so often noticed) which the historian Zonaras records, of Proclus having consumed by a similar apparatus the ships of the Scythian leader Vitalian, when he besieged Constantinople in the beginning of the sixth century*. The possibility of such feats as these was long disbelieved; but may be considered as having been fully demonstrated by the experiments of modern times. Buffon, in particular, in the year 1747, by means of four hundred plane mirrors, actually melted lead and tin at a distance of fifty yards, and set fire to wood at a still greater. This, too, was in the months of March and April. With summer heat it was calculated that the same effects might have been produced at four hundred yards distance—or more than ten times that to which, in all probability, Archimedes had to send his reflected rays. It may be concluded, therefore, that there is nothing absolutely incredible in the account Napier gives of his first invention. His second announcement, however, is a good deal more startling; inasmuch as he here professes to have succeeded in an attempt in which nobody else is recorded to have made any approach to success. Gunpowder has been lighted by heat from charcoal collected by one concave mirror and reflected from another; but no such effect has ever

* Malala, another old chronicler, however, says that Proclus operated, on this occasion, not by burning-glasses, but by burning sulphur showered upon the ships from machines. *Vid. Montucla, Histoire des Mathématiques*, i. 334.

been produced by a single reflection of artificial heat. It is not very easy to comprehend the nature of the chariot mentioned by Napier as his fourth invention; but it seems to bear some resemblance, this writer remarks, to one of the famous Marquess of Worcester's contrivances. As for the device for sailing under water, noticed in the last paragraph of the paper, that exploit was performed in Napier's own day, by the Dutch chemist Cornelius Drebell, who is reported to have constructed a vessel for king James I., which he rowed under the water on the Thames. It carried twelve rowers, besides several passengers, the air breathed by whom, it is said, was made again respirable by means of a certain liquor, the composition of which Boyle asserts in one of his publications that he knew, having been informed of it by the only person to whom it had been communicated by Drebell. Bishop Wilkins, also, who lived very near the time at which it was performed, expressly mentions Drebell's experiment, in his *Mathematical Magic*. Various successful essays in subaqueous navigation have also been made in more recent times.

It is to be lamented that the only one of Napier's inventions, the secret of which was solicited from him by his friends when he was leaving the world, should have been that which his conscience would not allow him to reveal, for the reason that has been stated. Had they asked him to explain to them his method of sailing under the water, for example, or even the construction of his burning mirrors, he probably would have had no excuse for withholding the information. But they seem to have been so anxious to get possession of the machine for destroying the thirty thousand Turks, that they had not a thought to spare for any of the other contrivances. The circumstance, however, of some of these inventions

not having been re-discovered by any one else since Napier's time, ought not of itself to be taken as conclusive evidence that his pretensions to a knowledge of them were mere dreams. Extraordinary as is the progress that science has made within the last two centuries, during which period the conquests she has effected have been more numerous and wonderful than had been witnessed by all the previous centuries that had elapsed from the beginning of the world, there can be no doubt that some of her apparently new inventions have been only the forgotten discoveries of a preceding age revived, and also that there were some things known in former times which modern ingenuity has not yet recovered from oblivion. Such machines as those which Napier professes to have constructed are exactly of the description least likely, for very obvious reasons, to occur to a modern speculator*.

In that curious record, Birrell's Diary, which was published in Edinburgh some years ago, we find, under date of the 23rd October, 1598, the following notice; "Ane proclamation of the Laird of Merkitoun, that he tuk upon hand to make the land mair profitable nor it wes before, be the sawing of salt upon it." There can be little doubt, we think, that this was another scheme of the inventor of the logarithms; although the patent for the new mode of manuring appears to have been taken out in the name of his eldest son, Archibald, who had been

* For a great deal of very curious information on the lost and revived inventions of antiquity, the reader may consult G. Pasch's learned work, entitled "De Novis Inventis quorum accuratiori cultui facem prætulit antiquitas," of which a second edition appeared at Leipsick in 1700; or Dutens's "Récherches sur l'origine des découvertes attribuées aux modernes," first published in 1766, and lately for the fourth time in 1812. Of this last work there is an English translation. See also Theod. Almela-been's *Inventa Nov.-Antiqua*.

infest in the fee of the barony by his father about a year before*. The patent, or gift of office, as it is called, was granted upon condition that the patentee should publish an account of his method in print, which he did accordingly shortly afterwards, under the title of "The new order of gooding and manuring all sorts of field land with common salt." This tract is now probably lost; but the facts that have been mentioned are interesting as establishing Napier's claim to an agricultural improvement which has been revived in our own day and considered of great value †. The profits of the invention were probably given up to his son, who was at this time a young man of only twenty-five years of age, from the same disinterested feeling which had led his father previously to enfeoff him in his estate. Devoted to his books, Napier appears to have been very indifferent about money; and one of his contemporaries ‡ even goes so far as to assert, that he dissipated his fortune by his experiments. Of this, however, there is no evidence; and the truth, in all likelihood, is merely that he bestowed but little attention upon his pecuniary concerns, occupied as his whole mind was about other matters. But if he suggested this method of manuring with salt, he must be allowed to have directed his speculations occasionally to the improvement of the arts of common life, as well as to that of the abstract sciences.

Napier died on the 3rd of April, 1617. He was twice married, and had twelve children, of whom Archibald, the eldest, mentioned above, was raised to

* See Records of Privy Council for 22nd June, 1598, quoted in Douglas's Peerage, by Wood, ii. 292.

† See Parkes on "The advantages of using Salt."

‡ Thomas Dempster, a man of unquestionable learning and genius, but by no means to be always depended upon in what he states upon his own authority.

the peerage, by the title of Lord Napier, in 1627. A small volume of Memoirs of this person, written by himself, was published in 1793. The second part of Napier's explanation of his Logarithms was published by his third son, Robert, from his father's papers, in 1619. There are said to be still in the possession of the family some productions of their distinguished ancestor on scientific subjects, which have not been printed, especially a treatise, in English, on Arithmetic and Algebra, and another, on Algebra, in Latin*.

The life which we have thus sketched may be considered as affording us an eminent example of the manner in which the many advantages enjoyed by the wealthy may be turned to account in the pursuit of learning and philosophy. A good education, access to all the best means of improvement, uninterrupted leisure, comparative freedom from the ordinary anxieties of life, the means of engaging in inquiries and experiments the expense of which cannot be afforded by the generality of students—the possession of all these things to the mind that knows how to profit by them, is indeed invaluable. We have seen what they produced in Napier's case. In dedicating his time and his fortune to pursuits so much nobler than those that have usually occupied persons of his station, this illustrious individual had his ample reward. We can scarcely doubt that he led a happier life in his studious retirement, in the midst of his books and his experiments, than if he had given himself either to the ordinary pleasures of the world, or to the hazards and vexations of political ambition. The more useful and more honourable path he certainly chose. By his great and fortunate discovery he made the science of all succeeding times his debtor, and constituted himself the benefac-

* Douglas's Peerage, by Wood, ii. 290.

tor of every generation of posterity. And then for fame, which our very nature has made dear to us, that, too, this philosopher found in his closet of meditation. Even in his own day his renown was spread abroad over Europe, and he was greeted with the publicly expressed admiration of some of the most distinguished of his contemporaries; and the time that has since elapsed has only served to throw an increasing light around his name, which is now sure to retain its distinction so long as the sciences which he loved shall continue to be cultivated among men.

CHAPTER IV.

Drummond, of Hawthornden—Tycho Brahe—Tschirnhausen—Boyle—The Air-Pump—Cavendish.

It would be easy to add to that of Napier a long list of other names of men of wealth and rank, who, in like manner, have devoted themselves to science or literature, in preference to all other pursuits. But we can afford to mention only a very few. One name which Napier's naturally suggests to us, is that of his contemporary and countryman, **WILLIAM DRUMMOND**, of Hawthornden, one of the most elegant poetical writers of the early part of the seventeenth century. Drummond and Napier were neighbours, but probably no record has been preserved of any intercourse between the mathematician and the poet. As the former, however, was resorted to every year by his scientific English friend, Mr. Briggs; so the latter, also, had his visitor from the south, who came to pay his respects to him, from admiration of his kindred genius. In the year 1616, the famous Ben Jonson walked all the way from London to Hawthornden, to see his brother poet, and remained for some time as his guest. Of this visit, a curious account is preserved, written by Drummond himself, which has been often printed. Drummond, who was distinguished for his learning as well as his poetry, died in 1649, in his sixty-fourth year, having lived through a very agitated period without mixing in its political convulsions, satisfied with philosophy and the muses. Another contemporary of Napier, whose labours and speculations were more similar to his own, was the celebrated Danish astronomer, **TYCHO BRAHE**. Brahe's family

was both wealthy and noble ; but when by his contributions he first manifested his attachment to the science in which he afterwards acquired so much reputation, being then only a boy at school, his friends did every thing they could to check an inclination which they deemed quite unsuited to his birth and prospects ; and the young astronomer was obliged to conceal from his tutor the mathematical books which he purchased with his pocket-money, and to read them, as well as to make his observations on the stars, in hours stolen from the time allowed him for sleep. For, even before he was sixteen, he had begun to measure the distances of the heavenly bodies from one another, although he had no better instrument than a common pair of compasses, the hinge of which he used to put to his eye, while he opened the legs until they pointed to the two stars whose relative position he wished to ascertain. A collection of celestial observations, made by him at this early period, is still preserved at Copenhagen. When he became of age, however, and was his own master, his fortune enabled him to choose his own pursuits ; and, having first spent some years in travelling through Germany and Switzerland, and visiting the different observatories in these countries, he then returned home, took up his residence on his estate, and dedicated himself almost entirely to his favourite science. Some of the results of his studies, which he published, soon drew to him the attention of the learned among his countrymen ; and, at the desire of the king, he at last left his retreat to teach astronomy in the capital. But the constant interruptions to which he was here exposed disgusted him with a town life ; and he sighed to get once more back to his country retirement. All his wishes in this respect were at length gratified, by an act of extraordinary munificence on the part of his royal master, who bestowed on him the island of

Hueen, in the Sound, together with a pension of five hundred crowns, a lordship in Norway, and an ecclesiastical benefice, which brought him two thousand crowns more, in order that with these revenues, added to those of his original estates, he might be enabled to prosecute his celestial observations on the grandest scale. In this island, accordingly, Brahe now took up his abode, and soon erected on it a splendid observatory, provided with all the best instruments known in that age. He spent, he says, a hundred thousand crowns of his own money upon its completion, in addition to the produce of his grants from the king. Here he resided for seventeen years, during the whole of which time he continued to devote himself, with unabated zeal, to his scientific pursuits. But such was now his fame, that, even in this retirement, beside being surrounded, as before, by pupils who crowded to profit by his instructions, he was sought out by many visitors, both from his own and foreign countries. Among other persons of distinction who came to see him, was our James I., then king of Scotland, who passed a week with him in the year 1590 ; but if the story that is told be true, this visit was anything rather than a fortunate incident for Brahe. Some years afterwards, it is said, his protector, Frederick II., being dead, he was visited one day by the young King Christian IV., accompanied by his chief minister, Walckendorf ; and it so happened that this latter personage, who was very sensitive and choleric, was barked at, as he approached the house, by two dogs belonging to the astronomer, at which he chose to be so much offended, that he went up to the animals and beat them severely. The dogs had been presented to Brahe by the Scottish monarch ; and irritated at seeing them ill-treated, he interfered to prevent the enraged senator from continuing his chastisement. This gave rise to some high words between the two,

and the result was a quarrel, which Walekendorf, at least, never forgot. From that day, Brahe's ruin was resolved upon by his powerful enemy. A commission was soon after appointed to report upon the public utility of his establishment; and upon this compliant body declaring that they saw nothing in his splendid observatory but a source of useless expense to the state, a decree was passed, recalling all the grants he had received from the former king, and dispossessing him of his island. On this, Brahe determined to bid adieu for ever to his ungrateful country; and, taking with him all his instruments, he retired to Germany. About two years afterwards, however, he was invited to take up his residence at Prague, by the Emperor, Rodolph II.; and by this prince, who was warmly attached to science, he was provided with a second asylum, almost as splendid as that which he had enjoyed in his native country. But he lived only a very short time after this, having died in 1601, in the fifty-fifth year of his age. Tycho Brahe, as most of our readers are probably aware, was the inventor, or reviver, of a peculiar scheme of the universe, according to which the earth is conceived to be immovable in the centre of the system, the sun to revolve round it, and the other planets round the sun. It is unnecessary to say that this hypothesis has been long exploded. Indeed, even at the time when it was proposed by its author, it was, although supported by him with much ingenuity, a most unphilosophical retrogression from the true system previously established by Copernicus. But although Brahe, it thus appears, has no very high claims upon our admiration as a theorist, he undoubtedly did much in another way to promote the improvement of astronomy. His extraordinary devotion to the science, of itself, operated as inspiration upon many of the other ardent minds of the time. But it was

by the great number and comparative exactness of his observations, far surpassing anything that had been attained by his predecessors, that he chiefly contributed to the progress of astronomy. No other but one in his circumstances could have commanded either the leisure or the pecuniary means necessary for the making of these observations, which, besides having occupied many years, owed much of their superior accuracy to the excellence and consequent costliness of the instruments which Brahe employed. Here, therefore, was a case in which science was indebted to the wealth of one of its cultivators for services which no zeal or talents could have otherwise enabled him to render.

Another man of fortune, to whom both science and the arts are under considerable obligations, is the German mathematician, TSCHIRNHAUSEN, celebrated for the discovery of the peculiar curve called, after him, Tschirnhausen's Caustics. He was born in 1651, at the seat of his ancestors, in Upper Lusatia; and although, after receiving an excellent education, he entered the army at an early age, he very soon quitted the profession of a soldier, and set out on his travels through England, Italy, and France. He spent several years in traversing these countries, embracing every opportunity of obtaining a knowledge of their arts, manufactures, and productions, and seeking the acquaintance of the learned men of the time, wherever he went. On returning home, he took up his residence on his estate, the revenues of which were ample; and the remainder of his life was given to scientific speculations and experiments. The science of optics was that to which he was chiefly attached; and it was while making some experiments with reflecting mirrors, that he discovered his Caustics, which are curves formed by light reflected in certain circumstances, and are so called from the

Greek word for a burning-glass. They possess some remarkable geometrical properties*. When Tschirnhausen announced this discovery to the French Academy of Sciences, he was only in his thirty-first year; but he was immediately admitted a member of the Academy by order of the King, Louis XIV. In order to have the aid of proper instruments in the prosecution of his researches, he afterwards established three glass-houses in his native district; at which he employed all the resources of his ingenuity in endeavouring to fabricate burning-glasses of greater size and power than any which had ever been elsewhere produced. In 1687 he had made a concave reflecting mirror of copper, of the diameter of four feet and a half, which consumed wood and fused metals at twelve feet distance, in a few seconds; but although these effects greatly surpassed anything of the same kind that had been accomplished in modern times, he found the inconvenience of operating by reflection so great, that he determined to persevere in his attempts to obtain, if possible, a lens of equal magnitude. He did not exactly attain this object; for the largest lens he succeeded in producing had only a diameter of three feet. But when it is added that nobody but himself had ever before made one of more than four or five inches diameter, his success will probably be deemed sufficiently extraordinary. The method he employed in fabricating this immense glass is not known. It was convex on both sides, and weighed a hundred and sixty pounds. Although somewhat less in size, its effects greatly exceeded those of the

* In an article of some length upon Tschirnhausen, in the *Biographie Universelle*, the writer, M. Gley, by a strange blunder, mistakes these curves for actual burning-glasses; and describes, with great minuteness, their wonderful powers in kindling and consuming, or melting, wood, iron, tiles, slates, and earthen-ware! —Vid. *Biog. Univ.* xviii. 3.

reflector he had formerly used. This lens was purchased from Tschirnhausen by the Duke of Orleans, who afterwards made a present of it to the Academy of Sciences. Tschirnhausen deserves, also, to be remembered as the founder of the celebrated porcelain manufactory of Dresden. Before his time, it was supposed that the Chinese employed for their porcelain a peculiar earth, only found in their own country; but he discovered that the same species of ware could be manufactured from a compound of different sorts of earth, which might be obtained in Europe as well as in China. This eminent benefactor to the arts, who, besides his contributions to the Transactions of the French Academy, was also the author of two separate works,—the first, entitled *The Medicine of the Body*, the latter, *The Medicine of the Mind*, being, in fact, a system of the art of reasoning,—died in 1708.

But, perhaps, the best example we can adduce of the manner in which wealth may be made subservient by its possessor, not only to the acquisition of knowledge, but also to its diffusion and improvement, is that of our celebrated countryman the Honourable **ROBERT BOYLE**. Boyle was born at Lismore, in Ireland, in 1627, and was the seventh and youngest son of Richard, the first Earl of Cork, commonly called the Great Earl. The first advantage which he derived from the wealth and station of his father, was an excellent education. After having enjoyed the instructions of a domestic tutor, he was sent, at an early age, to Eton. But his inclination, from the first, seems to have led him to the study of things, rather than of words. He remained at Eton only four years, “in the last of which,” according to his own statement, in an account which he has given us of his early life, “he forgot much of that Latin he had got, for he was so addicted to more solid parts

of knowledge, that he hated the study of bare words naturally, as something that relished too much of pedantry, to consort with his disposition and designs." In reference to what is here insinuated, in disparagement of the study of languages merely as such, we may just remark that the observation is, perhaps, not quite so profound as it is plausible. So long as one mind differs from another, there will always be much difference of sentiment as to the comparative claims upon our regard of that, on the one hand, which addresses itself principally to the taste or the imagination, and that, on the other, which makes its appeal to the understanding only. But it is, at any rate, to be remembered that, in confining the epithet useful, as is commonly done, to the latter, it is intended to describe it as the useful only pre-eminently, and not exclusively. The agreeable or the graceful is plainly also useful. The study of language and style, therefore, cannot, with any propriety, be denounced as a mere waste of time; but, on the contrary, is well fitted to become to the mind a source both of enjoyment and of power. So great, indeed, is the influence of diction upon the common feelings of mankind, that no literary work, it may be safely asserted, has ever acquired a permanent reputation and popularity, or, in other words, produced any wide and enduring effect, which was not distinguished by the graces of its style. Their deficiency, in this respect, has been at least one of the causes of the comparative oblivion into which Mr. Boyle's own writings have fallen, and, doubtless, weakened the efficacy of such of them as aimed at anything beyond a bare statement of facts, even in his own day. It was this especially which exposed some of his moral lucubrations to Swift's annihilating ridicule.

On being brought home from Eton, Boyle, who was his father's favourite son, was placed under

the care of a neighbouring clergyman, who, instructing him, he says, "both with care and civility, soon brought him to renew his first acquaintance with the Roman tongue, and to improve it so far that in that language he could readily enough express himself in prose, and began to be no dull proficient in the poetic strain." "Although, however," he adds, "naturally addicted to poetry, he forbore, in after-life, to cultivate his talent for that species of composition, because, in his travels, having by discontinuance forgot much of the Latin tongue, he afterwards never could find time to redeem his losses by a serious study of the ancient poets." From all this it is evident that the natural bent of his mind did not incline him very strongly to classical studies; and as, for the most obviously wise purposes, there has been established among men a diversity of intellectual endowments and tendencies, and every mind is most efficient when it is employed most in accordance with its natural dispositions and predilections, it was just as well that the course of his education was now changed. In his eleventh year he and one of his brothers were put under the charge of a Mr. Marcombes, a French gentleman, and sent to travel on the Continent. In the narrative of his early life, in which he designates himself by the name of Philoretus, Mr. Boyle has left us an account of his travelling tutor. "He was a man," says he, "whose gait, his mien, and outside, had very much of his nation, having been divers years a traveller and a soldier; he was well fashioned; and very well knew what belonged to a gentleman. His natural were much better than his acquired parts, though divers of the latter he possessed, though not in an eminent, yet in a competent degree. Scholarship he wanted not, having in his greener years been a professed student in divinity; but he was much less read in

books than men, and hated pedantry as much as any of the seven deadly sins. * * * Before company he was always very civil to his pupils, apt to eclipse their failings, and set off their good qualities to the best advantage. But in his private conversation he was cynically disposed, and a very nice critic both of words and men; which humour he used to exercise so freely with Philoretus, that at last he forced him to a very cautious and considerate way of expressing himself, which after turned to his no small advantage. The worst quality he had was his choler, to excesses of which he was excessively prone; and that being the only passion to which Philoretus was much observed to be inclined, his desire to shun clashing with his governor, and his accustomedness to bear the sudden sallies of his impetuous humour, taught our youth so to subdue that passion in himself, that he was soon able to govern it habitually and with ease."

Under the guidance of this gentleman, who, although not much fitted, apparently, to make his pupils profound scholars, or even to imbue them with a taste for elegant literature, was, probably, very well qualified both to direct their powers of observation, and to superintend and assist the general growth of their minds at this early age, the two brothers passed through France to Geneva, where they continued some time studying rhetoric, logic, mathematics, and political geography, to which were added the accomplishments of fencing and dancing. "His recreations during his stay at Geneva," says Mr. Boyle of himself, "were sometimes mall, tennis (a sport he ever passionately loved), and, above all, the reading of romances, whose perusal did not only extremely divert him, but (assisted by a total discontinuance of the English {tongue}) in a short time taught him a skill in French somewhat unusual to strangers." The party afterwards set off for Italy;

and, after visiting Venice and other places, proceeded to Florence, where they spent the winter.

While residing here, Mr. Boyle made himself master of the Italian language. But another acquisition, for which he was indebted to his visit to Florence, probably influenced to a greater extent the future course of his pursuits; we mean the knowledge he obtained of the then recent astronomical discoveries of Galileo. This great philosopher died in the neighbourhood of Florence, in the beginning of the year 1642, while Boyle and his brother were pursuing their studies in that city. The young Englishman, who was himself destined to acquire so high a reputation by his experiments in various departments of physical science, some of them the same which Galileo had cultivated, probably never even beheld his illustrious precursor; but we cannot tell how much of Boyle's love of experimental inquiry, and his ambition to distinguish himself in that field, may have been caught from this, his accidental residence in early life in a place where the renown of Galileo and his discoveries must have been on the lips of all.

Boyle returned to England in 1644. Although he was yet only in his eighteenth year, he seems to have thought that his education had been long enough under the direction of others, and he resolved, therefore, for the future, to be his own instructor. Accordingly, his father being dead, he retired to an estate which had been left him in Dorsetshire, and gave himself up, we are told, for five years, to the study principally of natural philosophy and chemistry. His literary and moral studies, however, it would appear, were not altogether suspended during this time. In a letter written by him from his retirement to his old tutor, Mr. Marcombes, we find him mentioning, as also among his occupations, the composing of essays in prose and verse, and the study of ethics.

“wherein,” says he, “of late I have been very conversant, and desirous to call them from the brain down into the breast, and from the school to the house.”

These details do not, like many of those we have given in former parts of our work, exhibit to us the ardent lover of knowledge, beset with impediments at every step, in his pursuit of the object on which he has placed his affections, and having little or nothing to sustain him under the struggle, except the unconquerable strength of the passion with which his heart is filled. On the contrary, we have here a young man who has enjoyed from his birth upwards every facility for the improvement of his mind, and is now surrounded with all the conveniences he could desire, for a life of the most various and excursive study. A happy and enviable lot! Yet by how few of those to whom it has been granted, as well as to him of whom we are now speaking, have its advantages been used as they were by him! The truth is, that if the mind be not in love with knowledge, no mere outward advantages will enable any one to make much progress in the pursuit of it; while with this love for it, all the difficulties which the unkindness of fortune can throw in the way of its acquisition may be overcome. The examples we have already recorded of many a successful struggle with such difficulties in their most collected and formidable strength, sufficiently warrant us to hold out this encouragement to all.

In the same letter to Mr. Marcombes, which we have just quoted, we find Boyle making mention, for the first time, of what he calls “our new Philosophical or Invisible College,” some of the leading members of which, he informs his correspondent, occasionally honoured him with their company at his house. By this *Invisible College*, he undoubt-

edly means that association of learned individuals who began about this period to assemble together in London for the purposes of scientific discussion, and whose meetings formed the germ of the Royal Society. According to the account given in a letter written many years after by Dr. Wallis, another member of the club, to his friend Dr. Thomas Smith, it appears that these meetings first began to be held in London, on a certain day in every week, about the year 1645. Mr. Boyle's name does not occur in the list of original members given by Dr. Wallis; but he professes to mention only several of the number. There can be no doubt that Boyle joined them soon after the formation of the association. According to Dr. Wallis, the meetings were first suggested by a Mr. Theodore Haak, whom he describes as a German of the Palatinate, then resident in London. They used to be held sometimes in Wood street, at the house of Dr. Goddard, the eminent physician, who kept an operator for grinding glasses for telescopes and microscopes; sometimes at another house in Cheapside; and sometimes in Gresham College, to which several of the members were attached. The subjects of inquiry and discussion are stated to have embraced everything relating to "physic, anatomy, geometry, astronomy, navigation, magnetics, chemics, mechanics, and natural experiments," whatever, in short, belonged to what was then called "the new or experimental philosophy." In course of time, several of the members of the association were removed to Oxford; and they began at last to meet by themselves in that city, while the others continued their meetings in London. The Oxford meetings began to be regularly held about the year 1649. In 1654 Mr. Boyle took up his residence at Oxford, probably induced, in great part, by the circumstance of

so many of his philosophical friends being now there, and engaged together in the same inquiries with himself. The Oxford associates, according to Dr. Wallis, met first in the apartments of Dr. Petty (afterwards the celebrated Sir William Petty, the ancestor of the Marquess of Lansdowne), who lodged, it seems, in the house of an apothecary, whose store of drugs was found convenient for their experiments. On Dr. Petty going to Ireland, they next met, the narrative proceeds, " (though not so constantly) at the lodgings of Dr. Wilkins, then warden of Wadham College; and, after his removal to Trinity College in Cambridge, at the lodgings of the honourable Mr. Robert Boyle, then resident for divers years in Oxford." Boyle, indeed, continued to reside in this city till the year 1668. Meanwhile, in 1663, three years after the Restoration, the members of the London club were incorporated under the title of the Royal Society.

It was during his residence at Oxford that Boyle made some of the principal discoveries with which his name is connected. In particular, it was here that he prosecuted those experiments upon the mechanical properties of the air, by which he first made himself generally known to the public, and the results of which rank among the most important of his contributions to natural science. The first account which he published of these experiments appeared at Oxford in 1660, under the title of "New Experiments Physico-Mechanical, touching the spring of the air and its effects." The work is in the form of letters to his nephew, Viscount Dungarvon, the son of the Earl of Cork, which are dated in December 1659. It may be not unnaturally supposed that Boyle's attention was first directed to the subject of Pneumatics, when he was engaged at Florence in making himself acquainted with the discoveries of

Galileo, whose experiments first introduced anything like science into that department of inquiry. He states, himself, in his first letter to his nephew, that he had some years before heard of a contrivance, by which Otto Guericke, Consul of Magdeburg, had succeeded in emptying glass vessels of their contained air, by sucking it out at the mouth of the vessel, plunged under water. He alludes here to Guericke's famous invention of the instrument now commonly called the air-pump. This ingenious and ardent cultivator of science, who was born in Magdeburg, in Saxony, in the beginning of the seventeenth century, in his original attempts to produce a vacuum, used first to fill his vessel with water, which he then sucked out by a common pump, taking care, of course, that no air entered to replace the liquid. This method was probably suggested to Guericke by Torricelli's beautiful experiment, mentioned in the former volume *, with the barometrical tube, the vacuum produced in the upper part of which, by the descent of the mercury, has been called from him the Torricellian vacuum. It was by first filling it with water, that Guericke expelled the air from the copper globe, the two closely fitting hemispheres comprising which six horses were then unable to pull asunder, although held together by nothing more than the pressure of the external atmosphere. This curious proof of the force, or weight of the air, which was exhibited before the Emperor Ferdinand III., in 1654, is commonly referred to by the name of the experiment of the Magdeburg hemispheres. Guericke, however, afterwards adopted another method of exhausting a vessel of its contained air, which could be applied more generally than the one he had first employed. This consisted in

* *Vide* vol. i. p. 12.

at once pumping out the air itself. The principle of the contrivance which he used for that purpose will be understood from the following explanation. If we suppose a barrel of perfectly equal bore throughout, and having in it a closely fitting plug or piston, to have been inserted in the mouth of the vessel, it is evident that, when this piston was drawn up from the bottom to the top of the barrel, it would carry along with it all the air that had previously filled the space through which it had passed. Now were air, like water, possessed of little or no expansive force, this space, after being thus deprived of its contents, would have remained empty, and there would have been an end of the experiment. But in consequence of the extraordinary elasticity of the element in question, no sooner would its original air be lifted by the piston out of the barrel, than a portion of that in the vessel beyond the piston would flow out to occupy its place. The vessel and the barrel together would now, therefore, be filled by the same quantity of air which had originally been contained in the first alone, and which would consequently be diminished in density just in proportion to the enlargement of the space which it occupied. But although so much of the air to be extracted had thus got again into the barrel, there would still at this point have been an end of the experiment, if no way could have been found of pushing back the piston for another draught, without forcing also the air beyond it into the vessel again, and thus merely restoring matters to the state in which they were at the commencement of the operation. But here Guericke was provided with an ingenious contrivance—that of the valve; the idea of applying which he borrowed, no doubt, from the common water-pump, in which it had been long used. A valve, which, simple as it is, is one of the most useful and indeed indispensable of mechanical

contrivances, is, as most persons know, merely a flap, or lid, moving on a hinge, which, covering an orifice, closes it, of course, against whatever attempts to pass through from behind itself, (a force bearing upon it from thence evidently only shutting it closer), while it gives way to and permits the passage of whatever comes in the opposite direction. Now Guericke, in his machine, had two of these valves, one covering a hole in the piston, another covering the mouth of the vessel where the barrel was inserted; and both opening outwards. In consequence of this arrangement, when the piston, after having been drawn out, as we have already described, was again pushed back, the air in the barrel was prevented from getting back into the vessel by the farther valve, now shut against it, while it was at the same time provided with an easy means of escape by the other, through which, accordingly, it passed away. Here then was one barrel-full of the air in the vessel dislodged; and the same process had only to be repeated a sufficient number of times, in order to extract as much more as was desired. The quantity, however, removed every time was, of course, always becoming less; for, although it filled the same space, it was more attenuated.

The principle, therefore, upon which the first air-pump was constructed, was the expansibility of the air, which the inventor was enabled to take advantage of through means of the valve. These two things, in fact, constitute the air-pump; and whatever improvements have been since introduced in the construction of the machine have gone only to make the working of it more convenient and effective. In this latter respect the defects of Guericke's apparatus, as might be expected, were considerable. Among others, with which it was chargeable, it required the continual labour of two men for several

hours at the pump to exhaust the air from a vessel of only moderate size; the precautions which Guericke used to prevent the intrusion of air from without, between the piston and the sides of the barrel, during the working of the machine, were both imperfect for that purpose, and greatly added to the difficulties and incommodiousness of the operation; and, above all, from the vessel employed being a round globe, without any other mouth or opening than the narrow one in which the pump was inserted, things could not be conveyed into it, nor, consequently, any experiments made in that vacuum which had been obtained. Boyle, who says that he had himself thought of something like an air-pump before he heard of Guericke's invention, applied himself, in the first place, to the remedying of these defects in the original instrument, and succeeded in rendering it considerably more convenient and useful. At the time when he began to give his attention to this subject, he had Robert Hooke, who afterwards attained a distinguished name in science, residing with him as an assistant in his experiments; and, it was Hooke, he says, who suggested to him the first improvements in Guericke's machine. These, which could not easily be made intelligible by any mere description, and which, besides, have long since given way to still more commodious modifications of the apparatus, so that they possess now but little interest, enabled Boyle and his friends to carry their experiments with the new instrument much farther than had been done by the consul of Magdeburg. But, indeed, Boyle himself did not long continue to use the air-pump which he describes in this first publication. In the second part of his *Physico-Mechanical Experiments* he describes one of a new construction; and, in the third part of the same work, one still farther improved. This last, which

is supposed to have been also of Hooke's contrivance, had two barrels moved by the same pinion-wheel, which depressed the one while it elevated the other, and thus did twice as much work as before in the same time. The air-pump has been greatly improved since the time of Boyle by the Abbé Nollet, Gravesande, Smeaton, Prince, Cuthbertson, and others.

By his experiments with this machine Boyle made several important discoveries with regard to the air, the principal of which he details in the three successive parts of the work we have mentioned. Having given so commodious a form and position to the vessel out of which the air was to be extracted (which, after him, has been generally called the receiver, a name, he says, first bestowed upon it by the glassmen,) that he could easily introduce into it anything which he wished to make the subject of an experiment, he found that neither flame would burn nor animals live in a vacuum, and hence he inferred the necessity of the presence of air both to combustion and animal life. Even a fish, immersed in water, he proved, would not live in an exhausted receiver. Flame and animal life, he shewed, were also both soon extinguished in any confined portion of air, however dense, although not so soon in a given bulk of dense as of rarefied air; nor was this, as had been supposed, owing to any exhalation of heat from the animal body or the flame, for the same thing took place when they were kept in the most intense cold, by being surrounded with a frigorific mixture. What he chiefly sought to demonstrate, however, by the air-pump was, the extraordinary elasticity, or spring, as he called it, of the air. It is evident, from the account that has been given of the principle of this machine, that, if the pump be worked ever so long, it never can produce in the receiver a strictly perfect vacuum; for the air

expelled from the barrel by the last descent of the piston must always be merely a portion of a certain quantity, the rest of which will be in the receiver. The receiver, in truth, after the last stroke of the piston, is as full of air as it was at first; only that by which it is now filled is so much rarefied and reduced in quantity, although it occupies the same space as before, that it may be considered as, for most practical purposes, annihilated. Still a certain quantity, as we have said, remains, be it ever so small; and this quantity continues, just as at first, to be diffused over the whole space within the receiver. From this circumstance Boyle deduced some striking evidences of what seems to be the almost indefinite expansibility of the air. He at last actually dilated a portion of air to such a degree that it filled, he calculated, 13,679 times its natural space, or that which it occupied as part of the common atmosphere. But the usual density of the atmosphere is very far from being the greatest to which the air may be raised. It is evident that, if the two valves of the air-pump we have already described be made to open inwards instead of outwards, the effect of every stroke of the piston will be, not to extract air from the receiver, but to force an additional quantity into it. In that form, accordingly, the machine is called a forcing-pump, and is used for the purpose of condensing air, or compressing a quantity of it into the smallest possible space. Boyle succeeded, by this method, in forcing into his receiver forty times its natural quantity. But the condensation of the air has been carried much further since his time. Dr. Hales compressed into a certain space 1522 times the natural quantity, which in this state had nearly twice the density, or, in other words, was nearly twice as heavy as the same bulk of water. Of the air thus condensed by Dr. Hales, therefore,

the same space actually contained above twenty millions of times the quantity which it would have done of that dilated to the highest degree by Mr. Boyle. How far do these experiments carry us beyond the knowledge of Aristotle, who held that the air, if rarefied so as to fill ten times its usual space, would become fire !

We have dwelt the longer upon these details, both as referring to some of the most important contributions for which science is indebted to Mr. Boyle, and because they serve to continue the brief sketch of discoveries relating to the air which we gave in our former volume*. On leaving Oxford, in 1668, Boyle came to London, and here he continued to reside during the remainder of his life. Up to this time his attendance at the meetings of the Royal Society had been only occasional, but he was now seldom absent. Science, indeed, was as much the occupation of his life as if it had been literally his business or profession. No temptations could seduce him away from his philosophical pursuits. Belonging, as he did, to one of the most powerful families in the kingdom—having no fewer than four brothers in the Irish peerage, and one in the English,—the highest honours of the state were open to his ambition if he would have accepted of them. But so pure was his love of science and learning, and, with all his acquirements, so great his modesty, that he steadily declined even those worldly distinctions which might be said to lie strictly within the sphere of his pursuits. He was zealously attached to the cause of religion, in support of which he wrote and published several treatises ; but he would not enter the church, although pressed to do so by the king, or even accept of any office in the Universities, under the conviction that he should more effectually serve the interests both of

* See vol. i., p. 10, &c.

religion and learning by avoiding everything which might give him the appearance of being their hired or interested advocate. He preferred other modes of shewing his attachment, in which his wealth and station enabled him to do what was not in the power of others. He allowed himself to be placed at the head of associations for the prosecution of those objects which he had so much at heart; he contributed to them his time, his exertions, and his money; he printed, at his own expense, several editions of the Scriptures in foreign languages for gratuitous distribution; if learned men were in pecuniary difficulties his purse was open to their relief. And, as for his own labours, no pay could have made them more zealous or more incessant. From his boyhood till his death he may be said to have been almost constantly occupied in making philosophical experiments; collecting and ascertaining facts in natural science; inventing or improving instruments for the examination of nature; maintaining a regular correspondence with scientific men in all parts of Europe; receiving the daily visits of great numbers of the learned both of his own and other countries; perusing and studying not only all the new works that appeared in the large and rapidly widening department of natural history and mathematical and experimental physics, including medicine, anatomy, chemistry, geography, &c., but many others relating especially to theology and Oriental literature; and, lastly, writing so profusely upon all these subjects, that those of his works alone which have been preserved and collected, independently of many others that are lost, fill, in one edition, six large quarto volumes. So vast an amount of literary performance, from a man who was at the same time so much of a public character, and gave so considerable a portion of his time to the service of others, shews

strikingly what may be done by industry, perseverance, and such a method of life as never suffers an hour of the day to run to waste.

In this last particular, indeed, the example of Mr. Boyle well deserves to be added to those of the other great men we have already mentioned. Of his time he was, from his earliest years, the most rigid economist, and he preserved that good habit to the last. Dr. Dent, in a letter to Dr. Wotton, tells us that "his brother, afterwards Lord Shannon (who accompanied him on his continental tour with Mr. Marcombes) used to say, that, even then, he would never lose any vacant time; for, if they were upon the road, and walking down a hill, or in a rough way, he would read all the way; and when they came, at night, to their inn, he would still be studying till supper, and frequently propose such difficulties as he met with in his reading to his governor." The following naïve statement, too, which we find in an unfinished essay on a theological subject, which he left behind him in manuscript, and of which Dr. Birch, the editor of his collected works, has printed a part, may serve to shew the diligence with which he prosecuted his severer studies, even amidst all sorts of interruptions. "It is true," he writes, "that a solid knowledge of that mysterious language" (it is his acquisition of the Hebrew tongue to which he refers) "is somewhat difficult, but not so difficult but that so slow a proficient as I, could, in less than a year, of which not the least part was usurped by frequent sicknesses and journeys, by furnaces, and by (which is none of the modestest thieves of time) the conversation of young ladies, make a not inconsiderable progress towards the understanding of both Testaments in both their originals." But the life of active and incessant occupation which he led, even in his declining years, is

best depicted in another curious document which Dr. Birch has preserved. A few years before his death he was urged to accept the office of President of the Royal Society, of which he had so long been one of the most active and valuable members, and the Transactions of which he had enriched by many papers of great interest; but he declined the honour on the score of his growing infirmities. About this time he also published an advertisement, addressed to his friends and acquaintances, in which he begins by remarking "that he has, by some unlucky accidents, had many of his writings corroded here and there, or otherwise so maimed" (this is a specimen of the pedantic mode of expression of which Mr. Boyle was too fond), "that without he himself fill up the *lacunæ* out of his memory or invention, they will not be intelligible." He then goes on to allege his age and his ill health as reasons for immediately setting about the arrangement of his papers, and to state that his physician and his best friends have "pressingly advised him against speaking daily with so many persons as are wont to visit him;" representing it as that which must "disable him for holding out long." He, therefore, intimates that he means in future to reserve two days of the week to himself, during which, "unless upon occasions very extraordinary," he must decline seeing either his friends or strangers, "that he may have some time both to recruit his spirits, to range his papers, and fill up the *lacunæ* of them, and to take some care of his affairs in Ireland, which are very much disordered, and have their face often changed by the public disorders there." He at the same time ordered a board to be placed over his door, giving notice when he did and when he did not receive visits.

Nothing can set in a stronger light than this the celebrity and public importance to which he had

attained. His reputation, indeed, had spread over Europe ; and he was the principal object of attraction to all scientific strangers who visited the English metropolis. Living, as it was his fortune to do, at what may be called only the dawn of modern science, Boyle perhaps made no discovery which the researches of succeeding investigators in the same department have not long ere now gone far beyond. But his experiments, and the immense number of facts which he collected and recorded, undoubtedly led the way to many of the most brilliant results by which, since his day, the study of nature has been crowned. Above all, he deserves to be regarded as one of the principal founders of our modern chemistry. That science, before his time, was little better than a collection of dogmas, addressing themselves rather to the implicit faith of men than either to their experience or their reason. These venerable articles of belief he shewed the necessity of examining, in reference to their agreement with the ascertained facts of nature ; and, by bringing them to this test, exposed the falsehood of many of them. His successors have only had to contribute each his share in building up the new system ; he had also to overthrow the old one.

Mr. Boyle died, at the age of sixty-four, in 1691. The experimental science of modern times never had a more devoted follower ; and he claims to be recorded, as having not only given us an illustrious example of the ardent pursuit of philosophy in a man of rank, but as having dedicated to its promotion the whole advantages of which his station and fortune put him in possession, with a zealous liberality that has scarcely been surpassed or equalled. Other wealthy patrons of literature and science have satisfied themselves with giving merely their money, and the *éclat* of their favourable regard to the cause which they

professed to take under their protection; but he spent his life in the active service of philosophy, and was not more the encourager and supporter of all good works done in that name than a fellow-labourer with those who performed them. For the long period during which he was, in this country, the chief patron of science, he was also and equally its chief cultivator and extender. He gave to it not only his name, his influence, and his fortune, but his whole time, faculties, and exertions.

There is still one distinguished name connected with the more recent history of physical science in our own country, which we must not omit under our present head;—we mean that of the late HENRY CAVENDISH. Mr. Cavendish was the son of Lord Charles Cavendish, brother of the third Duke of Devonshire, and was born in 1731. He was sent, when young, to a school, then of some celebrity, at Hackney, and afterwards went to Cambridge; but it is believed that he derived his taste for science chiefly from his father, who was not only in the habit of amusing himself with philosophical experiments, but was a good mathematician, and is the author of some determinations with regard to the phenomena of the barometer, of considerable value and importance. Lord Charles Cavendish died at the age of eighty, in the year 1783, at which time he was the senior member of the Royal Society. His son had early shewn an attachment to scientific pursuits, to which, indeed, he had resolved to dedicate his life, and to sacrifice every other object of ambition, at a time when he had but the prospect of a very moderate patrimony. It was only after he had passed his fortieth year that he came into the possession of his large fortune, which was unexpectedly left him by an uncle. He was admitted a Fellow of the Royal Society in 1760, and very soon began to distinguish

himself as one of the most active members of that learned body. We cannot here attempt any detailed analysis of the papers with which he continued to enrich the Transactions for a period of nearly fifty years; suffice it to say, that they range over various departments of natural philosophy and chemistry, and are marked throughout by an accuracy, elegance, and often an originality of investigation, which make them models of scientific research and reasoning. Indeed, there are but few names of the last or present age, belonging to the departments which he cultivated, that are entitled to take precedence of that of Mr. Cavendish. Not to mention his important contributions to the theory of electricity, some of his experiments and determinations in pneumatic chemistry may be fairly ranked among the most brilliant discoveries of modern times. What is there, for example, more calculated to interest and astonish even the unscientific mind than his discovery of the composition of water—so long regarded by all as a perfectly simple element, if there was any such in nature? The manner, too, in which he made this discovery affords us a beautiful and instructive example of the right method of examining nature,—of that cautious and scrutinizing observation by which alone truth is to be detected. The experiments which led to it were made in the year 1781. Before this, the celebrated Swedish chemist, Scheele, had found that on mixing together and setting on fire certain proportions of oxygen gas, or that which forms the principal part of the atmosphere, and hydrogen, or, as it was then called, inflammable air, an explosion was produced, in which, as he imagined, the two elements were dissipated. Cavendish, however, in repeating the experiment, took care to provide himself with the means of watching the phenomena with more precision. For this purpose he ascertained the

weight of his two gases previous to their combination, and set them on fire in a close vessel, which was perfectly dry. The result was, that, after the explosion, a deposit remained in the vessel, which was found on examination to be water, and to be exactly equal in weight to the two gases. This experiment has since been repeated on a larger scale, with the same result; and water, on the other hand, has been decomposed into oxygen and hydrogen.

The great caution with which Mr. Cavendish conducted his inquiries was one of the most distinguishing characteristics of his method of procedure. To whatever subject he gave his attention, he examined it thoroughly. What we have just stated is well calculated to shew the value of such a habit in philosophy; for this great discovery, of itself enough to immortalize his name, would have eluded him as it had done Scheele, if he had not watched the experiment which revealed it more narrowly than that chemist. But it was not in this case only that the result of his investigations richly rewarded the care and circumspection with which they had been prosecuted. The patience with which he used to review and weigh all the circumstances of the case to be resolved, has given a perfection to whatever he has done, from which as much benefit has resulted to the interests of science as to his own fame; for, instead of merely vague and imperfect indications, or hypotheses consisting half of truth and half of error; he has in this way bequeathed to philosophy, either completed discoveries, or investigations in which, so far as they go at least, there is no fallacy. He never, it has been remarked, advanced anything in any of his papers which he had afterwards to retract.

Although experimental science was Mr. Cavendish's favourite pursuit, and that on his success in which his fame rests, his stores of information upon other

subjects were known to his friends to be various and extensive. Indeed, he spent his life, if any man ever did, in the pursuit of knowledge, making it his only amusement, as well as his only business. The simple and inexpensive habits of life which he had formed in his earlier years underwent no change on his coming into possession of his large fortune. He had accustomed himself from his youth to the utmost regularity in all his movements; and his practice in this respect, to his last days, nothing was ever sufficient to derange. What might be called his public scene was the Royal Society, the meetings of which he attended punctually as long as his strength permitted. With this exception, he was but little seen abroad; and, perhaps, the seclusion in which he lived made his name less popularly known in his own country than it would otherwise have been, notwithstanding his eminent merits. His fame, however, was more than British—it was European. On the Continent, where he was regarded without reference to his private habits, and only as the author of many admirable scientific disquisitions and of some great discoveries, his name stood very high. The chief men of science in France gave the strongest proof of the estimation in which they held him, when, in 1803, they elected him one of the eight Foreign Associates of the Institute.

One valuable service which Mr. Cavendish's wealth enabled him to render to the students of science and literature of his time, was the establishment of an extensive library, which, with great liberality and public spirit, he threw open for the accommodation both of his friends and of all other persons engaged in intellectual pursuits who were properly recommended to him—allowing them not only to consult the books, but to carry them home. In the use of this privilege he made no distinction between

himself and the others whom he admitted to share it with him. When he wanted a book for his own perusal, the same application for it was made to the librarian, and the same receipt given for it, as if it had been borrowed by any other reader. Towards the close of his life, after the death of the person who had been accustomed to take charge of the collection, he even used to attend himself on a certain day of every week to give out the books to applicants.

This eminent person died in 1810, full of years and honours. Even in his last moments something of his love of watching and scrutinizing the phenomena of nature shewed itself; he insisted upon being left to die alone, apparently that he might be able to observe the symptoms of approaching dissolution with the more undisturbed attention. Accordingly, when his servant, whom he had sent out of the room, returned sooner than he had desired, he immediately ordered him again to retire; and when the man came back the second time, he found that his master had breathed his last. In his attachment to philosophy, Mr. Cavendish was all his life so independent of other sources of pleasure, that his fortune, rather possessed than enjoyed, and not expended in the maintenance of any of the show and luxury in which a large revenue usually dissipates itself, had accumulated so greatly, that at the time of his death it is said to have amounted to twelve hundred thousand pounds. He may well be described, therefore, to have been, as a French writer has quaintly expressed it, the richest of all the learned of his time, as well as probably the most learned of all the rich*.

* M. Biot, in *Biographie Univ.* vii. 456.

CHAPTER V.

Other Individuals of rank distinguished in Literature and Science—Marquis of Worcester, &c. Self-educated cultivators of Science—Parke; Davy.

THE preceding notices are abundantly sufficient to prove both how frequently men of wealth and rank have resisted all other allurements, to devote themselves to intellectual pursuits, and how many important contributions such persons have been enabled to make to literature, science, and the arts. Yet it would be very easy to add to the list we have given, from a very cursory survey of the history of improvements and discoveries. Thus, to confine ourselves to the arts and sciences only, we might mention, among our own countrymen, the celebrated MARQUIS OF WORCESTER, author of the *Hundred Inventions*, among which we find the first suggestion of the steam engine; his contemporary, Viscount Brouncker, the first President of the Royal Society, and noted as the perfecter of the theory of fractional arithmetic; the Earl of Macclesfield, to whom we are principally indebted for the reformation of the calendar, and the introduction of the new style in England; the late Lord Stanhope, the inventor of the printing press known by his name, as well as of many other most ingenious and valuable contrivances;—and various others, all memorable either as inventors, or as the authors of some decided step in the progress of improvement. Among foreigners, too, Prince Rupert, as already noticed, has been considered the discoverer of the art of mezzotinto engraving. Baron

Hermelin, a nobleman of Sweden, who died in 1820, was the father of the modern and greatly improved system of working the mines of that country, which he expended many years of exertion and large sums of money in introducing and establishing. The modern art of fortification is the creation of the French Marshal VAUBAN, a man of rank and wealth, who, although he spent his life as a soldier, found leisure to write numerous works, which have been printed, as well as twelve large volumes in manuscript which he left behind him, entitled "*Mes Oisivetés*,"—*My Idle Hours*. The most elaborate and splendid, though not the most correct work on Natural History that was ever written, and the one which, with all its errors, has, perhaps, more than any other, contributed to spread a taste for that science, was the production of another French nobleman, the celebrated Count de BUFFON. A German nobleman, the Baron von CANSTEIN, is noted for having discovered and practised at Halle, in the beginning of the last century, a new mode of printing, which appears to have been the same with that now called stereotype. This invention is singular for its vicissitudes of notoriety and oblivion. The Chinese have had a long acquaintance with the art of printing from blocks or plates, instead of moveable types, and among them it is to this day the only method in use. It was probably also the first form which the art of printing assumed in Europe,—was then forgotten for many years till it was revived in the middle of the sixteenth century at Augsburg, where some of the plates that were used for the purpose are still preserved,—was again introduced at Leyden about half a century later,—was a few years after re-invented by Canstein,—was practised at Edinburgh in 1744 by William Ged, who was the ignorant of what had been done by his predecessors,—and lastly, after his attempts had ceased to

be remembered, was taken up anew by the late ingenious Dr. Alexander Tilloch and Fowlis, the Glasgow printer, who, however, did little more than merely take out a patent for what they deemed their discovery. And even now, after it has been practised on a larger scale than ever, it does not appear to be gaining ground in general estimation, principally from its inapplicability to works which require improvement in successive editions. If such works are largely corrected, the saving in the plates is in a great degree lost. If that saving is principally regarded, and antiquated opinions or positive errors are multiplied through a paltry economy, the invention is a positive incumbrance to learning, and is therefore of little worth. Unquestionably the proper range of its application is very limited.

It ought to be observed, that the several block or plate-printers we have mentioned did not all pursue the same method. Faust, for instance, on the invention of printing, employed merely wooden blocks, such as are used by the Chinese, on which the characters were cut out, as is done still in wood-engraving; the Augsburg printers appear to have set up their types in the usual manner, and then to have converted them into a solid plate by pouring melted metal upon the back of the congeries; and the present method, as is well known, is, after having set up the types, to take an impression from them in plaster of Paris, or some other composition, and to cast or found the plate in this as a mould. It does not very clearly appear what was the plan which Canstein followed; but it is known that he printed a great many volumes, and sold them very cheap. A copy of the New Testament, for instance, he used to sell for fourpence; but, as he was very pious, it is not improbable that he distributed the Scriptures at less even than the cost price, which his fortune enabled

him to do. It is said that it was while endeavouring to devise a cheap method of multiplying copies of the Bible for the use of the poor, that the notion of his invention suggested itself to him.

Most of the individuals we have here mentioned, who, born to rank and affluence, have devoted themselves to scientific pursuits, were enabled to accomplish what they did, in a great measure, from the peculiar advantages of their position, which afforded them both leisure for the prosecution and maturing of their several schemes, and money to expend on the necessary apparatus and experiments. This proves to how much profit the rich man may turn his fortunate external circumstances, even in the pursuit of knowledge, if he can only rouse himself to enter with earnestness upon that enterprize. But still the ambition of aspiring minds, left to struggle unassisted by such external aids, has achieved, after all, quite as great things as all the resources and immunities of what might be deemed the happiest worldly lot have ever given birth to. We now return to accompany, for a while, the onward steps of a few more of those courageous adventurers who have begun and carried on the work of mental cultivation, without heeding any combination of worldly disadvantages against which they might have to contend. We shall begin with the cases of one or two individuals so situated, who have distinguished themselves in that same field of experimental science in which we have just seen what Boyle and Cavendish achieved in their very opposite circumstances.

The first name we shall mention is that of one who has no claim, we believe, to any important discovery in the department which he cultivated, but whose literary works, nevertheless, as well as his history, abundantly testify him to have been a most ingenious and meritorious man. We speak of the late

Mr. SAMUEL PARKES, the well-known author of the "Chemical Catechism." Mr. Parkes, as we learn from a communication with which we have been favoured by his surviving daughter, was born in 1761, at Stourbridge, in Worcestershire, where his father was a small grocer. At five years of age he was sent to a preparatory school in his native town; and it is remembered that during the time of his attendance at this infant seminary, Mr. Kemble's company of itinerant players having visited Stourbridge and remained there for some months, that gentleman placed his daughter at the same school, the child who became afterwards the celebrated Mrs. Siddons. When ten years old, Parkes was sent to another school at Market-Harborough; but, after remaining here only a very short time, he was taken away and apprenticed to a grocer at Ross, in Herefordshire. This person happened to be a man of some education, and to be possessed of a few books, which he very kindly lent to his apprentice, and endeavoured to give him a taste for reading, but could not, it is said, gain much of his attention. It does not appear how long young Parkes continued in this situation; but at last his master failed, and he returned home to his father. We now hear no more of him till he had reached his thirty-second year, up to which time, it seems, he remained at home, assisting his father in the shop. It is probable, from the resources he afterwards displayed, that the foundation of many of his acquirements was laid during this interval. Perhaps he had also saved a little money; for he now went to Stoke-upon-Trent, began business on his own account as a soap-boiler, and married. The new line upon which he entered shews that he had been already directing his attention to practical chemistry. But, after persevering for ten years in this business, he met with so little success as to be obliged to give it up; and at the age of forty-two



he came up to London with no property in the world except ten pounds, which had been lent him by his father. It was hard enough to be obliged, as it were, to begin the world again at this time of life; but there was no help for it, and he set to work resolutely. Some friends whom he had made lent him a little assistance, and he began manufacturing muriatic acid for the use of dyers. It is very evident, that, although he had come to town without much money in his pocket, he had brought with him some useful knowledge—one fruit, at least, of the labours of his previous life, of which fortune had not been able to despoil him. This he now turned to excellent account. To his muriatic acid he soon added other chemical preparations, his skill in manufacturing which was not long in being generally appreciated, and eventually procured him a large trade and a high reputation.

Although Mr. Parkes had probably given considerable attention to some of the practical parts of chemistry before he came up to London, it was only after he had established himself in this last-mentioned line of business that he began to study the subject scientifically. At this time, as we have seen, he was above forty years of age—so that he may be quoted as another most encouraging example for those who have been prevented by any cause from commencing their studies till late in life. Notwithstanding the time he had lost, Mr. Parkes became eventually a most accomplished chemist, and gave to the world a succession of works relating to that science which, ever since their publication, have held the rank of text-books of high authority. The earliest of these was his “*Chemical Catechism*,” which first appeared in 1805, and of which twelve very large impressions have since been sold. It was translated, soon after its publication, into the German, French, Spanish,

and Russian languages; and in Spain and Germany it is the standard manual of instruction in the public schools. By the sale of this work alone the author realized 5000*l*. The Catechism was followed by another work, "The Rudiments of Chemistry;" and that by the "Chemical Essays," in five volumes. This last, in particular, of which a new edition has lately appeared, is an excellent performance, and strikingly shews the author's extensive acquaintance with his subject. Like their precursor, these two works were also translated into the principal continental languages, and obtained great popularity abroad, as well as in this country. Among other gratifying testimonies which the author received of the sense entertained of his labours, was a splendid ring presented to him, for his services to science, by the Emperor of Russia.

One of the chief merits of the elementary works published by Mr. Parkes, and what must doubtless more than anything else have helped to make them popular, lies in this; that in all his explanations the author begins at the beginning, and nowhere assumes any information necessary for understanding the subject to exist in the mind of the reader beyond what he has himself communicated. It might seem, at first sight, as if this were a part of the art of teaching of no very difficult attainment. Yet, the fact is, that it is a secret of which very few writers have made themselves masters. In general, the person who resorts to a professedly elementary treatise, in order to study any branch of science of which he previously knows nothing, finds himself stopped before he has gone very far, by the author paying him the very inconvenient compliment of addressing him as if he were familiar with many things of which he is quite ignorant. Hence, more than on any other account, the uselessness, or at least the insufficiency, of the

greater number of such works for the end which they are intended to serve. They almost always suppose the reader to know, before he opens them, no inconsiderable part of the very mystery which they profess to teach. It sometimes, no doubt, happens that the reader does accidentally possess this requisite preliminary information; and then (though no thanks to the author) he will make his way through the book without being inconvenienced by its deficiencies. In other cases he may have sufficient ingenuity to deduce from what is stated some conjecture more or less vague as to what is passed over, and in this way may be enabled to proceed in his perusal without finding himself absolutely in the dark. But his progress, so conducted, is not only slow, unsatisfactory, and painful, compared to what it might be, but is likely besides to leave him at last only half-informed or misinformed as to many things which he supposes himself to know. Perhaps, the best way of employing books of the description to which we allude—when no better are to be had—is for the student to provide himself with two or more at the same time upon the subject of which he wishes to make himself master; so that when he finds one deficient or unintelligible, he may have a chance of finding an interpreter in another. This is a method which has sometimes been successfully followed by persons who have been obliged to be their own instructors, after every attempt to understand the science, or other branch of education, which it was desired to learn, by the assistance of a single author, had proved a failure; and we recommend it to others similarly situated. The probability is, that of two writers, each of whom at times expresses himself obscurely, the one will not always or usually fall into that fault in regard to exactly the same matters at the other; and, therefore, though either alone might be an ina-

dequate instructor, the two together may shed sufficient light on the subject. Besides, of two or more ways of presenting or illustrating the same truth, one mind is most readily reached by one, and another by another; so that, even when no absolute insufficiency can fairly be complained of in either treatise, the two are still better than one. The force of this last consideration has induced some popular writers of elementary works to state the more difficult parts of their subject in a variety of ways, for the sake of more surely impressing them upon the various minds, or moods of mind, they may chance to address; and the practice, when followed judiciously, and so as not to overload the book with unnecessary repetitions, a course which only fatigues the reader and distracts his attention, is one which may be made greatly to contribute to the clear and effective exposition of the author's meaning.

It may seem strange that so many writers should have failed in the observance of a rule of elementary explanation apparently so simple and easy as that in question. What less difficult, it may be said, or even more natural, than, in expounding any subject to a mind which is supposed to be ignorant of its first principles, to state every thing with a recollection of, and in accommodation to, that ignorance? It is only, in the first place, to draw forth the introductory statements from sufficiently familiar instances, and then, in pursuing the line of deduction or demonstration, to advance from one thing to another by sufficiently short steps. But even to do this requires no common degree of attention, patience, and skill. It is true that all science, even the highest and most recondite, is deducible from the facts or feelings of ordinary life; but it often happens that a proficient in a particular science has never viewed it in this connexion. The manner in which he was himself taught it did not lead

him to do so. He was probably carried through what were called its principles, by an exercise of his faith rather than of his reason; and left to gather a full understanding of them, not so much from what he knew of their foundations before as from what he was to see of their application afterwards. He was like a man entering a half-darkened apartment, to whom everything is at first invisible, and who is indebted for the measure of discernment which at last enables him in some sort to distinguish objects, not to any additional light which is thrown upon them from without, but to the expansion of eye which the dimness itself occasions. It may happen that, in the progress of his studies, his partial acquaintance with one part of the subject has so much aided his partial acquaintance with another part, that he has at last attained to a tolerably clear notion of the whole. But still it remains in his head an insulated system of propositions, altogether withdrawn and separated from those truths of ordinary experience out of which, nevertheless, it has wholly sprung. When a person, therefore, who has acquired his knowledge in this manner, sits down to write an elementary book, he will be very apt to overlook that connexion between scientific and common truths to which his own attention has never been called. He will begin his treatise, not by a reference to something which is understood by every body, but by an announcement so far ahead of everything of this kind, that its meaning is likely to be nearly imperceptible to all except those who have already some acquaintance with the still more remote matters to which it is intended to lead. And his subsequent deductions will all be apt to be characterised by the same absence of the simple and the natural, proceeding as they do from a mind which did not acquire its own knowledge of the subject from

contemplating it in its simplest and most natural aspect.

Now, a self-educated man, when he attempts to explain to others what he has himself learned, is much less likely to fall into this error of manner. His own earliest acquaintance with science was probably made by the aid of that unscientific knowledge which common observation teaches every man; and having no master to supply the deficiencies of his books, he must have felt painfully the inconvenience of their omissions and obscurities. Hence, in his own performances, springs a method and style of address in all respects better suited to readers circumstanced as he himself was. He knows, from his own experience, what the difficulties of such readers are, and is therefore both the more solicitous and the better qualified to provide against them. In making his first approach to the science, he does it through the avenue of certain common and simple facts, calculated to carry with them the apprehension and assent of all; his references are frequent throughout the work to considerations of this class, which are always a valuable excitement and help to the mind; and his progress from one statement to another is marked by a happy skill in so selecting and arranging the intermediate points of notice, or, as we may express it, choosing his steps, as to arrive at the ultimate object at once by the easiest and the shortest road. For it is of importance to remark, that the secret of this art of perspicuous explanation does not lie so much in an exuberant minuteness of detail, which leaves no particular whatever unstated, as in bringing out from the group, and fixing the chief attention on, those comparatively few particulars which, being themselves apprehended, suggest and supply the rest. A prolix and indiscriminating enumeration of all the items of

the case is rather adverse to a clear and effective exposition, tending as it does both to weary and confuse the mind. To make the description what it should be, nothing needful should be omitted, and there should be nothing superfluous.

The elementary treatises of Mr. Parkes possess, as we have said, a good deal of this sort of merit, and owe to that circumstance much of their popularity and usefulness. Those of Fergusson, another self-educated individual, display the same excellence in a still greater degree, and have always, accordingly, been favourites of those students of science who, like the writer, have been their own instructors. We may here observe, however, that the advantages of the question and answer method pursued in the "Chemical Catechism" may reasonably be doubted. Where the composition assumes the form of a dialogue or conversation, in which two or more speakers are made, as it were, to examine or discuss the subject, one proposing his doubts or difficulties, which another meets and solves by the proper reasons and explanations, as well exemplified, for instance, in some of Mrs. Marcet's treatises, the meaning and convenience of so breaking down the statements are sufficiently obvious. The attention of young readers especially is, perhaps, better kept alive by such an intermixture of the dramatic; and the artifice is also an ingenious one for enabling the author to notice and correct, in the most natural manner, the various misapprehensions into which the mind is apt to fall on first attempting to make acquaintance with a new subject. But neither of these purposes seems to be, in any degree, answered by merely introducing every sentence or short paragraph throughout the work with a formal interrogatory. Even in a mere school-book, the pupil's ingenuity is best exercised, and his understanding of what he reads most effec-

tually ensured, by the questions he should be able to answer being left to be put to him by his teacher, and the answers themselves to be given in his own words. The other plan would seem to be calculated only to assist the pupil in learning his task by rote.

Mr. Parkes, in his latter and more prosperous days, used often to dwell with pleasure on his struggles in early life, and naturally felt proud of relating the hardships he had surmounted by his own industry. The success of the different works he published gave him, as might be supposed, the highest gratification. In addition to the literary performances which we have already mentioned, we ought to notice two pamphlets which he gave to the public in the years 1817 and 1819, in support of the attempt then making, and which was eventually successful, to obtain a repeal of the salt duties. He was one of the most active of the persons who stirred in this matter, anticipating, as it has been already noticed that the celebrated inventor of the Logarithms appears to have done, great advantages to agriculture from the use of salt as a manure. Engaged, as he was, in the management of an extensive chemical manufactory, which required unremitting attention, his hours of literary labour were those which he stole from repose or from the time which most men give to relaxation and amusement. Yet, besides the different books which, in the course of a few years, he published in his own name, he wrote also numerous papers for the different scientific periodical works of the day. As another evidence, too, of his punctuality and indefatigable industry, it may be mentioned that he had, from an early age, been in the habit of keeping a regular diary of every action of his life, and never retired to bed till he had committed to writing the events of the day. This, and all his other industrious habits, he kept up to the last; and, even up to

within a few days of his death, although he had long been suffering under a painful disease, his attention to business, and especially to his scientific pursuits, continued unrelaxed. He closed his valuable and active life on the 23rd of December, 1825, in the sixty-fifth year of his age.

Neither the acquisition of knowledge, nor that of wealth, then, need be despaired of even by those who have not succeeded in accumulating much of either after a large portion of life has been spent, provided they still resolve to exercise industry and perseverance during the remainder of it. These virtues seldom fail to obtain their natural recompense at last; although, in some cases, they may have to struggle for a long time with circumstances very unfavourable to success. A man is sometimes so unfortunately placed, so jammed in and hand-bound by the pressure of an unpropitious lot, that, with his best efforts, it is long before he can extricate himself and obtain even a fair opportunity of exerting what powers he may possess. This seems to have been the case with Parkes for the first forty years of his life. In the popular phrase, fortune was set against him; he either had no means of engaging in any likely line of well-doing, or whatever he attempted turned out unsuccessful. But, in such a shifting scene as this world is, it can rarely happen that a man shall, during the whole of his life-time, have the blast against him. As the poet expresses it, "there is a *tide* in the affairs of men,"—an ebbing and flowing of the unstable element on which they are borne,—and if this be only "taken at the flood," the "full sea" is gained on which "the voyage of their life" may be made with ease and the prospect of a happy issue. It is only those, however, who are constantly on the watch for it that will be prepared to seize the lucky moment

when it comes ; in other words, nothing but the cultivation and continued exercise of habits of industry and perseverance, even while they bring but small or no immediate return, will enable a man to benefit by the most favourable opportunities when they at last present themselves. To the habitually indolent and thoughtless it is the same as if the tide never were at flood at all—for they are sure to miss it when it is. Parkes spent nearly two-thirds of his life in contending with difficulties, which baffled all his attempts to overcome them ; and others may, sometimes, be for as long a period equally unfortunate. Let such be taught, by his history, that their sky may yet brighten ; and, by his example, how to take advantage of it when it does. The space of life that remained to him after his more prosperous career began was comparatively short : but it was long enough to enable him, while he gave the most assiduous attention to business, not only to acquire much knowledge himself, but also to contribute largely to its diffusion in his own and other countries ; and to secure, by his literary works, a highly respectable place among the scientific writers of the time.

But the annals of modern Chemistry supply us with a much more splendid name among the self-taught cultivators of the science. The discoveries of all his predecessors have been, in our own day, surpassed in brilliancy by those of Sir HUMPHREY DAVY. Davy was born in 1778, at Penzance, in Cornwall. His father followed the profession of a carver in wood in that town, where many of his performances are still to be seen in the houses of the inhabitants. All that we are told of Davy's school education is, that he was taught the rudiments of classical learning at a seminary in Truro. He was then placed by his father with an apothecary and

surgeon in his native place. But, instead of attending to his profession, he spent his time either in rambling about the country or in experimenting in his master's garret, sometimes to the no small danger of the whole establishment; and the doctor and he at last agreed to part. About his fifteenth year he was placed as pupil with another surgeon residing in Penzance; but it does not appear that his second master had much more success than his first in attempting to give him a liking for the medical profession. The future philosopher, however, had already begun to devote himself, of his own accord, to those sciences in which he afterwards so greatly distinguished himself; and proceeding upon a plan of study which he had laid down for himself, he had, by the time he was eighteen, obtained a thorough knowledge of the rudiments of natural philosophy and chemistry, as well as made some proficiency in botany, anatomy, and geometry. The subject of metaphysics, it is stated, was also embraced in his reading at this period.

But chemistry was the science to which, of all others, he gave himself with the greatest ardour; and, even in this early stage of his researches, he seems to have looked forward to fame from his labours in this department. The writer of the memoir of Sir Humphrey to which we are indebted for these particulars*, quotes an exclamation which broke from him one day in after-life, when contemplating, along with a friend, a picture of one of the mines of his native district, which shews what were the visions of his solitary rambles. "How often, when a boy," said he, "have I wandered about those rocks in search after new minerals, and, when tired, sat down upon those crags, and exercised my fancy in anticipations of future renown!"

* Originally published in the "Spectator" newspaper.

The peculiar features of this part of the country doubtless contributed not a little to give his genius the direction it took. The mineral riches concealed under the soil formed alone a world of curious investigation. The rocky coast presented a geological study of inexhaustible interest. Even the various productions cast ashore by the sea were continually affording new materials of examination to his inquisitive and reflecting mind. The first original experiment, it is related, in which he engaged, had for its object to ascertain the nature of the air contained in the bladders of sea-weed. At this time he had no other laboratory than what he contrived to furnish for himself, by the assistance of his master's phials and gallipots, the pots and pans used in the kitchen, and such other utensils as accident threw in his way. These he converted, with great ingenuity, to his own purposes. On one occasion, however, he accounted himself particularly fortunate in a prize which he made. This was a case of surgical instruments with which he was presented by the surgeon of a French vessel that had been wrecked on the coast, to whom he had done some kind offices. Examining his treasure with eagerness, Davy soon perceived the valuable aid he might derive in his philosophical experiments from some of the articles; and one of the principal of them was, in no long time, converted into a tolerable air-pump. The proper use of the instruments was, of course, as little thought of by their new possessor as that of his master's gallipots was wont to be when he had got them up to his garret. Davy's subsequent success as an experimentalist, it is well remarked by the writer to whom we have referred above, was probably owing, in no small degree, to the necessity he was placed under in his earliest researches of exercising his skill and ingenuity in this fashion. "Had he,"

proceeds his biographer, "in the commencement of his career, been furnished with all those appliances which he enjoyed at a later period, it is more than probable that he might never have acquired that wonderful tact of manipulation, that ability of suggesting expedients, and of contriving apparatus so as to meet and surmount the difficulties which must constantly arise during the progress of the philosopher through the unbeaten tracks and unexplored regions of science. In this art Davy certainly stands unrivalled; and, like his prototype, Scheele, he was unquestionably indebted for his address to the circumstances which have been alluded to: there never, perhaps, was a more striking exemplification of the adage, that necessity is the parent of invention."

A curious catalogue might be made of the shifts to which ingenious students in different departments of art have resorted, when, like Davy, they have wanted the proper instruments for carrying on their inquiries or experiments. His is not the first case in which the stores of an apothecary's shop are recorded to have fed the enthusiasm and materially assisted the labours of the young cultivator of natural science. The German chemist, Scheele, who has just been mentioned, and whose name ranks in his own department with the greatest of his time, was, as well as Davy, apprenticed in early life to an apothecary. While living in his master's house he used secretly to prosecute the study of his favourite science by employing often half the night in reading the works that treated of it, or making experiments with instruments fabricated, as Davy's were, by himself, and out of equally simple materials. Like the young British philosopher, too, Scheele is recorded to have sometimes alarmed the whole household by his detonations;—an incident which always brought down upon him the severe anger of his master, and heavy

menaces intended to deter him from ever again applying himself to such dangerous studies, which, however, he did not long regard. It was at an apothecary's house, as has been noticed in a former page, that Boyle and his Oxford friends first held their scientific meetings, induced, as we are expressly told, by the opportunity they would thus have of obtaining drugs wherewith to make their experiments. Newton lodged with an apothecary, while at school, in the town of Grantham; and as, even at that early age, he is known to have been ardently devoted to scientific contrivances and experiments, and to have been in the habit of converting all sorts of articles into auxiliaries in his favourite pursuits, it is not probable that the various strange preparations which filled the shelves and boxes of his landlord's shop would escape his curious examination. Although Newton's glory chiefly depends upon his discoveries in abstract and mechanical science, some of his speculations, and especially some of his writings on the subjects of light and colour, shew that the internal constitution of matter and its chemical properties had also much occupied his thoughts. Thus, too, in other departments, genius has found its sufficient materials and instruments in the humblest and most common articles, and the simplest contrivances. Fergussou observed the places of the stars by means of a thread with a few beads strung on it, and Tycho Brahe did the same thing with a pair of compasses. The self-taught American philosopher, Rittenhouse, being, when a young man, employed as an agricultural labourer, used to draw geometrical diagrams on his plough, and study them as he turned up the furrow. Pascal, when a mere boy, made himself master of many of the elementary propositions of geometry, without the assistance of any master, by tracing the figures on the floor of his room with a

bit of coal. This, or a stick burned at the end, has often been the young painter's first pencil, while the smoothest and whitest wall he could find supplied the place of a canvas. Such, for example, were the commencing essays of the early Tuscan artist, Andrea del Castagno, who employed his leisure in this manner when he was a little boy tending cattle, till his performances at last attracted the notice of one of the Medici family, who placed him under a proper master. The famous Salvator Rosa first displayed his genius for design in the same manner. To these instances may be added that of the late English musical composer Mr. John Davy, who is said, when only six years old, to have begun the study and practice of his art by imitating the chimes of a neighbouring church with eight horse-shoes, which he suspended by strings from the ceiling of a room in such a manner as to form an octave*.

But to return to the subject of our notice. Davy first pursued his chemical studies, without teacher or guide, in the manner that has been described, and aided only by the scantiest and rudest apparatus. When still a lad, however, he was fortunate in making the acquaintance of Mr. Gregory Watt, the son of the celebrated James Watt. This gentleman, having come to reside at Penzance for the recovery of his health, lodged with Mrs. Davy, and soon discovered the talent of her son. The scientific knowledge of Mr. Watt gave an accurate direction to the

* There is an excellent little work by a German writer, Campe, entitled *The New Robinson*, which, in an account of the various expedients supposed to be resorted to by a young seaman cast ashore on an uninhabited island, and obliged to provide for himself sustenance and shelter by the aid merely of such implements as he could fashion by his own ingenuity, presents a very interesting picture of the manner in which many of the ordinary processes of mechanical art might be performed without the ordinary tools. The work has been translated into English.

studies of the young chemist, and excited him to a systematic perseverance in his favourite pursuit. Chance attracted to him the notice of Mr. Davies Giddy (now Mr. Gilbert, and President of the Royal Society), which the discovery of his merits soon improved into patronage and friendship. The boy, we are told, was leaning on the gate of his father's house when Mr. Gilbert passed accompanied by some friends, one of whom remarked that there was young Davy, who was so much attached to chemistry. The mention of chemistry immediately fixed Mr. Gilbert's attention; he entered into conversation with the young man, and, speedily becoming convinced of his extraordinary talents and acquirements, offered him the use of his library, and whatever other assistance he might require for the pursuit of his studies. Mr. Gilbert and Mr. Watt soon after this introduced Davy to the celebrated Dr. Beddoes, who had just established at Bristol what he called his Pneumatic Institution, for investigating the medical properties of the different gases. Davy, who was now in his nineteenth year, had for some time been thinking of proceeding to Edinburgh, in order to pursue a regular course of medical education; but Dr. Beddoes, who had been greatly struck by different proofs he had given of his talents, and especially by an essay in which he propounded an original theory of light and heat, having offered him the superintendence of his new institution, he at once closed with that proposal.

The young philosopher was now fairly entered on his proper path, and, from this period, we may consider him as having escaped from the disadvantages of his early lot. But it was while yet poor and unknown that he had made those acquirements which both obtained for him the notice of his present patrons, and fitted him for the situation in which they placed.

him. His having attracted the attention of Mr. Gilbert, as he stood at his father's gate, may be called a fortunate incident; but it was one that never would have happened had it not been for the proficiency he had already made in science by his own endeavours. Chance may be said to have offered this opportunity of emerging from obscurity; but, had he not previously laboured in the cultivation of his mind as he had done, it would to him have been no opportunity at all.

The experiments conducted by Davy, and under his direction, at the Bristol Institution, were soon rewarded by important results; and of these, Davy, when he had just completed his twenty-first year, published an account, under the title of "Researches, Chemical and Philosophical, chiefly concerning Nitrous Oxide, and its respiration." In this publication the singularly intoxicating effects produced by the breathing of nitrous oxide were first announced, and it excited a considerable sensation in the scientific world, and at once made Davy generally known, as a most ingenious and philosophic experimentalist. He was, in consequence, soon after its appearance, invited to fill the chemical chair of the Royal Institution, then newly established. When he commenced his lectures here, he was scarcely twenty-two years of age; but never was success in such an attempt more decided and brilliant. He soon saw his lecture-rooms crowded, day after day, by all that was most distinguished in the rank and intellect of the metropolis; and his striking and beautiful elucidations of every subject that came under his review, rivetted, often even to breathlessness, the attention of his splendid auditory. The year after his appointment to this situation he was elected also Professor of Chemistry to the Board of Agriculture; and he greatly distinguished himself by the lectures which,

for ten successive sessions, he delivered in this character. They were published in 1813 at the request of the Board. In 1803, when only in his twenty-fifth year, Davy was elected a Fellow of the Royal Society, and his contributions to the Transactions, from this time till his death, were frequent, and of the highest value. In 1806 he was chosen to deliver the Bakerian lecture before the Society; and he performed the same task for several successive years. Many of his most brilliant discoveries were announced in these discourses. In 1812 he received the honour of knighthood from the Prince Regent, being the first person on whom his Royal Highness conferred that dignity: and two days after he married a lady who brought him a considerable fortune. Next year he was elected a corresponding member of the French Institute. He was created a baronet in 1818. In 1820 he was chosen a foreign associate of the Royal Academy of Sciences at Paris, on the death of the illustrious Watt. He had been for some time secretary to the Royal Society; and in 1820, on the death of Sir Joseph Banks, he was, by a unanimous vote, raised to the Presidency of that learned body—an office which he held till he was obliged to retire, from ill health, in 1827, when his friend and first patron, the present President, was chosen to succeed him. Little, we may suppose, did either of the two anticipate, when they first met, thirty years before, at the gate of Davy's father's house, that they would thus stand successively, and in this order, at the head of the most distinguished scientific association in England.

It is impossible for us in this place to attempt any thing more than the most general sketch of Sir Humphrey Davy's numerous and most important discoveries in chemical science. Even his earliest publication, the title of which we have already tran-

scribed, was regarded as, for the first time, introducing light and order into an interesting department of the science,—the theory of the various combinations of oxygen and nitrogen, the two gases which, mixed together in certain proportions, form our common atmospheric air, but in other proportions produce compounds of an altogether dissimilar character. The first memoir by Davy which was read before the Royal Society was presented by him in 1801, before he was a member. It announced a new theory, which is now generally received, of the galvanic influence, or the extraordinary effect produced by two metals in contact with each other, when applied to the muscle even of a dead animal, which the Italian professor, Galvani, had some years before accidentally discovered. It was supposed, both by Galvani and his countryman Volta, who also distinguished himself in the investigation of this curious subject, that the effect in question was an electrical phenomenon—whence galvanism used to be called animal electricity; but Davy shewed, by many ingenious experiments, that, in order to produce it, the metals in fact underwent certain chemical changes. Indeed, he proved that the effect followed when only one metal was employed, provided the requisite chemical change was by any means brought about on it, as, for example, by the interposition between two plates of it, of a fluid calculated to act upon its surface in a certain manner. In his Bakerian lecture for 1806, he carried the examination of this subject to a much greater length, and astonished the scientific world by the announcement of a multitude of the most extraordinary results, from the application of the galvanic energy to the composition and decomposition of various chemical substances. From these experiments he arrived at the conclusion, that the power called chemical affi-

nity was, in truth, identical with that of electricity. Hence the creation of a new science, now commonly known by the name of Electro-Chemistry, being that which regards the supposed action of electricity in the production of chemical changes. The discourse in which these discoveries were unfolded was crowned by the French Institute with their first prize, by a decision which reflects immortal honour upon that illustrious body; who thus forgot not only all feelings of national jealousy; but even the peculiar and extraordinary hostility produced by the war which then raged between the two countries, in their admiration of genius and their zeal for the interests of philosophy.

But the results which this great chemist had already obtained only formed, in his hands, the source of new discoveries. In the interesting and extraordinary nature of its announcements, the Bakerian lecture of 1807 was as splendid a production as that of the former year. There are certain substances, as the reader is aware, known in chemistry by the name of alkalis, of which potash and soda are the principal. These substances, chemists had hitherto in vain exhausted their ingenuity, and the resources of their art, in endeavouring to decompose. The only substance possessing alkaline properties, the composition of which had been ascertained, was ammonia, which is a gas, and is therefore called volatile alkali; and this having been found to be a compound of certain proportions of hydrogen and nitrogen, an opinion generally prevailed that hydrogen would be found to be also a chief ingredient of the *fixed* alkalis. Davy determined, if possible, to ascertain this point, and engaged in the investigation with great hopes of success, from the surpassing powers of decomposition which he had found to belong to his new agent, the galvanic influence. The manner in which

he pursued this object is one of the most beautiful specimens of scientific investigation on record. One of the most important of the laws of galvanic decomposition, which he had previously discovered, was, that, when any substance was subjected to this species of action, its oxygen (an ingredient which nearly all substances contain) was developed at what is called the positive end or pole of the current of electricity, while, whenever any hydrogen or inflammable matter was present, it uniformly appeared at the opposite or negative pole. Proceeding upon this principle, therefore, Davy set to work with a fixed alkali; and at first submitted it dissolved in water to the galvanic action. The result, however, was, that the water alone was decomposed, nothing being disengaged by the experiment but oxygen and hydrogen, the ingredients of that fluid, which passed off as usual, the former at the positive, the latter at the negative pole. In his subsequent experiments, therefore, Davy proceeded without water, employing potash in a state of fusion; and, having guarded the process from every other disturbing cause that presented itself, by a variety of ingenious arrangements, he had at last the satisfaction of seeing the oxygen gas developed, as before, at the positively electrified surface of the alkali, while at the same time, on the other side, small globules of matter were disengaged, having all the appearances of a metal. The long agitated question was now determined; the base of the fixed alkalis was clearly metallic. To ascertain the qualities of the metallic residue which he had thus obtained from the potash, was Davy's next object. From its great attraction for oxygen, it almost immediately, when exposed to the atmosphere, became an alkali again, by uniting with that ingredient; and at first it seemed on this account hardly possible to obtain a

sufficient quantity of it for examination. But at last Davy thought of pouring over it a thin coating of the mineral fluid called naphtha, which both preserved it from communication with the air, and, being transparent, allowed it to be examined.

We have thus rapidly sketched the course of these brilliant and successful experiments, because they form a most interesting and instructive exemplification of the manner in which knowledge is pursued, and the secrets of nature extorted from her by well-directed interrogation. The business of philosophic experiment, it may be well to observe, is not a mere random expenditure of tests and applications: The true disciple of the inductive philosophy, on the contrary, has always in his contemplation, while conducting his experiments, an idea or end which he aims at realizing, and which, in fact, directs him to every experiment to which he resorts. Thus, in the present instance, the idea in Davy's mind was, that the alkali was compounded of two ingredients which had severally an attraction for the two opposite poles of the electric current. This idea he never lost sight of throughout the whole course of his experiments, though he repeatedly shifted his ground in regard to the contrivances by which he sought its proof and manifestation. To proceed in any other way would not be to philosophize, but merely, as it were, to dip the hand into the bag of chance in quest of a discovery, as men draw prizes at a lottery. It is true that, until the experiment has confirmed or refuted his expectations, this guiding idea upon which the experimenter proceeds must be regarded merely as a conjecture. But such a conjecture or hypothesis he must have in his mind, or he is in no condition to set about the inquisition of nature. What progress would the conductor of a trial in a court of justice be likely to make, in questioning a witness, without some pre-

vious notion of the truth which the evidence was likely to establish? He might waste the whole day in putting questions and receiving answers, and at last have ascertained nothing. Just as unprofitably would the interrogator of nature spend his time, if he had no directing anticipation in every case, according to which to order his experiments. Accident might, it is possible, throw a discovery in his way; but his own occupation would be evidently as idle and as little that of a philosopher as the rattling of a dice-box. *Whenever, indeed, a discovery is made without being anticipated, we say that it has been made by chance.* On the other hand, the history of all discoveries that have been arrived at by what can with any propriety be called philosophical investigation and induction, attests that necessity which has been asserted of the experimenter proceeding in the institution and management of his experiments upon a previous idea of the truth to be evolved. This previous idea is what is properly called a *hypothesis*, which means something *placed under* as a foundation or platform on which to institute and carry on the process of investigation. A *theory* is a completed view of a harmonious system of truths, evolved and proved by calculation or induction. As the latter is the necessary completion of every philosophical inquiry, so the former is its equally indispensable beginning. It is the aim in the mind of the philosopher, without which he cannot philosophize. It makes, in short, the main difference between the experiments of the philosopher in his laboratory, and those of the child among his play-things. Of course, however, every hypothesis must give way before an experiment the result of which cannot be reconciled with it. Newton*, in proceeding to investigate the system of the heavens, set out on the hypothesis that the same power of gravitation which made

* See vol. i, p.4.

a stone fall to the ground would be found to retain the moon and the planets in their orbits around the earth and the sun. The result of his first calculation was unfavourable to this supposition, and he at once abandoned it. We have here an example both of the use of an hypothesis, and of the proper limits of reliance on it. The grand discovery which eventually resulted from Newton's investigations affords us, again, an illustration of the manner in which an hypothesis serves to lead to, and originate a theory*.

The metal which Sir Humphrey Davy obtained from potash he called *Potassium*; and from soda he also, by a similar process, obtained another, which he called *Sodium*. Both these new metals he found to possess several curious properties, which, however, we cannot here stop to enumerate. He afterwards decomposed also the different earths, and shewed them to be all, as well as the alkalis, compounds of oxygen with a metallic base. But these important discoveries, which may be said to have revolutionized the science of chemistry, were not the only results which he obtained from his galvanic and electrical experiments. The interesting subject of the connexion between electricity and magnetism received considerable elucidation from his researches. For an account of his contributions to this branch of science, we must refer to the able memoir we have already mentioned, or to his papers on the magnetic phenomena produced by electricity, in the *Philosophical Transactions* †.

Meanwhile his attention had been attracted to another subject of the greatest practical importance—the possibility of preventing the destructive explosions

* See this subject admirably treated in the Preliminary Discourse to the *Encyclopedia Metropolitana*.

† *Philosophical Transactions* for 1819.

in coal-mines occasioned by the fire-damp, or inflammable gas, which is found in many parts of them. By a series of experiments, Davy found that this dangerous gas, which was known to be nothing more than the hydrogen of the chemists, had its explosive tendencies very much restrained by being mixed with a small quantity of carbonic acid and nitrogen, (the ingredient which, along with oxygen, forms atmospheric air); and that, moreover, if it did explode when so mixed, the explosion would not pass through apertures less than one-seventh of an inch in diameter. Proceeding, therefore, upon these ascertained facts, he contrived his celebrated *Safety Lamp*. It consists of a small light, fixed in a cylindrical vessel, which is every where air-tight, except in the bottom, which is formed of fine wire gauze; and in the upper part, where there is a chimney for carrying off the foul air. The air admitted through the gauze suffices to keep up the flame; which, in its combustion, produces enough of carbonic acid and nitrogen to prevent the fire-damp, when inflamed within the cylinder, from communicating the explosion to what is without. The heretofore destructive element, thus caught and detained, is therefore not only rendered harmless, but actually itself helps to furnish the miner with light, the whole of the interior of the cylinder being filled with a steady green flame, arising from the combustion of the hydrogen, which has been admitted to contact with the heat, but cannot carry back the inflammation it has received to the general volume without. Armed with this admirable protection, therefore, the miner advances without risk, and with sufficient light to enable him to work, into recesses which formerly he could not have dared to enter. The safety lamp has already been the means of saving many lives, and has enabled extensive mines,

or portions of mines, to be wrought, which but for its assistance must have remained unproductive*. The coal-owners of the northern districts invited Sir Humphrey, in 1817, to a public dinner, and presented him with a service of plate of the value of 2000*l.*, in testimony of what they felt to be the merit of this invention.

We will mention only another of this eminent individual's ingenious practical applications of those scientific truths with which he enriched the philosophy of his age. About the year 1823, the attention of the Commissioners of the Navy was so strongly excited to the fact of the rapid decay of the copper sheathings of ships when exposed to the action of the salt-water, that they applied to the Royal Society to take the subject into consideration, and endeavour to devise a remedy for the evil. On this occasion, Davy again had recourse to those principles of electro-chemistry, of which he had himself been the discoverer, and by the application of which he had already obtained so many brilliant results. One of the laws of electrical agency which he considered himself to have ascertained, was that two substances can only combine by what is called chemical affinity or attraction when they are in opposite electrical states,—that is to say, when the one is positively, and the other negatively, electrified. The copper and the water, therefore, he concluded, were naturally in these circumstances; and all that would be required, consequently, to prevent the action of the one upon the other, would be to change the electrical condition of that one of them, namely the copper, which it was possible to submit to the necessary treatment. He thought of various ways of effecting this object; but, at last, he determined to try the effect of merely placing a quantity of

* See Report of Committee of the House of Commons on the Coal Trade (1829).

zinc or iron in contact with the copper; the former metals being more positive than the latter, and therefore fitted by induction to repel a portion of its electricity, and so to render it negative like the water*. The result surpassed his expectations. So powerfully did the one metal act in reversing the electrical state of the other, that a bit of zinc or iron, no larger than a pea, was found sufficient to protect from corrosion forty or fifty square inches of copper. Nothing, therefore, could be more perfect than the success of this contrivance for the particular purpose it was intended to serve. But, unfortunately, it has been found by experience, that, although Davy's method completely answers for preventing the wasting of the copper, the sea-weeds and marine insects accumulate in such quantities upon the bottoms of ships so protected, that they become, after a short time, scarcely navigable. For the present, therefore, the use of the zinc and iron is of necessity abandoned. It is by no means improbable, however, that some expedient may be contrived for counteracting this consequence of the application of Davy's invention—in which case it will be entitled to rank as one of the most valuable discoveries ever made.

We have thus, guided chiefly by the Memoir of which mention has been made above, pursued the principal triumphs of Sir Humphry's splendid career, and described what he achieved, although cursorily and briefly, in such a manner, we trust, as to put even the unscientific reader in possession of a tolerably just view of the great discoveries on which his fame rests. In 1827, as we have already mentioned, his health had become so bad, that he found it necessary to resign the presidency of the Royal Society. Immediately after this he proceeded to the Continent. During his absence from England, he still continued

* See vol. i. p. 253.

to prosecute his chemical researches, the results of which he communicated in several papers to the Royal Society. He also, notwithstanding his increasing weakness and sufferings, employed his leisure in literary composition on other subjects, an evidence of which appeared in his "Salmonia," a treatise on fly-fishing, which he published in 1828. This little book is full of just and pleasing descriptions of some of the phenomena of nature, and is imbued with an amiable and contented spirit. His active mind, indeed, continued, it would seem, to exert itself to the last almost with as unwearied ardour as ever. Beside the volume we have just mentioned, another work, entitled "The Last Days of a Philosopher," which he also wrote during this period, has been given to the world since his death. He died at Geneva on the 30th of May 1829. He had only arrived in that city the day before; and having been attacked by apoplexy after he had gone to bed, expired at an early hour in the morning.

No better evidence can be desired than that we have in the history of Davy, that a long life is not necessary to enable an individual to make extraordinary advances in any intellectual pursuit to which he will devote himself with all his heart and strength. This eminent person was, indeed, early in the arena where he won his distinction; and the fact, as we have already remarked, is a proof how diligently he must have exercised his mental faculties during the few years that elapsed between his boyhood and his first appearance before the public, although, during this time, he had scarcely any one to guide his studies, or even to cheer him onward. Yet, notwithstanding that, he had taken his place, as we have seen, among the known chemists of the age almost before he was twenty-one, the whole of his brilliant career in that character, embracing so many experiments, so many

literary productions, and so many splendid and valuable discoveries, extended only over a space of not quite thirty years. He had not completed his fifty-first year when he died. Nor was Davy merely a man of science. His general acquirements were diversified and extensive. He was familiar with the principal continental languages, and wrote his own with an eloquence not usually found in scientific works. All his writings, indeed, shew the scholar, and the lover of elegant literature, as well as the ingenious and accomplished philosopher. It not unfrequently happens that able men, who have been their own instructors, and have chosen for themselves some one field of exertion in which the world acknowledges, and they themselves feel, their eminence, both disregard and despise all other sorts of knowledge and acquirement. This is pedantry in its most vulgar and offensive form; for it is not merely ignorant, but intolerant. It speaks highly in favour of the right constitution and the native power of Davy's understanding, that, educated as he was, he escaped every taint of this species of illiberality; and that while, like almost all those who have greatly distinguished themselves in the world of intellect, he selected and persevered in his one favourite path, he nevertheless revered wisdom and genius in all their manifestations.

CHAPTER VI.

Diversities of Intellectual Excellence :—Painters—Benjamin West.

THE ambition of intellectual excellence is, in truth, the same passion, by whichsoever of the many roads that lie open to it it may choose to pursue its object: The thing that is interesting and valuable is the purity and enduring strength of the passion. These are the qualities that make it both so inestimable in the possession, and so instructive in the exhibition. The mere department of study in which it displays itself is of inferior importance; for, even if it should be contended that, of the various pursuits which demand the highest degree of intellectual application and devotion, one is yet better calculated than another to promote by its results the general improvement or happiness of mankind, it will scarcely be argued that even those of inferior value in this respect should not also have their followers. The arrangements of providence, by forming men at first in different moulds, and placing them afterwards in different circumstances, regulate, doubtless with more wisdom and success than could be attained by any artifice of human polity, the distribution of taste, and talent, and enterprize, over the varied field of philosophy and art, no part of which is thus left altogether uncultivated. One man, from his original endowments, or his particular advantages of training or situation, is more fit for one line of exertion, another for another; and, although the pursuits to which they are in this manner severally attracted may not, in the largest view, be of equal importance, that is no reason

why we should regret that there are labourers to engage in each. Indeed, the more truly enlightened any mind is, the less ready will it be to look with a feeling either of contempt or of slight respect upon any pursuit which has had power to call forth in an eminent degree the resources of the human intellect. The ground is holy wherever genius has won its triumphs. The further the domain of science is explored, the more, in all probability, will it be found to be pervaded and connected, in all its parts, by a principle of order, consistency, and unity; and the more confirmations shall we discover of what are almost already universally admitted axioms of philosophy, that no truth is without its worth, and no sort of knowledge without some bearing upon every other.

We are now about to notice the exertions made in pursuit of knowledge by some individuals, whose paths have been very different from those of the distinguished discoverers and inventors with whom we have just been engaged. But we shall find that, in every variety of intellectual enterprise, the same devotion and diligence have been exhibited by ardent and generous spirits; and that everywhere these qualities are the indispensable requisites for the attainment of excellence. By no class of students, perhaps, has a greater love of their chosen pursuit been displayed than by Painters. We have already had occasion, indeed, to mention many names from this department of biography, in illustration of the force with which a passion for knowledge has often contended against the most depressing discouragements, and eventually subdued everything that would have prevented its gratification. In our former volume, we noticed the early difficulties and subsequent eminence of Salvator Rosa, Claude Lorraine, the Caravaggios, our own Opie, and many others. We will now proceed to sketch somewhat more in detail the

unpromising circumstances of birth and original situation through which some of the other most distinguished names in the recent history of English art have had to struggle into light.

The first individual we shall mention was not, indeed, strictly speaking, a native of this country, though he was born a subject of the British crown; but, as an artist, he belongs, nevertheless, to England. We speak of the late BENJAMIN WEST. He was born at Springfield, near Philadelphia, in North America, in the year 1738. His parents were Quakers, and he was the youngest of a family of ten children. It is related, that his mother brought him into the world immediately after being frightened almost into convulsions by a sermon, in which the preacher scarcely relieved the horrors of a description which he gave of the coming destruction of the world on this side of the Atlantic, by the assurance which he added of the happy destiny in reserve for America, where a new and better order of things was forthwith to arise and be perpetuated, after all vice and evil should have been swept from the earth by that visitation of vengeance. This incident, seemingly of little importance, afterwards exercised considerable influence on the boy's history. The preacher, flattered by what he probably deemed a proof of the powers of his oratory, continued to regard the child with feelings both of pride and kindness; and took pains to persuade his father that, born in such extraordinary circumstances, he would undoubtedly turn out no common man. We shall find immediately that these predictions were not thrown away either upon the father or the son.

Meanwhile, however, Benjamin, as might be supposed, grew up without anything marvellous appearing about him, till he had completed his sixth year. Soon after this, one of his sisters, who was married,

came to pay a visit to her parents, and brought her child with her. One day, Benjamin's mother having taken her daughter out with her to the garden, they left the child asleep in its cradle, and he was appointed to watch it. As he sat looking at his little niece, she happened to smile in her sleep; and he was so struck with the beauty of the infant, that, there being some paper and pens on the table, with red and black ink, he immediately attempted to make a drawing of her face. His effort, it would seem, was not altogether unsuccessful; for when his mother and sister returned, the former exclaimed at once, on obtaining a sight of the paper, which he tried to conceal, "I declare he has made a likeness of little Sally." Re-assured by this, he was in an ecstasy of delight with his new-found art, and immediately offered to make drawings with his black and red ink of the flowers his sister had brought from the garden. So true and delicate a sensibility, thus early awakened, to the beauty of mere expression, shewed the genius of the future painter even more than any skill in delineation he can well be supposed to have displayed in this first attempt. Perhaps the circumstance of the boy having been nurtured among the quiet and gentle affections of a Quaker family was not unfavourable to the growth of so much of the poetical feeling, at least, as he shewed on this occasion.

When his father saw this drawing he began to ponder more deeply than ever on the prophecies of his friend the preacher, the fulfilment of which he, doubtless, thought was already begun. As for his son, he went on making ink sketches of birds and flowers, to his own great delight and the admiration of the simple neighbours. For a year he had no other colour than ink, and only a pen for a pencil; nor, in all likelihood, was he aware that any better

resources existed for the practice of his art: for so simple and primitive were the manners and domestic accommodations of the little society of Friends in which he had been brought up, that it is averred he had never at this time seen either a painting or an engraving. At last a party of Indians came to visit Springfield, and were shewn some of the boy's performances. They were not very unlike the delineations they themselves were in the habit of making; and these children of the woods were delighted with such evidences of a taste kindred to their own. But their greater experience had given them some advantages over the young prodigy. In particular, they were possessed of colours with which he had no acquaintance, being in the custom of using both a red and a yellow ochre. These, therefore, they taught him the method of preparing; and his mother, to complete his assortment of these new auxiliaries, presented him with a piece of indigo. Still he had no pencil; but, having been told by some one that pencils were made in Europe of camel's hair, his ingenuity soon found out a tolerable substitute for this material. Seizing upon a black cat, which was kept in the house, he extracted the requisite quantity of hairs from her tail for his first brush, and afterwards pillaged her back for others.

About a year after this, a Mr. Pennington, a merchant of Philadelphia, chanced to pay old West a visit, and Benjamin's pictures were shewn to him. Pennington knew a little more of such matters than the villagers of Springfield, and was so much struck with the merit of the boy's performances, that he promised to send him a box of paints as soon as he got back to the city. The box, accordingly, soon made its appearance, and was opened with eager expectation. To an assortment of colours, oils, and

pencils, the care of the good merchant had added several pieces of canvas prepared for being painted upon, and half a dozen engravings. Benjamin was perfectly enraptured. The true nature of the prints he did not suspect at first, the existence of such an art as that of engraving never having entered his imagination. But, of course, he thought them the finest things he had ever seen in his life. During the remainder of the evening he scarcely lifted his eye from his box and its contents. Sometimes he almost doubted that he was actually master of so precious a treasure, and would take it in his hand merely to be assured that it was real. Even after going to sleep he awoke more than once during the night, and anxiously put out his hand to the box, which he had placed by his bedside, half afraid that he might find his riches only a dream. Next morning he rose at break of day, and, carrying his colours and canvas to the garret, proceeded to work. Every thing else was now unheeded. Even his attendance at school was given up. As soon as he got out of the sight of his father and mother he stole to his garret, and there passed the hours in a world of his own. At last, after he had been absent from school some days, the master called at his father's house to inquire what had become of him. This led to the discovery of his secret occupation. His mother, proceeding to the garret, found the truant; but so much was she astonished and delighted by the creation of his pencil which also met her view when she entered the apartment, that, instead of rebuking him, she could only take him in her arms, and kiss him with transports of affection. He had made a new composition of his own out of two of the engravings, which he had coloured from his own feeling of the proper tints; and so perfect did the performance already appear to his mother, that, although

half the canvas yet remained uncovered, she would not suffer him to add another touch to what he had done. Mr. Galt, West's biographer, saw the picture in the state in which it had thus been left, sixty-seven years afterwards; and the artist himself used to acknowledge that in none of his subsequent efforts had he been able to excel some of the touches of invention in this his first essay.

Some time after this, Pennington paid them a second visit at Springfield, and, pleased with the progress the young painter had made since he had provided him with the proper materials of his art, took him with him to Philadelphia. Here he met a brother artist, a Mr. Williams, whose pictures, the first he had seen except his own, moved him even to tears. Williams lent him, also, Fresnoy's Poem on Painting, and Richardson's Essay; and these works contributed not a little to feed his enthusiasm. He returned to Springfield more in love with painting than ever; and so contagious was his ardour, that even his schoolfellows, with hardly an exception, began to follow his example, and no other amusement was minded but drawing on the walls with chalk and ochre. West used to assert that many of the performances of these juvenile amateurs were such as would have done no discredit to the students of an academy. But no one of them, it would seem, had the same deep-seated love of art as himself; for, when the pastime had lasted its season, it was forsaken and forgotten, he alone looking forward to his present pursuit as the occupation of his life, and being resolved to sacrifice everything else for its sake.

He had as yet, however, made no money by his art, not so much even as to enable him to purchase colours and canvas. But one of the neighbours, a cabinet-maker, kindly gave him some smoothed

boards, and on these he used to draw his sketches, with ink, chalk, and charcoal. A Mr. Wayne, another neighbour, calling one day at his father's, was shewn these performances, and admired them so much that he took a few of them away with him to shew to his family or his friends. Next day he returned, and, having resolved by this time to keep the pictures, gave the boy a dollar for each. About the same time a Dr. Jonathan Moris made him a present of a few dollars to buy paints with. These encouragements were invaluable to him at the time; and West never afterwards forgot his first patrons. It does not appear that his father, either at this or any other time, gave him any assistance to enable him to pursue his favourite art, although the family seem to have been rather in comfortable circumstances. If the old Quaker continued to look forward to his son becoming a great man, as the preacher had foretold he would, he seems to have trusted entirely to the efficacy of his reverend friend's prediction to bring about that result. Notwithstanding, however, the pleasure he could not but feel in the evidences of uncommon talent which the boy continued to give by the productions of his pencil, he probably had considerable misgivings, arising from his peculiar religious opinions, as to the lawfulness of the art itself, and wished that the young prodigy would choose another road to the distinction destined for him. Not such were Benjamin's own notions. Ever since reading Fresnoy and Richardson, the profession of a painter had seemed to him the most honourable that man could follow. He had also already got possessed by the prophecy that had been uttered in his favour; and was so persuaded of his future greatness that, finding himself upon one occasion mounted, for a holiday trip, on the same horse with a schoolfellow, who was imprudent enough to confess, in the course

of their conversation, that his father intended to make him a tailor, a trade which, he added, he thought a very good one, West dismounted immediately, exclaiming that no one who meant to be a tailor should ride with him, who was to be a painter,—the companion, as he expressed it, of kings and emperors. This conviction of his high destiny, although it was only in his boyhood that it occasioned such ebullitions as this, never forsook the artist; and, doubtless, contributed somewhat to carry him buoyantly forward through the strange circumstances of his commencing career.

The peculiarity of his situation, indeed, consisted chiefly in this,—that, young as he was, he was left solely to the strength of his own enthusiasm to prompt and sustain him in every effort he made to advance himself in the line he had resolved to pursue. He had no sufferings to endure from want of bread, or extreme poverty, in any of those shapes in which it has so often pressed to the earth the young aspirant after knowledge; but, on the other hand, he had no one to instruct him, or even to urge him to seek instruction. He had everything to do for himself, and of himself. The other boys, we have seen, his companions, who also at one time took a fancy to painting, had none of them steadiness or perseverance to pursue the art beyond a few weeks or months. He had no greater external advantages than they had, yet he alone became a painter. He had that within himself which they wanted—that ardour and constancy in the prosecution of his object which has sustained the exertions of all those whose names are to be reckoned with his in the honourable catalogue of self-educated and self-raised men, and without which, indeed, there cannot be achieved anything great or anything worthy. West's history has been described as

abounding in fortunate incidents—in the casual occurrence of circumstances favourable to the display and successful operation of his merits; and this is quite true. But, undoubtedly, the luck would have been of no use, but for the desert which was always ready to take advantage of it. This, indeed, is, in many cases the true secret of what is called good fortune; it consists only in the being never unprepared to seize a favourable opportunity when it comes. West, as we shall see immediately, met with a succession of friends to encourage and assist him, as soon as his talents became known beyond his native village; but their aid would have been valueless, and, indeed, they never would have sought him out at all, if he had not cultivated those talents with the extraordinary zeal and industry which he did, when, in his father's house, he neither had nor needed any one to prompt his application, and found difficulty enough even in procuring the necessary implements of his art. He had arrived at his fifteenth year when he attracted the notice of a Mr. Flower, a gentleman of cultivated taste, who resided near the town of Lancaster, at some distance from Springfield. Mr. Flower having seen some of his productions was delighted with the talent they displayed, and invited the young artist to spend a few weeks at his house. West derived much benefit from this visit. An English lady, of superior accomplishments, resided in the house, as governess to Mr. Flower's children. To this lady Benjamin was indebted for his first knowledge of even the existence of the ancient Greeks and Romans, the lives and characters of whose great men she used to make the frequent themes of her conversation. During his residence here he also got acquainted with another intelligent person, a Mr. Ross, who lived in Lancaster. This gentle-

man's wife and daughters were remarkable for their beauty; and it was arranged that West should draw their pictures. He acquitted himself in this affair so much to the taste of the people of Lancaster, that numbers of other persons immediately presented themselves to sit to him, and, for some time, he had as much to do as he could manage.

Whether or not Mrs. Ross and her daughters were the first persons whose portraits he had ever taken, is not stated; but the following is expressly mentioned as the occasion of his first historic painting. One of his Lancaster acquaintances was an individual of the name of William Henry, who had made some money as a gunsmith, and was a man of considerable reading and reflection. Conversing one day with his friend, Henry remarked that he thought it a pity talents of so superior an order should be expended merely in taking likenesses of people whom nobody but their own relations knew or cared about; and suggested how much nobler a use the painter might make of his pencil if he would take some one of the grand scenes of history, and endeavour to transfer it to canvas. He mentioned, as a good subject, the death of Socrates, the story of which he immediately read from the animated page of Plutarch. West liked this idea, and, forthwith proceeding to sketch the composition, in due time produced his first historical picture.

About this time, also, he fell into the hands of Dr. Smith, Provost of the college of Philadelphia, who undertook to put him in possession, by a summary process, of as much classical knowledge as it was thought a painter needed. Dr. Smith is said to have been himself a profound as well as an elegant scholar—but he preferred a very superficial mode of teaching in the case of his present pupil. In fact, the knowledge of Latin he communicated to West

amounted scarcely to anything. Yet it is probable that he may have derived some advantage from the lessons of his instructor in so far as regarded the enlargement of his acquaintance with the facts of classical history and mythology. In the midst of these studies he fell sick, and was confined, for a considerable time, to his bed—a circumstance which led to his display of a new species of ingenuity. After he had got over the worst of his attack, he one day not a little alarmed both his physician and the other persons in attendance by insisting that he distinctly saw a procession of phantoms crossing the ceiling of the room, the figures being some of them men, some women, pigs, fowls, &c. Nobody else could discern anything of the kind, and they doubted, notwithstanding the appearances of recovery, whether his brain was not a little affected. But the fact was, that, from having been so long shut up in the darkened apartment, his eyes had distended in accommodation to the diminished light, and had thus acquired a power of distinguishing what was invisible to others. The figures on the ceiling were merely the pictures of objects passing along the street, which were formed by the rays reflected from them, and transmitted through a round hole which happened to be in the window-shutter. This West soon found, when, upon being left alone, he rose from his bed and examined the room, in the determination of discovering the cause of the phenomenon. Having satisfied himself as to how the matter stood, he immediately bethought him that here was a principle of which a useful application might be made; and he soon constructed an apparatus, which, whenever the sun shone, procured him a picture of any object or portion of the landscape to which he chose to turn it. He had, in fact, invented the *Camera Obscura*. When he carried his box, however, to his friend Williams at Philadelphia, that

gentleman shewed him a much more perfect instrument of the same description, which he had just received from London; so that West found that his invention, though new to himself, would not be so to the world in general.

He now returned home to Springfield. Hitherto, whatever might have been his own views, his father had probably looked upon the boy's picture-making as merely an amusement for a few years of his youth, and had not dreamed of it becoming his profession for life. But even if he had reconciled himself to such a destination for his son, there were the probable scruples of his brethren to be overcome. No Quaker had ever before turned artist. Yet, upon the matter being talked over in the family, it soon appeared that not only was the young man's own attachment to the career upon which he had already entered too strong to be shaken, but that his mother also had fixed her affections upon the profession of a painter for her son. In this emergency his father resolved to be guided by the decision of his brethren. The prophecy of the preacher was not yet forgotten; and he was as much persuaded as his wife that their son would yet become a great man, although he did not perhaps so clearly see how. Accordingly he called together the members of the society, and stated the circumstances of the case. We must refer to the pages of Mr. Galt for a description of the consultation. Suffice it to say, that it terminated in a unanimous resolution to permit the young man to exercise the extraordinary talents with which God had endowed him, in their proper occupation. Benjamin was forthwith called in, and set apart by something like a consecration to his chosen pursuit. This strange proceeding made an impression upon the mind of the painter, which remained through life, and helped, along with his faith in the announcements of future greatness

with which he had been still more early familiar, to strengthen and sustain the enthusiasm with which he devoted himself to art, as the one object of his life.

Not long after this his mother died, to whom he was much attached; and when he had recovered from this severe blow, he left his father's house, and, proceeding to Philadelphia, set up there as a portrait painter. This was in the end of August, 1756. He took up his residence in the house of a Mr. Clarkson, his brother-in-law, and soon found sufficient employment. After painting all day, too, he used to spend his evenings with his old friend Dr. Smith, who continued his instructions to him on the beauties of the classics, and other matters of taste. But he had long felt that his professional education would be very incomplete till he had had an opportunity of seeing works of art superior to any which America, at this time, contained. His cherished ambition, therefore, was to visit Rome; and every shilling he could spare was carefully put aside, to enable him to accomplish this object. His terms were two guineas for a head, and five guineas for a half-length. He was obliged to work hard to be able to save anything at these prices; but he had the advantage of gaining, at the same time, a command of hand, and facility of execution, which he could not have attained in the same degree with less laborious practice, and which he afterwards found of great service. He also employed what time he could spare in the study of the higher styles of art; and, among other performances, made a copy from a picture of great merit, which had fallen into Governor Hamilton's hands, through the capture of a Spanish vessel, a St. Ignatius, after Murillo. Of the great superiority of this picture, however, to anything he had yet seen, he was not, at this time, aware; but Dr. Smith was so much struck by West's copy, that he insisted upon being drawn himself in

the attitude of the Saint. While residing in this city, West also executed, for a Mr. Cox, a picture on the subject of the Trial of Susannah—his second historical painting—of which he used afterwards to speak in high terms. It comprehended forty figures, all of which were delineated from nature. From Philadelphia he proceeded to New York, having now a little money in his pocket. Here his reputation brought him many sitters, and, after some time, he raised the price of his half-length portraits to ten guineas. A Flemish picture, which he saw in this city, of a hermit praying before a lamp, inspired him with the desire of painting, as a companion to it, a man reading by candle-light. He was much perplexed, at first, as to how he should proceed, in order to produce the effect of candle-light on a picture which was, of course, to be seen during the day; but at last he attained his object by making his landlord sit looking upon an open book before a candle, in a darkened closet, while he himself remained painting in the day-light in the adjoining room, from which he had a view of his model through a narrow passage.

When he had been in New York about eleven months, he heard that a vessel was about to sail from Philadelphia direct for Leghorn, with a cargo of wheat and flour, in consequence of the failure of the harvest in Italy. It immediately occurred to him that here was a favourable opportunity of accomplishing his long-projected visit to Rome. In the mean time the same thought had suggested itself to Dr. Smith; and he received a letter from that gentleman, inviting him to return to Philadelphia without delay. He was, at the moment, engaged in painting a picture of a Mr. Kelly, a merchant of New York, whose name deserves to be remembered for the con-

siderate generosity with which he behaved on this occasion. West, having finished the portrait, communicated to him his intention of going to Italy; upon which Kelly, after paying him his ten guineas, said that he would give him also a letter to his agents in Philadelphia, who might be serviceable in giving him directions about his outfit. On reaching Philadelphia, and presenting this letter, the painter was informed that it contained an order for the payment to him of fifty guineas. This was a most welcome addition to his scanty funds, and sent him on board with a light heart.

After touching at Gibraltar and several ports on the coast of Spain, West and his fellow passengers reached Leghorn, from which the former lost no time in setting out for Rome, after receiving letters of introduction to several of the principal persons in that capital, from Messrs. Jackson and Rutherford, the correspondents of his friend Mr. Allen, of Philadelphia, to whom the vessel and its cargo belonged. He reached Rome on the 10th of July, 1760, in charge of a French courier, with whom he had been provided by his friends at Leghorn, being at this time quite ignorant of the language of the country, and indeed of every language but his own. When a report was spread that a young American had come to study the works of the great masters, the learned of Rome did not know very well what to think of it. Lord Grantham (then Mr. Robinson), having sought him out, took him to an evening party, where most of the persons were to be assembled to whom he had letters of introduction; and, of course, as soon as he entered the room, most of the company perceived that the trans-atlantic stranger, in point of outward appearance at least, did not differ materially from any one of themselves. But there hap-

pened to be present the celebrated virtuoso, Cardinal Albani, now an old man and quite blind. When West was presented by Mr. Robinson to this personage, as a young American who had come to Italy to study the fine arts, his Eminence, who had no notion that there were any other Americans except the native savages, asked whether he was black or white. Having been set right as to this matter, however, the Cardinal was led to form a very favourable opinion of his new acquaintance—especially after passing his hands over his head, which (being, it would seem, even in those days, a sort of craniologist) he remarked was very admirably formed. Next day West was taken to see some of the great works of art; and so curious were the fashionable world of Rome to observe the effect which these masterpieces would produce on the young Quaker, that he was accompanied by no fewer than thirty of the principal equipages in the city. The first expressions of his astonishment seemed to indicate rather a wild taste to these Italian connoisseurs. When he saw the Apollo he is reported to have exclaimed, "How like a young Mohawk." All this notoriety made poor West's ordeal rather a severe one, for, with all his natural talent, he was necessarily deficient in many things which only cultivation can bestow; but, on the other hand, the notice he attracted was calculated to operate greatly in his favour, if he should succeed in satisfying the expectations which were formed of him.

Feeling the necessity, therefore, of doing something to prove himself more than a mere wonder, whose only claim to regard was that he happened to be the first of his countrymen, or of his sect, who had ever come to Rome to study the fine arts, he resolved to present to the Italians some evidence of

what he actually could perform with his self-taught pencil. He accordingly asked Mr. Robinson to do him the favour of sitting to him for his portrait; and that gentleman kindly complied with his request. Mr. Robinson was at this time also sitting to the celebrated Mengs, then the most eminent artist resident in Rome; and the circumstance was generally known. When West's picture was finished, Mr. Robinson, concealing the name of the artist, sent it to the house of his friend Mr. Crespigné, where a party was to assemble in the evening. Here it excited great attention. It was generally regarded even by the artists present as the work of Mengs; although some remarked that its colouring was superior to that of most of his performances. But Mr. Dance, an Englishman, having examined it with a very scrutinizing eye, pronounced that it was not by Mengs. The colouring, he said, surpassed what was to be found in the works of that artist; but the drawing did not equal his. Meanwhile all these remarks were translated by Mr. Robinson to West, who sat apart on a sofa, all anxiety and agitation. At last it was announced by Mr. Crespigné, that the picture was not painted by Mengs—that it was the work of the young American. The surprise of the Italians was unbounded; but they congratulated the artist warmly. Mengs himself made his appearance soon after, and, having examined the picture, expressed himself, in regard to West's merits, in terms of the most frank and generous commendation. He proceeded to give him advice as to his future studies, telling him he had no need to come to Rome to learn to paint; but that, after examining every thing in the city deserving of an artist's attention, he should go successively to Florence, Bologna, and Venice, and having made himself familiar with the productions

of the great masters preserved in these cities, should then return to Rome, paint an historical picture, exhibit it, and, from the opinion expressed of it, decide on the line of art he should follow.

By this time West had been little more than a month in Rome: but such was the excitement he had undergone, that, as happened to Salvator Rosa, he was taken alarmingly ill; on which his medical attendants insisted that he should go back to Leghorn. From Leghorn he some time after proceeded to Florence, in order to consult an eminent surgeon of that city. It was eleven months before he recovered from this attack. During the greater part of this time he remained in a state of extreme weakness and suffering. But even in that condition he did not neglect the study of his profession. He had a table constructed on which he would draw while he lay in bed; and whenever his strength permitted he had his brush in his hand.

Meanwhile, however, this long illness, during which he was probably subjected to some additional expenses, as well as prevented from making any money, was exhausting his scanty funds, and he had arrived at his last ten pounds before he was completely recovered. But at this crisis unexpected assistance arrived. One day, his old patrons in Philadelphia, Mr. Allen and Governor Hamilton, were dining together at the house of the former, when a letter arrived from Allen's Leghorn correspondents, in which, after the customary commercial advices, the writer added a short account of the reception of West's picture of Mr. Robinson at Rome. Delighted with this success of his countryman and protégé, Allen immediately declared, that he regarded this youth as an honour to America, and that he was determined he should not want the means of

proceeding with his studies. "I shall send him," said the generous merchant, "whatever money he may require." The governor joined warmly in the same sentiments; and insisted on sharing with Allen the honour of supplying the necessities of the young artist. The result of this conversation was, that when West went to his Florence banker to draw his last few pounds, that person, unfolding a letter, informed him that he was instructed to give him unlimited credit.

From Florence, West proceeded to Bologna, and from thence to Venice, remaining some time at each city, in order to study the works of art which it contained. He then returned to Rome; and, according to the counsel he had received from Mengs, painted two historical pictures, which he exhibited. They were received with great applause. Having now, as he conceived, accomplished every object for which he had been desirous of visiting Italy, he had no other thought than to return to America; when a letter arrived from his father, recommending to him, in the Philadelphian phraseology of that day, first to go for a short time *home*, meaning to England. Although his heart at this time seems to have been still in America, this proposal was not disagreeable to West; and he prepared immediately for his journey to the land of his fathers. Leaving Rome, he proceeded to Parma, where they elected him a member of the academy, a similar honour having been previously bestowed upon him by the academies of Florence and Bologna. He then passed through France, and arrived in London on the 20th of August, 1763. Here he unexpectedly found his old American friends, Allen, Hamilton, and Smith; and was, through their means, and some letters he had brought with him from Italy, speedily made known to Sir Joshua Rey-

nolds and Wilson, the highest names in English art. He soon after, not so much by the advice of his friends, as in a well-founded dependance upon his own talents, took apartments in Bedford street, Covent Garden, and commenced the practice of his profession. His sagacity had by this time discovered that London afforded a somewhat more promising field for a painter than Philadelphia; and he thought no more of returning to America. One of the first things he did, in order to make himself generally known, was to paint a picture (on one of the same subjects which he had chosen at Rome), and to send it to the exhibition which then took place annually in Spring Gardens. It appeared here, accordingly, in 1764, and attracted considerable notice. He was some time after invited to dinner by Dr. Drummond, the Archbishop of York, who was so much pleased both with his conversation and the proofs of genius which he conceived his paintings to exhibit, that he contrived to have him introduced to George III. His majesty's favour, which he immediately acquired, placed the artist's rising fortunes upon a sure foundation, and leaves us nothing more to relate of his struggles to escape from obscurity to distinction. The self-taught boy had now won his way to the highest professional employment, and was soon numbered among the best known painters of the age. It was not the patronage of royalty, however, to which he was really indebted for this elevation. That patronage his own merits chiefly had acquired for him; for all that the happy accidents by which he was assisted could have done for him would have been merely nothing, had not his real talents and acquirements enabled him to take advantage of the favours of fortune. But with these merits, had he never been noticed at court, he would undoubtedly have found

in time a still more munificent patron in the public. The chief benefit (if it was a benefit) which he derived from the favour of the king, was, that it secured to him at once, and from the first, that independence to which he probably would not otherwise have attained, except through the exertions of years. On the other hand, had he been obliged to trust merely to the general appreciation of his merits, his success, if not quite so sudden, might have been more permanent; for he lived, as is well known, to find, that to rest his reliance, as he did, on the protection of a single individual, however exalted, was after all but to place himself at the mercy of the most common accidents. After having been chiefly employed for more than thirty years of his life in executing commissions for his majesty, during which time he completed the eight pictures, illustrative of the reign of Edward the third, in St. George's Hall, at Windsor, and the twenty-eight (out of thirty-six which were designed) on subjects from the Old and New Testaments, in the Royal Chapel—he suddenly received an intimation, on the king's illness, in 1809, that the works on which he had been engaged were ordered to be suspended, and he was never called upon to resume his pencil. It was immediately after this that he painted his celebrated picture of Christ Healing the Sick, one of the noblest he ever produced, which he first exhibited to the public, and afterwards sold to the British Institution for three thousand guineas, a much larger sum than he had received for any of the pieces he had executed at the royal command. He afterwards painted many other pictures on similar subjects; continuing to study and work with unabated industry, almost to the very close of his long life. He was always an early riser; and the way in which he spent his day

was nearly uniform. The morning hours before breakfast, and generally all the evening after dinner, were given to the study of the subject he was preparing to paint; while, during the intermediate part of the day, from ten, namely, till four, he was employed without intermission at his easel. All this labour and devotion to his art, besides the improved skill and excellence which practice gives, enabled West to produce an unusually great number of works. His pictures in oil amount to about four hundred—many of them of extraordinary size, and containing numerous figures. In 1791, on the death of Sir Joshua Reynolds, West was appointed President of the Royal Academy, which had been established in 1768. This honourable office (with the exception of one year) he held till his death, on the 11th of March, 1820, in the eighty-second year of his age.

One serious disadvantage, however, which West brought upon himself, by the almost exclusive attention he had given to painting from his earliest years, was, that he remained to the end of his life a somewhat illiterate man. It has been asserted, that to spell his words correctly, when he had anything to write, was a task of no little difficulty to the President of the Royal Academy. This neglect and ignorance of every thing not immediately appertaining to the department of their own favourite study, has been, perhaps, as frequently exemplified by painters, as by any other class of self-educated men. The celebrated Claude Lorraine could scarcely write his name. Our own Hogarth, although, by the assistance of a friend, he appeared on one occasion as an author, affected to despise literature, and, indeed, every species of mental cultivation, except the knowledge of the art of painting; nor was it much exaggeration when he professed to have himself little or no acquaintance with

anything else. It would be easy to mention other instances of the same kind. They ought to serve as warnings to the individual who, with an ardent desire for knowledge, has no one to guide him in its acquisition, of a risk to which he is peculiarly exposed. Even the great artists we have named, with capacities that might have compassed any attainments in literature or philosophy, must be held, notwithstanding all they did, to have neglected a duty they owed to themselves, or, at least, to have followed a lamentably mistaken course, in disregarding that general cultivation, without which, excellence in any department of art loses its most elevated rank as a liberal accomplishment.

CHAPTER VII.

Other English Painters—Spencer; Highmore; Hannam; Gilpin; Gainsborough; Barry; Lawrence.

MANY others of our recent English painters have been almost as entirely their own instructors as West was. **JARVIS SPENCER**, who was celebrated as a miniature painter in the latter part of the last century, was originally a menial servant, and while in that condition used to amuse himself by attempting to draw, when no one suspected what he was about. At last, one of the family in whose service he lived having sat to an artist for a miniature, the performance, when it was finished, was seen by Spencer, who immediately remarked, very much to the surprise of everybody, that he thought he could make a copy of it. He was allowed to try his skill, and succeeded to admiration. His master, upon this discovery of his servant's genius, very generously exerted himself to place him in his proper sphere, and to make him generally known; and Spencer, as we have said, rose eventually to great eminence in the department which he cultivated. **JOSEPH HIGHMORE**, who painted, among other well-known works, the Hagar and Ishmael, in the Foundling Hospital, and long enjoyed high reputation, both for his historical pictures and his portraits, taught himself the art which he afterwards practised with so much success, while he was serving his apprenticeship in a solicitor's office, and was without any one to give him a lesson. Highmore died in 1780. Another painter of that day, of the name of **HANNAM**, whose works, however,

have not attracted much attention, was originally an apprentice to a cabinet-maker; and, having acquired some skill in painting by his own efforts, used to be allowed by his master to spend as much of his time as he chose in executing pictures for those who gave him commissions, on condition of his handing over the price to that person, who found that he made more in this way than he could have done by keeping Hannam to his regular work. RICHARD WRIGHT, who about the same period was much celebrated for his sea-pieces, rose from the condition of a house and ship-painter, having taught himself to draw while he followed that trade in his native town of Liverpool. The late Royal Academician, SAWREY GILPIN, so celebrated especially for his most faithful and spirited delineations of animals, was also originally apprenticed to a ship-painter. He lodged in Covent Garden, and there being a view of the market from the window of his apartment, Gilpin used to amuse himself in making sketches of the horses and carts, with their attendants, as they passed, or formed themselves into picturesque groups in the square. GAINSBOROUGH, the great landscape painter, again, led by his different genius, used, while yet a mere boy, to resort to the woods and pasture fields in the neighbourhood of his native town of Sudbury, and there to employ himself unweariedly, often from morning till night, in sketching with his untutored pencil the various objects that struck his fancy, from a flock of sheep, or the shepherd's hut, to the stump of an old tree. It was to these studies of his earliest years, undoubtedly, that Gainsborough was indebted both for that perfect truth and fidelity by which his works are distinguished, and for that deep feeling of the beautiful in nature which has thrown over them so inexpressible a charm. He learned also in this way a habit of diligent, minute and accurate ob-



Painted by Himself

Engraved by T. Wright

JAMES BARRY.

ervation, which never left him ; and it is both interesting and instructive to read the account which has been given, of the unrelaxed zeal with which he continued to pursue the study of his art even to the last. " He was continually remarking," says Sir Joshua Reynolds, speaking of the habits of his more mature years, " to those who happened to be about him, whatever peculiarity of countenance, whatever accidental combination of figures, or happy effects of light and shadow occurred in prospects, in the sky, in walking the streets, or in company. If in his walks he found a character that he liked, and whose attendance was to be obtained, he ordered him to his house ; and from the fields he brought into his painting-room, stumps of trees, weeds, and animals of various kinds ; and designed them, not from memory, but immediately from the objects. He even framed a kind of model of landscapes on his table, composed of broken stones, dried herbs, and pieces of looking-glass, which he magnified and improved into rocks, trees, and water ; all which exhibit the solicitude and extreme anxiety which he had about everything relative to his art ; that he wished to have his objects embodied, as it were, and distinctly before him, neglecting nothing that contributed to keep his faculties alive, and deriving hints from every sort of combination." It is not, indeed, generally, the highest genius which is least inclined to avail itself of such assistance in its labours as study and pains-taking may procure.

Another of the most distinguished names in the list of recent British artists, is that of JAMES BARRY. Barry was born at Cork in 1741. His father appears to have been a somewhat unsettled character, or at least to have shifted from one pursuit to another, probably without obtaining much success in any. It is commonly said that he was originally a

mason ; but some authorities state that he had been also a victualler. At the time of Barry's birth, he was the master of a small coasting vessel in which he traded between England and Ireland.

Barry is understood to have received a good education in the ordinary branches of scholarship. At an early age, however, his father took him with him to sea, and made him do duty as a ship-boy. This occupation he detested. The love of painting had already taken possession of him, and his greatest pleasure was to cover the deck with sketches of objects made with chalk or ochre. His father, at last, finding all his efforts to make him a sailor of no avail, allowed him to remain at home, and to pursue his studies in literature and art. He now returned to school, and distinguished himself by an ardour and diligence which left all his class-fellows behind him. Even his play-hours were generally given to hard study. Instead of associating with the other boys in their amusements, his practice was to retire to his room, and there to employ himself in reading or painting. Whatever money he got, he spent in purchasing books, or candles to enable him to read during the night. His enthusiasm was at this time (and indeed throughout his life) partly sustained also by certain notions of the virtue of ascetic observances, which he had derived from his mother, who was a Catholic, and had great influence over him. In conformity with these opinions he was wont to sleep, when he did take rest, upon the hardest bed, and to wear the coarsest clothes he could procure. These theological prejudices were not calculated to have a salutary effect upon the growth of a character like that of Barry, whose morose and atrabilious temperament rather required an education calculated to bring the gentler affections of his nature more into play.

His ardour in study, however, both at this and every other part of his life, was admirable. He had as yet but few books of his own, but he borrowed from all who had any to lend, and sometimes learned the passages which he liked by heart, (a practice of which he soon found the advantage, in the growing strength of his memory), and sometimes transcribed them. It is said that transcripts of several entire volumes, which he had made at this period, were found after his death among his papers. Among the works which he especially delighted to study, it is recorded, were many on controversial divinity—unfortunately not the most wholesome sustenance for an intellectual and moral organization like his.

He was in his seventeenth year when he first attempted to paint in oil; and for some years he wrought with no one to encourage or to notice him. Among the first performances which he produced, were compositions on the escape of Æneas from Troy, the story of Susannah and the Elders, and that of Daniel in the Lion's Den. These pictures he hung up on the walls of his father's house, and there they remained long after the painter's fame had spread over Europe. At last, in his twentieth or twenty-first year, he produced a work which appeared to himself such as he might exhibit in a more public place. This was a picture on the fine subject of the baptism by St. Patrick of one of the kings of Cashel, who stands unmoved while the ceremony is performed, amidst a circle of wondering and horror-struck spectators, although the saint, in setting down his crozier, has, without perceiving it, struck its iron point through the royal foot. With this work he set out for Dublin, and placed it in the exhibition room of the Society for the Encouragement of Arts. It was universally admired. But no one knew the artist, or fancied that he was a native of the country; and

when Barry, who used frequently to come to the room to observe the impression it made, dressed in the same coarse attire which he wore in the country, one day, overcome by emotions which he could no longer conceal, announced himself the painter of the picture, his avowal was received with an incredulous laugh. He burst into tears and left the room. The patriotism of his countrymen, however, amply recompensed him for this when they found that he, an Irishman, was really the person who had produced this admired performance. The young ascetic soon found himself the favourite of the gayest society of his native metropolis. But perceiving that this new course of life interrupted his studies, and seduced him occasionally into worse follies, he became alarmed, and determined to withdraw himself from it before it should have become a habit. These feelings came over him with so much force one night when he was returning from a tavern where he had spent the evening with a bacchanalian party, that he actually threw what money he had in his pocket into the river, cursing it as having betrayed him into the excesses of which he had been guilty, and from that day returned to his books and his easel.

Meantime, however, he had also acquired some worthier friends; and, among others, had been introduced to the illustrious Edmund Burke, then commencing his splendid political career as assistant to the secretary of the Lord Lieutenant. A story has been told respecting Barry's first interview with Burke, which would be interesting if it could be received as true. Having got into an argument with each other, Barry is said to have quoted a passage from the "Essay on the Sublime and Beautiful" in support of his opinion; on which Burke expressed himself slightly of that anonymous performance. This insensibility to the merits of a work

which was one of his especial favourites, fired Barry, and, after vehemently eulogizing the book, he concluded by declaring, that not having been able to purchase it when it first came into his hands, he had actually transcribed the whole of it. His surprise and delight were extreme, when, in reply to this appeal, his friend told him that he was himself the author of the work. "And here," exclaimed Barry, taking a bundle of papers from his pocket, "is the very copy I made of it with my own hand." All the truth that there probably is in this story is merely that Barry quoted Burke's own essay in reply to some of that gentleman's arguments. He could hardly have been ignorant that Burke was the author of the work, which had been published so far back as 1757, at least five or six years before the interview in question is stated to have occurred.

But Burke did not satisfy himself with merely bestowing upon his young countryman the patronage of his favourable regard. Although, at this time, his income was an extremely limited one, he most generously undertook to provide the means of sending Barry to Italy, and supporting him there while he nourished and matured his genius by the study of the works of the great masters. Accordingly, after he had been seven or eight months in Dublin, the young artist proceeded, at Burke's invitation, to London, where the latter now resided. For a short time he was occupied in making copies of some paintings in oil for James Stuart, the author of the "Antiquities of Athens;" an employment which Burke procured for him, and which was well calculated to improve him in his art. In the end of the year 1765 he left London for the continent, and, passing through France, proceeded to Rome. He remained absent from England about six years in all, during the whole of which time Burke, assisted by

his two brothers, supplied the funds necessary for his support. During his residence at Rome Barry was not idle—that, with all his faults, he never was at any time of his life—but his studies were not always directed so wisely as they might have been to the object which he ought to have had principally in view; and his unfortunate temper involved him in continual quarrels with his brother students. He received from Burke the best advice, administered in the kindest manner; but all failed to have much effect.

He made his re-appearance in London in the beginning of the year 1771, and immediately proceeded to give proof of his improved powers by painting some pictures, which he exhibited. But it was not his fortune to meet with much applause. All his performances were characterized by certain obvious defects of execution, which struck every body, while their merits were frequently not of a kind to be appreciated by the multitude. Among other pictures he painted one, in 1776, on the death of Wolfe, in which, as had been usual in such pieces, the combatants were represented naked, it being in those days held impossible to preserve any heroic effect where modern costume was introduced. But just at this time West produced his noble picture on the same subject, in which all the figures were painted dressed as they had actually been; and the force of nature and truth carried it over the scruples of criticism. Barry's performance was found quite unequal to sustain any competition, in point of attraction, with its rival. This and many other disappointments he had to bear; nor were those the least of his vexations which he brought upon himself by his own absurd and ungovernable temper. He had been before this time chosen an Associate of the Royal Academy, but he had already quarrelled with

the Council. His wayward and ungrateful conduct at length well nigh tired out even the friendship of Burke. To add to all this, his pencil, his only resource, brought him but the scantiest returns; and his days were darkened by the miseries of severe poverty.

Yet all did not crush his spirit. While struggling with these complicated distresses, he continued to worship his art with as warm an enthusiasm as ever. In a letter, written when he was in Italy, to his friend Dr. Hugh, he had said, "My hopes are grounded in a most unwearied, intense application; I every day centre more and more in my art; I give myself totally to it; and, except honour and conscience, am determined to renounce everything else." In addressing himself, about the same time, to another friend, he exclaims, in touching anticipation of the fate that awaited him, "O, I could be happy, on my going home, to find some corner where I could sit down in the middle of my studies, books, and casts after the antique, to paint this work and others, where I might have models of nature when necessary, bread and soup, and a coat to cover me." He had now hardly the prospect of securing even these humble accommodations, when he nevertheless determined, for the honour of historic painting, to devote himself to the accomplishment of a great work, requiring much time and labour, and holding out to him at the best only a scanty, distant, and precarious remuneration. He proposed to the Society for the Encouragement of Arts, Manufactures, and Commerce, to adorn their great room in the Adelphi with a series of compositions on some appropriate subject by his own hand, on condition only of being allowed to choose his subject, and of being provided with the necessary canvas, paints, and models. This was in the year 1777. He had

just before published an elaborate work in refutation of the theories of some continental critics, who had maintained the impossibility of the higher style of art ever flourishing in England, on account of the climate being too northerly and cold; and he now thought himself bound, he informs us, to follow up his argumentative vindication of the national genius by a proof of what it could produce, "in duty," says he, "to the country, to art, and to my own character." He calculated that this work would cost him the constant labour of two years, and he knew that he must, during all that time, procure himself the means of existence by additional toil in hours stolen from sleep. But the prospect of these things had no power to deter him. With only sixteen shillings in his pocket he entered upon his undertaking, determined, if only life should be granted him, to accomplish it upon the terms he had proposed.

And he would probably have been able to keep to the letter of his engagement, if the work had cost him no longer time than he originally contemplated. But, although he laboured diligently and unceasingly, he found it impossible to finish it in less than six years, instead of the two which he had thought would be sufficient. The subject which he chose was the Progress of Human Improvement, which he represented in a series of six pictures. Of these he intended the first to be emblematical of the savage state, or rather of the earliest dawn of civilization, when the chase was the only employment of men, and their rude natures were just beginning to be attempered to the influences of religion, law, and music; the second, of the age of agriculture; the third, of the establishment of civil polity, and the reign of literature, science, and the arts; the fourth, of the modern triumphs of navigation; the fifth, of the age of manufactures and commerce; and the last,

of Elysium, or the immortal happiness of the great and good in a future state of existence. The conception of these different compositions displays considerable learning and ingenuity; but the subject attempted to be illustrated scarcely lies, perhaps, within the legitimate province of painting. At any rate it has been generally felt that Barry's allusive groups and figures often shadow forth but very dimly and imperfectly what he means them to represent; and, indeed, that without his own printed explanations they would be sometimes nearly unintelligible. If, however, he overrated his own powers, or those of his art, in undertaking this task, the manner in which he prosecuted and accomplished it (in so far as he found its accomplishment possible) must be allowed to form as fine a display of zeal, disinterestedness, self-denial, and heroic perseverance as is anywhere to be found on record. During the six years which he was employed in the execution of these pictures, the enthusiastic artist led, voluntarily and contentedly, a life of incessant toil and privation. Wearing, as usual, the coarsest clothes, and living upon the humblest fare, his limited personal expenses still compelled him, not unfrequently, after working ten hours at the Adelphi, to sit up half the night painting or engraving something for the booksellers, with the price of which he might purchase bread for the following day. At last, however, he was obliged to make an application to the Society of Arts for some assistance to enable him to continue his labours, and, after some delay, they voted him a hundred guineas. They also presented him with two hundred guineas more on the conclusion of his undertaking, and permitted him to exhibit the pictures to the public, by which he realized about five hundred pounds. These sums, together with about two hundred and fifty pounds more, which he derived from

the admiration of a few affluent individuals, formed all the remuneration he received for his six years' labours ; but, inadequate as it was, it was more than he had counted upon. It deserves to be mentioned to the credit of Barry's prudence, that, as soon as he obtained this money, he placed it in the funds, not having, it would appear, even during the long period he had existed almost without any income at all, incurred any debts which it was now necessary for him to discharge. He thus secured an income for the rest of his life, which, although small, was an independence to a person of his economical habits ; and, indeed, added to the fruits of his daily industry, it enabled him afterwards to save money.

Barry lived for many years after the completion of these paintings at the Adelphi, during which he continued his studies and his professional labours as assiduously as ever, and, although not much encouraged by popular favour, produced numerous works of various degrees of merit. While yet engaged with his great undertaking which has just been described, he was elected Professor of Painting to the Royal Academy ; and, as soon as he had finished the pictures, he commenced his lectures. He also, in the course of his life, published various literary works, which, together with his Lectures and Correspondence, have been collected since his death, and form two volumes quarto. He died in February, 1806, having been suddenly attacked by a pleuritic fever, which carried him off in a few days, in the sixty-fifth year of his age.

The biographies of many men are as instructive from the details which they present of the unhappy consequences that have flowed from errors of conduct or constitutional failings, as those of others are from their pictures of success won by merit. To the young and inexperienced, lessons of warning are

as necessary as lessons of encouragement. It often happens that great excellences are combined in the same individual with great defects; and it is exceedingly requisite that, while he is taught and made to feel what may be accomplished by a due application of the one, it should also be deeply impressed upon him that the other, if indulged or allowed to remain uncorrected, may render the best abilities, and even the most arduous exertions, useless. The utter insufficiency of mere talent, indeed, to attain either independence or honourable distinction, when unaccompanied by habits of industry and perseverance, has been too often exemplified to make it necessary that we should cite any instances in proof of it. Even the highest powers unemployed must remain unproductive. But the history of Barry illustrates another case which also sometimes occurs—that of a person who, uniting great capacity and unwearied application, still fails in obtaining the success he might have expected, from the want of other qualities. The deficiencies and mistakes of this able man were chiefly such as are peculiarly apt to mark the temper and conduct of persons who, in early life, have been entirely or principally their own instructors. Such persons, before entering the real world, in which they must mix with their fellow-men, have commonly created, as it were, around themselves a world of their own, to which all their notions and habits are accommodated, having been there, in fact, formed and learned. Their associates in ordinary life have not hitherto acquired any of their respect, by having guided or assisted, or even participated with them in those studies which they have pursued with so much ardour. They have here had to do everything for themselves, and have found themselves sufficient for everything. From all this naturally springs some weakness, as well as much strength. On the one

hand proceed an independence and self-reliance, both moral and intellectual, begetting generally a manner of thinking unusually manly and unprejudiced, and sometimes considerable originality of view. But, on the other, arise an ignorance of the actual world and of mankind, an undue impatience of and contempt for the ordinary conventional forms and arrangements of society (which are all founded upon the principle of mutual concession among many variously fashioned or variously feeling minds), a bigotry in favour of certain peculiar notions which will brook neither contradiction nor advice; in one word, such an excess of the spirit of confidence and aversion to control, as amounts sometimes to positive perversity and wilfulness. The character of Barry exhibited, in strong relief, both the good and the bad qualities we have mentioned. The love of his art was with him a passion. He pursued, throughout his life, the study and the practice of it with a zeal and a laborious application which no difficulties and no discouragements could abate. He possessed in sufficient measure that trust in his own powers, without which nothing great can be either achieved or attempted. And he both thought and wrote with a force and decision which shewed a mind unenervated by the habit of taking its opinions from others, and capable of stamping its own impress upon whatever subject it investigated. But this masculine energy and hardihood of nature, from having been allowed to grow up undisciplined, very early degenerated into a species of recklessness and ferocity, which proved the blight of his genius and the curse of his existence. His arrogance and infirmity of temper, as well as his imprudence and his extraordinary ignorance of the world, shewed themselves almost in the very commencement of his career. Scarcely had he set his foot in Rome, when he discovered (to his own satisfaction)

that all the principles and maxims there recognized with regard to the art he came to study were stupidly wrong, and he forthwith not only denounced them as such, but quarrelled with every body who chose to stand up in their defence. It is possible that he may have been right in this judgment; but somewhat more of forbearance in the expression of it, and of toleration for the opposite opinion, would have savoured both of charity and of wisdom. From something of the same spirit of opposition and contumacy, he would not, while here, pursue the same method of study as his brother artists; but, instead of employing himself in making drawings of the works of the great masters with his hand, he satisfied himself with taking fac-similies of them by an instrument. He even spent much of his time, as we have already mentioned, in the investigation of subjects hardly connected at all with his proper occupation. All this while he had, in his friend Burke, an invaluable monitor, whose counsels continued to be tendered to the last with a frankness, and, at the same time, a delicacy in the manner, only equalled by the admirable wisdom of the matter. But, although he felt the kindness, and, at times, even the good sense of the advice he received, it certainly produced no effect upon his conduct. On his return to England, as we have seen, he acted in the same manner as he had done at Rome—attacking and quarrelling with every body, insisting upon having his own way in every thing, too often apparently out of a spirit of selfishness, or the mere love of dispute and opposition, and, in short, in his whole conduct regarding nothing save his own humours and impetuous impulses. To deport himself after this fashion, he seems to have thought was a privilege he possessed as a man of genius—a weak mistake, which, if his genius had been of the highest kind, he never would have fallen

into. How much truer a wisdom than that which his own ill-regulated temper and childish notions of dignity suggested to him, might he have found in a few sentences of one of the letters addressed to him by Burke, a short time before he returned from Italy: "Believe me, my dear Barry," writes this considerate friend, "that the arms with which the ill dispositions of the world are to be combated, and the qualities by which it is to be reconciled to us, and we reconciled to it, are moderation, gentleness, a little indulgence to others, and a great deal of distrust of ourselves; which are not qualities of a mean spirit, as some may possibly think them, but virtues of a great and noble kind, and such as dignify our nature as much as they contribute to our repose and fortune; for nothing can be so unworthy of a well-composed soul as to pass away life in bickerings and litigations; in snarling and scuffling with every one about us. Again and again, my dear Barry, we must be at peace with our species, if not for their sakes, yet very much for our own."

We have recently lost a distinguished painter, whose name it will be expected that we should notice here, as being that of one who, like the others we have mentioned, also acquired his art without an instructor—we mean the late Sir THOMAS LAWRENCE. The boyhood of this great artist exhibited almost as remarkable an instance of the precocious development of talent as any on record. He was born in 1769, being the youngest of a family of sixteen children. His father had been bred an attorney, but had afterwards become an excise officer, and when his son Thomas was born was an innkeeper at Bristol; which city, however, being unsuccessful in his business, he left a few years subsequent to this event, and established himself in the same capacity at Devizes. He appears to have been a strange character, as, indeed,

this outline of his history would itself lead us to suppose. His ruling passion, it seems, was a love of poetry; and this he carried so far as not only to spend much of his own time in writing verses, but often to insist that his guests also should postpone all other affairs to listen to his effusions. How he found this sort of treatment to answer in attracting or attaching customers to his house, may be easily conceived. All who did not prefer such intellectual banquets to more substantial fare, gradually deserted this rhyming innkeeper, by whom, of course, many matters of considerable, though merely terrestrial, importance, were apt to be neglected, while he was employed in the service of the muses. The consequence was, that in six or seven years this second speculation also failed, and old Lawrence was once more ready for a change of residence, if not of profession.

Long before this, however, his son Thomas had become famous in the neighbourhood as a little prodigy. He was a very beautiful boy, and had been remarkable from infancy for his sprightly and winning manners. His father, whose favourite he was, had early taught him to recite poetry; and when the child was only four or five years old, it was common for him to be presented by his partial parent to all strangers who visited the house, to exhibit to them his proficiency in this accomplishment. But, even at this very early age, he had acquired considerable mastery in an art more difficult than that of spouting verses. He was able already to use his pencil, and to take likenesses. This art he had acquired entirely of himself—if we should not rather say that, appearing as it did with the very commencing developement of his intellectual powers, it was more a faculty born with him than an art which he had to learn. It was several years after he began to draw before he

had an opportunity of seeing a good painting. He had not only, therefore, to form himself merely by copying nature, but to invent the mechanical processes of his art by his own ingenuity, without either a master or a model. Yet the portraits which he sketched even so early as his fifth year, are affirmed to have been generally happy likenesses; and one of Lady Kenyon, which he executed at this period, is particularly recorded as having been at once recognized when shewn to a friend of her ladyship twenty-five years after.

At the age of six he was sent to school, but he was only allowed to remain two years; and this, with the exception of a few lessons in Latin and French some time afterwards, was all the education he ever received. The uncommon talents he had displayed had now made him generally known; and one gentleman generously offered to defray the expense of maintaining him for some years in Italy, that such extraordinary natural powers might not be deprived of the advantages of the best possible cultivation. But his father had very absurdly taken it into his head that instruction would only cramp and weaken his son's genius; or, at least, he chose to say that such was his opinion: and, upon this pretext, he not only refused to permit him to go to Rome, but would not even hear of his taking lessons from a master in his own country. He allowed him, however, to visit the houses of some of the neighbouring gentry, where he saw some good pictures; and these first gave him an idea of historical painting. He copied various pieces of this class, and at last produced several original compositions of his own.

His father had, probably for some time before leaving Devizes, resolved to make an attempt to turn his son's singular talents to some account; and it may have been partly with this view that he declined

allowing any lessons to be given to the boy. He considered, of course, that he would attract more wonder by being presented to the public as an entirely self-taught genius, than if it should have to be acknowledged that he had derived any part of his skill from the instructions of others. When Mr. Lawrence gave up his inn at Devizes, Thomas was about ten years of age. The whole family immediately proceeded to Oxford. As soon as they arrived in this city the boy's qualifications were announced; and numbers soon thronged to him to have their likenesses taken. The commencement of the speculation was thus sufficiently successful. From Oxford they removed to Salisbury, and thence to Weymouth; and at both places the talents of the young artist reaped a considerable harvest. At last, in 1782, Mr. Lawrence proceeded with his son, and the rest of his family, to Bath, where he proposed to fix his future residence. Thomas was at this time in his thirteenth year.

On his arrival in Bath he found the persons of distinction assembled in that fashionable place of resort familiar with his name and his extraordinary abilities; and sitters soon came to him in such numbers, that he raised the price of his crayon portraits from a guinea to a guinea and a half. Some of the persons by whom he was noticed, also, possessed valuable collections of pictures,—and these he used to employ much of his time in studying and copying. Among other copies which he made was one of the Transfiguration by Raphael. This he sent to the Society of Arts; and although, in consequence of an informality, it was found not to be admissible as a competitor for any of the regular prizes, the Society were so much struck by its merits that they bestowed upon the young artist their large silver palette, gilt, and five guineas in money.

He remained at Bath about six years; and, during the whole of this time, young as he was, he was the sole support of his father and the rest of the family. He is said to have worked regularly in painting portraits at least four hours every day,—besides which, he spent much time in studies and voluntary exercises connected with his art. At last his father, to whom he had so long brought a considerable income, either thinking that his labours might be made still more profitable in a larger field, or perhaps prevailed upon by the remonstrances of the young man himself, determined to remove his establishment to London. The family arrived here in 1787, when Thomas was in his eighteenth year. His coming to London at this time was undoubtedly a fortunate event in every way for the artist. The folly, or more interested views, of his father had hitherto withheld from him all the ordinary means of improvement in his profession; but he himself, it is understood, with more good sense, felt anxiously desirous to be able to avail himself of better opportunities of study than he could enjoy in the country. When he found himself in London, accordingly, he hastened to procure admission as a student at the Royal Academy. He also got himself introduced to Sir Joshua Reynolds, to whom, then in the height of his fame, his father would seem to have intended that he should at once set up as a rival,—having, in the first instance, established him in an expensive suite of apartments in Leicester square, in the immediate neighbourhood of the rooms of the great painter. In this matter also, however, his son acted more modestly, and more wisely. He sought access to Sir Joshua's study with one of his performances in his hand—submitted the picture to his inspection—and listened to his remarks with the attention and deference of one who both knew their value and how to profit by them. He

also very soon removed from Leicester square to less splendid lodgings in Tavistock street, Covent Garden.

Such was the early history of Sir Thomas Lawrence*. His subsequent career, as all know, was one of great brilliancy. He was elected a Royal Associate in 1791. On the death of Sir Joshua Reynolds, the following year, he was appointed his successor in the offices of painter to his Majesty and to the Dilettanti Society. From this time his reputation grew steadily, till he came to be generally acknowledged the first portrait-painter of the age. In 1815, the honour of knighthood was bestowed upon him by the Prince Regent. The preceding year, on the visit of the foreign Sovereigns to this country, he had received his Royal Highness's commands to take the likenesses of these personages, and some of the more distinguished individuals in their suite; and, during their stay, he finished the portraits of the King of Prussia, Field-marshal Blucher, and the Hetman Platoff. Four years afterwards, on occasion of the Congress at Aix-la-Chapelle, he repaired to that city, where he painted the Emperor Alexander; and, proceeding from thence to Vienna, he there completed portraits of the Emperor of Austria, the Archdukes, Prince Metternich, and other distinguished persons belonging to that court. From Vienna he went to Rome, where he arrived in May 1819. Here he painted the Pope, Pius VII., and Cardinal Gonsalvi. He remained in Rome for several months, during which he received the most gratifying testimonies of respect and admiration from his brother artists there, and it was the month of April 1820

* For a more detailed account of the youth and subsequent progress of this eminent painter, we must refer the reader to the first volume of the *Juvenile Library*, which contains the fullest narrative of his life that has yet appeared.

before he returned to England. The very day before he arrived in town he had been unanimously elected to the Presidency of the Royal Academy, as successor to Mr. West. This distinguished office he continued to hold till his sudden and lamented death, on the 7th of January, 1830. Only the day before this event happened, he had worked for some time in his study, as usual; and even a few minutes before he expired, he had been conversing cheerfully with some friends who had spent the evening with him, on the art which he loved, and which it was then little thought by any of them he would so soon cease to adorn.

Gifted as he was with such an extraordinary natural capacity for his art as to have been in reality a miracle of precocity, Sir Thomas Lawrence does not furnish us with an example so valuable as many others we have quoted, with reference to the peculiar object of the present work. His first acquisitions in the line in which he afterwards so greatly distinguished himself, were not made either through laborious application, or in the face of any uncommon difficulties; but rather by a happy innate skill and facility, which enabled him to paint and draw likenesses almost as soon as his hand could hold a pencil, and with something approaching to the same unconsciousness and absence of effort, with which in other men the limbs obey the impulse of volition in their most ordinary movements. But still his history is not altogether uninteresting, even as a lesson on the subject of the pursuit of knowledge. Although in his earliest efforts he met with no opposition, but on the contrary, with abundance of encouragement and applause, from his father, we have seen the resistance which that person afterwards offered to every plan which was proposed for his son's improvement; and it is to be taken, therefore, as an evidence both

of great good sense and no ordinary firmness on the part of the son, that, not intoxicated either by the flatteries which had been lavished upon him, or by the decided success which had crowned even his yet imperfect performances, he felt, what his parent did not, how useful study and instruction might be to him, and, as soon as it was in his power, took measures of his own accord to secure both. Had this eminent artist, indeed, not possessed many other superior qualities beside his talent as a painter, the education which he received in his boyhood, suited as it was to force out his genius into brilliant but premature display, would, in other respects, have been productive of very unfortunate effects on both his professional and his general character. He must have been very active in availing himself of such opportunities as his after life presented for repairing the injuries of his early training. He is one of a very few of our great English painters (Gainsborough was another) who have attained to eminence in their art, without having enjoyed the advantage of an early residence in the country which contains the principal works of the great masters. Sir Thomas Lawrence never visited Italy till he went there, as we have mentioned, on his return from Vienna, in 1819, when he was fifty years of age. This was one misfortune which he owed entirely to the obstinacy of his father. Considering the very scanty education, too, which he received in the ordinary branches of learning, the respectable measure of literary information of which he afterwards made himself master deserves to be mentioned to his credit. Although not what is commonly called a scholar, he was well acquainted, we are told, with the best English authors; and had taken great pains to obtain a knowledge of classical and foreign works, in so far as they were accessible to him through translations. Finally, the

sober and rational equability of temper and conduct, so opposite both to the low excesses of Morland and the morbid cynicism of Barry, which this distinguished artist preserved throughout his life, notwithstanding his early exposure to so many influences well calculated to corrupt both his understanding and his heart, forms another ground on account of which his example is exceedingly worthy of being held up to the imitation of all, and especially of such as may have to tread a path so perilous as his, in the commencement of life.

CHAPTER VIII.

Foreign Painters—Giotto ; Greuze ; Ehret ; Solario.—Other cultivators of the Fine Arts—Canova ; Bewick.

If we were to go over the long catalogue of foreign painters, we should find many names to add to those we have already enumerated of individuals who have attained the highest distinction after acquiring their art originally without a teacher, or practising it for a considerable time in unnoticed obscurity. GIOTTO, for instance, one of the great revivers of the art in the beginning of the fourteenth century, was the son of a peasant in the village of Vespignano, near Florence, and was employed, when a boy, in tending sheep. While in this condition, he was one day found by Cimabue drawing the figure of one of his flock on a large stone which lay on the ground; and that master (the first who practised anything deserving to be called painting in modern Europe) was so much pleased with this attempt, that he took the boy with him to Florence, and carefully instructed him in his art, in as far as he knew it himself. Giotto afterwards greatly surpassed his master, and, indeed, had no equal in his own age, either as a painter or a sculptor. Or to descend to much later times, BARONI, the principal artist whom Italy produced in the last century, taught himself painting while working with his father as a goldsmith; and, although he afterwards went to study at Rome (being sent there by some admirers of his genius, who subscribed to defray the expense of his residence) he merely availed himself of this opportunity to copy some of the works of the great masters, and to pursue the acquisition of his

art under the direction of his own taste and judgment. His contemporary, GREUZE, whom the French reckon their most eminent portrait-painter of that day, and who obtained besides great fame for his compositions from humble life, was likewise a self-taught artist. Having begun at a very early age, we are told, to cover the walls and furniture of the house with his sketches, he was strictly forbidden by his father to continue that amusement. But the bias of his genius was too strong for the paternal interdiction; and he was again and again found with his chalk or charcoal in his hand, and busy at his old employment. At last, one day, when his father had been scolding him on this account, a painter of the name of Grandon, from Lyons, happened to pay them a visit (they lived in the town of Tournus in Burgundy, at no great distance from that city); and it was agreed by all parties that young Greuze should be taken home by him to Lyons, and regularly instructed in the art to which he had shewn so strong an attachment. It is affirmed, however, that he was already nearly as good a painter as the master to whom he was thus consigned, and that in his subsequent progress also he was chiefly his own instructor. Another artist of the same period, distinguished in a different line, GEORGE DIONYSIUS EHRET, whose admirable drawings of botanical objects are so well known from the engravings in the *Hortus Cliffortianus* and other splendid works, was the son of a working-gardener, employed in the gardens of one of the minor German princes, and, when a boy, acquired his skill in delineating flowers so entirely by his own efforts, and, it may be even added, with so little consciousness of the progress he was making, that he had formed a valuable collection of the productions of his pencil before he was aware that his labours were worth anything. Dr. Trew, a physician of Nurem-

berg, had accidentally heard of him; and, having desired to see his drawings, found that he had already executed representations of about five hundred plants in a style of extraordinary excellence. These paintings had been merely the amusement of the young and self-taught artist; and his surprise may be conceived when Dr. Trew offered to purchase them from him for four thousand florins, or above two hundred and fifty pounds sterling. Even the money was not so welcome as the assurance thus given him of the value of a talent which he had hitherto rated so lightly. Ehret, who from this moment determined upon making botanical drawing his profession, eventually, as we have mentioned, earned the highest distinction in this line of art—especially after the intimate acquaintance he formed with the celebrated Linnæus, who directed his attention to the importance of minute fidelity in delineating some of the details of vegetable nature, which he had been accustomed too much to overlook. After having resided in different parts of the Continent, he came to England in 1740, when he was about thirty years of age, and remained in this country till his death, in 1770. He had educated himself diligently in other branches of literature and science, as well as in those immediately connected with his profession, and had been a Fellow of the Royal Society many years before his death.

To these instances we may add the strange and romantic story of the Italian painter, ANTONIO DE SOLARIO, commonly called *Il Zingaro*, or *The Gipsy*, to which, after it had been long almost forgotten, attention has very recently been recalled, in consequence of the discovery of one of the artist's paintings at Venice. On this painting, which was purchased from a dealer by the Abbé Louis Celotti of that city, Solario designates himself a Venetian; and the circum-

stance appears to have been received as matter of no small gratification and triumph by those who consider themselves as hence entitled to claim him as their countryman. A Signor Moschini has published a small pamphlet* upon the subject, which he dedicates to the Abbé Celotti, and in which he details the particulars of Solario's history, as they are given in Bernardo Dominici's "Lives of the Neapolitan Painters," one of the few writers by whom even his name had heretofore been noticed. Dominici, however, represents him as having been a native of the province of Abruzzo, in Naples; and Moschini therefore addresses himself, in the first place, to refute this error, as he conceives it to be, and to maintain the claim of Venice to the honour of having been the Gipsy's birth-place. His argument upon this point, though rather long, issues, after all, merely in a reference to the inscription upon the Abbé Celotti's picture, which, in the absence of all other direct evidence, he contends ought to settle the question. But, wherever he may have been born, it is agreed on all hands that Solario was originally a gipsy, or wandering tinker, and that it was in this character he first made his appearance at Naples in the beginning of the fifteenth century. He was, at this time, in the twenty-seventh year of his age, having been born, it is said, although about this date there is some doubt, in the year 1382. While here, he chanced to be employed to do some work in the way of his craft by a painter of the name of Colantonio del Fiore. This painter had a very beautiful daughter; the young lady was seen by Solario; and the tinker at once felt deeply in love with her. It was taking a bold step, certainly, and one not very likely to be successful; but, impelled by his passion,

* *Memorie della Vita di Antonio de Solario, detto il Zingaro, Pittore Viniziano. Venezia, 1828.*

the enamoured Solario determined to ask the lady from her father in marriage. His application was treated with ridicule by Colantonio; who, by way of effectually extinguishing the poor gipsey's hopes, told him that he meant to bestow his daughter only upon some one who was as good a painter as himself. Then will you accept of me, said Solario, for your son-in-law, if after a certain time I shall present myself to you with that qualification? Will you give me ten years to learn to paint, and so to entitle myself to the hand of your daughter? Colantonio thought that he would not hazard much by assenting to this proposal, by which he would at least rid himself for the present, and for a considerable time to come, of his importunate suitor, whose pertinacity and earnestness began somewhat to alarm him; and so, not greatly apprehending that he should ever hear more of him, he assured the tinker, that, if he came back within the period in question transformed into a painter, the young lady should be his. Before this, the story relates, Solario had, by some means or other, obtained the attention and favour of the King's sister; and he now insisted that Colantonio should go with him to that princess, and, in her presence, renew his covenant. Somewhat more favourably impressed towards his proposed son-in-law, probably, by being made aware of the interest he had at court, the painter agreed to this also; and the princess accordingly became the witness of the solemn ratification of his engagement. Having settled the matter thus far, Solario immediately left Naples, for Colantonio had stipulated that he should remove to a distance while acquiring his new accomplishments; and, in the first instance, he proceeded directly to Rome. Here, however, he could not find an instructor to his mind; but he heard much talk of Lippo Dalmasi, who resided at Bologna, and thither therefore he determined to

betake himself. On finding Lippo, and telling him his object, he received at first from that person only an urgent exhortation to think no more of so wild a plan, and to trust to the efficacy of time and absence to cure his passion; but Solario continued to press his application so perseveringly, employing even tears to aid his entreaties, that the reluctant painter was at last prevailed upon to admit him as his pupil. To the ardent Solario it now seemed as if all his difficulties were over. From the moment in which he began to receive Lippo's instructions, his application was unceasing. Awkward as he was at first, he soon became the admiration and envy of his fellow-students; and even his master himself now advised him to persevere in his new career, as earnestly as he had formerly endeavoured to dissuade him from entering upon it. He remained six or seven years with Lippo, and then left Bologna to visit the other principal towns of Italy, with the view of improving himself in his art by studying the various styles of other painters. In this peregrination he spent nearly three years, during which he visited, among other places, Florence, Ferrara, and Venice; and then returned once more to Naples, after an absence of nine years and some months. He first presented himself to one of the gentlemen attached to the court, whose picture he drew, and by his means he was introduced to the presence of his old friend, the princess, who would seem by this time to have ascended the throne. Changed as he was in outward appearance, as in everything else, he was not recognized by his former patroness; but a Madonna and Child, of his own drawing, which he offered to her, was graciously accepted. When her majesty had expressed her approbation of this picture, the painter threw himself at her feet, and ventured to ask her if she did not recollect the wandering gipsey, who ten years before

had had the honour of being admitted to her presence, and in whose fortune she had then been pleased to take an interest. After recognizing him, the queen, at first, would scarcely believe that he had really painted the picture he had given her ; but, on his executing in her presence a portrait of herself, she no longer doubted the truth of his pretensions. She then sent for Colantonio, and, having submitted the pictures to his inspection, desired him to tell her what he thought of them. Colantonio extolled them both to the skies. On this her majesty asked him whether he would not rather give his daughter to the artist whose productions were now before him, than wait any longer for the return of the gipsey, of whom he had heard nothing for so many years ? Too glad of such an opportunity of escaping from his engagement, the Neapolitan painter eagerly expressed his assent to this proposal ; when her majesty, calling to Solario to step forward from his place of concealment behind a curtain, where he had heard all that passed, at once solved the mystery. We need scarcely add the conclusion of the story. Solario received his well-earned bride ; the father, as he put her hand in his, remarking that, if not his ancestry, at least his art deserved her. Solario was soon after this appointed painter to the Neapolitan Court. During the remainder of his life he executed many works, which placed him in the very first rank of the painters of that age. In particular his series of pictures in *fresco*, illustrative of the life of St. Benedict, in the church of the convent of St. Severinus, at Naples, long excited universal admiration ; and, even in the half-defaced state in which they at present exist, testify the extraordinary powers of the artist. These frescos, however, he left unfinished at his death, in 1455. The picture by Solario which the Abbé Celotti has lately recovered, and of which

an engraving is given in Signor Moschini's pamphlet, is considered as fully sustaining the artist's traditional fame. As for the history which we have just detailed, it is not improbably indebted to the popular love of the marvellous for some portion of the shape in which it has come down to us; but there can be little doubt that it is, in the main, founded upon fact. The reader will remark its similarity to that of Matsys, the Flemish painter, whom we mentioned in our former volume* ; and, if both relations be true, seldom, certainly, has love had to boast of a greater or worthier triumph than those it achieved in the cases of the Italian tinker and the blacksmith of Antwerp.

But we cannot afford to notice any more of the numerous instances, suitable to our purpose, which the biography of painters would supply. We shall mention only one name from a kindred department of art—that of the eminent sculptor, CANOVA. He was also, in great part, a self-taught artist. Canova was born, in 1757, at a small village situated in the Venetian territory. His father was a stone-cutter, and died when Antonio, who was his only child, was in his third year. His mother, in a few months, married again, and, removing to another village, left the child, who was of a very delicate frame of body, with his paternal grandfather and grandmother. This turned out by no means the most unfortunate thing that could have happened to Antonio; for his grandfather, whose name was Pasino, although only a stone-cutter, was a man of very great intelligence and ingenuity, and, by all accounts, much better qualified at least to kindle to its first love of art the genius of the future sculptor than his own father, had he lived, would probably have been. Pasino's wife Catherina, too, took the most tender care of her

* Vol. i. p. 57.

little grandson. He was, indeed, the delight of the good old people; and while he was yet almost a child, Pasino, who, as we have just said, was accomplished much beyond the generality of his class, had taught him the elements of drawing, and had even set him to model in clay, and to shape little fragments of marble into the figures of the more simple and easy inanimate objects. The young artist, on his part, had no delight anywhere but in his grandfather's workshop, unless it was, after the hours of labour, to listen to the tales and ballads recited to him by his grandmother. So early as his ninth year, indeed, Pasino employed him as a regular workman, and he continued to be so employed till he was twelve. During these three years he had been often in the habit of accompanying his grandfather to execute repairs at the houses of the neighbouring proprietors, several of whom were Venetian noblemen, who had their country residences in this district. Among these was the Signor Giovanni Falieri, a gentleman of cultivated taste, who, after having frequently seen the boy, was so much pleased with his manners as well as the evidences of ingenuity which he already displayed, that he at last resolved to take him into his house, in order that he might enjoy some of those advantages of education which his grandfather's humble means could not afford him. A story has been told of Canova having first attracted the attention of the Falieri family by his having on one occasion, when some ornament was unexpectedly wanted for the Signor's table, modelled for the purpose a lion in butter, which excited such admiration that the artist was immediately inquired after, and orders given that he should be brought forward. But it appears certain that this anecdote is a fable, in so far at least as it attributes the introduction of the sculptor to his

early patron to the circumstance in question. Pasino, as we have said, had been long known to Signor Falieri, who had also had many occasions of remarking the promising talents of his grandson before he took him into his house*. That step, however, he appears to have adopted with no higher views, at first, than merely that the boy's general faculties might receive such cultivation as should enable him to follow the trade of his father and grandfather with superior advantages. Nor did he probably entertain any other intentions with regard to the future destination of his *protégé*, when, after some time, he sent him to receive some instructions in the rudiments of sculpture from an artist of considerable eminence who then happened to be residing in the neighbourhood, Giuseppe Bernardi, or Toretto, as he was otherwise called. In Toretto's workshop, however, Canova soon learned more than it was ever intended that he should acquire. After he had been there somewhat above a year, he one day took an opportunity, in his master's absence, to make models of two angels in clay. When Toretto, on his return home, saw these figures, he could scarcely believe that they had been executed by his pupil, who had hitherto, in fact, received lessons merely in some of the mechanical processes of the art. Canova remained with Toretto about three years, and then returned to his native village and his original occupation. But, fortunately, Signor Falieri, who now resided in Venice, seized probably by some misgivings as to the fitness of the humble sphere to which he had consigned the talents of his young friend, after a short time again sent him an invitation to come to him. To Venice, accordingly, Canova repaired, being now in his sixteenth year.

* *Vide* Memoirs of Antonio Canova, by J. S. Memes, A.M., Edin. 1825, pp. 153, &c.

From this date it may be considered that it had been fixed that he should become an artist. He therefore applied himself assiduously to all the necessary studies. In order, at the same time, that he might not be entirely dependent on his patron, although he lived in his palace, he formed an engagement to give his services during the afternoon to a sculptor in the city, although he got very little for his work. "I laboured," says he, in one of his letters*, "for a mere pittance, but it was sufficient. It was the fruit of my own resolution; and, as I then flattered myself, the foretaste of more honourable rewards,—for I never thought of wealth." His day, therefore, was thus divided; the morning was given to study in the academy or the galleries, the afternoon was spent in the workshop, and the evening was devoted to the improvement of his mind in general knowledge. The first commission which Canova ever obtained was from one of the Venetian noblemen, for two baskets containing fruits and flowers. This, his earliest performance, is still to be seen at Venice; but it is not thought to give much promise of the excellence which he afterwards attained. After this he proceeded to the execution of a groupe on the subject of Orpheus and Eurydice, for Signor Falieri; but this he did not finish till many years afterwards. Meantime he determined to set up in business for himself; and the first workshop of this great sculptor was a small ground cell in the Monastery of the Augustine Friars, the use of which he obtained by a grant from the brotherhood. In this humble and obscure apartment Canova wrought for four years. But although not much noticed by the world during this period, his mind was all the while making rapid progress in the study and mastery of his art. It was at this time

* Memoirs by Memes, p. 188.

that, left entirely in the pursuit of excellence to the guidance of his own reflections, he first began to perceive the necessity of founding the study of art upon the study of nature, in opposition to the notion which then prevailed that certain assumed principles and rules of operation were alone to be attended to. As soon as this new view dawned upon his mind he hastened to regulate his studies in conformity to it. Instead of merely examining and copying the works of other sculptors, he resorted for every part of his art to the works of nature. He studied anatomy. He attended the public spectacles and the theatres, that he might catch the finest attitudes of the human figure from the living exhibition. In walking the streets, in like manner, his eye was constantly on the watch to catch new forms of grace and power from the moving life around him. His art now became more than ever the sole object for which he lived. He laid down a rule for himself, which he strictly observed, never to pass a day without making some progress, or to retire to rest till he had produced some design. In the mean time he also pursued with ardour his studies in general knowledge, especially in those branches which he conceived to be most important to him in his profession, such as poetry, antiquities, history, and the Greek and Roman classics, which, however, he could only read through the medium of translations. He also studied the French and Spanish languages. All this time, however, as we have mentioned, he was very little known. The first performance by which he attracted the notice of his fellow-citizens was his finished groupe of Orpheus and Eurydice, which he exhibited in 1776. Immediately after this orders began to flow in upon him, and he soon removed to a better workshop. In 1780 the Venetian senate bestowed upon him a pension of 300 ducats (about

607.), in order that he might have it in his power to go to finish his studies at Rome. From this time the ecclesiastical capital became his chief residence. On his first arrival there, however, his novel principles of art revolted all the established authorities in such matters; and for a long time his works were the ridicule both of connoisseurs and of his brother sculptors. It was not till about the year 1800 that Canova's merits were fully and generally recognized. From this time, however, till his death, in 1822, he stood in universal estimation without a rival, and received all the honours that the admiration of the world could bestow upon him, as one of the greatest sculptors that had appeared not only in his own but in any age.

The last person we shall mention under this head is our late countryman, THOMAS BEWICK, so deservedly celebrated for his admirable performances in wood-engraving, an art of which he may be said to have been not so much the improver as the reviver, or re-inventor. Bewick was born in the year 1753, at a village called Cherryburn, in Northumberland. From his earliest years he delighted above all things in observing the habits of animals; and it was his fondness for this study that gave rise, while he was yet a boy, to his first attempts in drawing. Long before he had ever received any instruction in that art, he used to delineate his favorites of the lower creation with great accuracy and spirit. His introduction to the regular study of his future profession was occasioned by an accident similar to that which has been mentioned in a former page as having happened in the case of the French painter Greuze. Bewick also was in the habit of exercising his genius by covering the walls and doors of the houses in his native village with his sketches in chalk. Some of these performances one day chanced to at-

tract the attention of a Mr. Bielby, a copper-plate engraver, of Newcastle, as he was passing through Cherryburn; and he was so much struck, it is said, with the talent they displayed, that he immediately sought out the young artist, and obtained his father's consent to take him with him to be his apprentice. Mr. Bielby had not had his young pupil long under his charge, when the late Dr. Hutton, of Woolwich, happened to apply to him to furnish a set of copper-plate engravings for a mathematical work (his *Treatise on Navigation*) which he was then preparing for the press. Bielby, however, who was a very intelligent man, suggested to the Doctor that, instead of having his diagrams engraved on copper, in which case they could only be given on separate plates, to be stitched into the volume, it would be much better to have them cut in wood, when they might be printed along with the letter-press, each on the same page with the matter which it referred to or was intended to illustrate. This, indeed, is one of the chief advantages of wood-engraving. In a copper-plate, as may be known to most of our readers, the parts which are intended to leave an impression upon the paper are cut into the copper, so that, after the ink is spread over the engraving, it has to be rubbed from all the prominent or uncut portion of the surface, in order that it may remain only in these hollows. Several disadvantages result from this. In the first place the plate is very soon worn, or the fineness of the lines impaired, by this continual abrasion to which it is subjected*. Secondly, from the method of inking being so different from that which is used in printing letter-press, where the parts of the type that make the impression are the prominences and not the hollows, and the ink, therefore, is allowed to remain where it naturally adheres

* Engraving on steel has very much remedied this disadvantage.

on being applied by the ball or roller, the copper-plate engraving must always be printed by itself, and generally on a separate page from the letter-press. The only way of giving both on the same page is to subject the paper to two successive impressions, which, beside the inconvenience of the operation, almost always produces an unpleasant effect from the difference of colour in the two inkings, and the difficulty of adjustment. A wood-cut has none of these disadvantages. As the impression is to be made by the prominent parts of the wood, these, which receive the ink directly from the roller, are allowed to retain it, just as in the case of ordinary types; and there is therefore nothing of that process of rubbing at every impression, which so soon wears out a copper-plate. The consequence is, that while rarely more than two thousand impressions can be taken from a copper-engraving before it requires to be retouched, a wood-cut will yield perhaps fifty thousand. Then the latter, from the manner in which it is to be inked, admits of being set up, if necessary, just like any of the other types, in the midst of a common page, and so of being printed both in the most convenient place and without any separate process. The block must, of course, for this purpose be made very exactly of the same thickness or depth as the other types along with which it is placed. In the early days of wood-engraving the pear-tree or apple-tree was the wood most commonly used; but box-wood is now generally employed, as being of a still firmer and more compact grain. The surface of the block is first shaved very even and smooth; and upon this the figure is then traced in pencilling as it is to be finally cut out in relief.

Dr. Hutton followed Bielby's advice with regard to the diagrams for his book, and it was arranged that they should be cut in wood. Many of them, accordingly, were put by his master into young.

Bewick's hands. The boy executed them with so much accuracy, and a finish so greatly beyond what had usually been attained in that species of work, that Mr. Bielby earnestly advised him to give his chief attention henceforward to wood-engraving, and to make it his profession. At this time the art in question had fallen into the lowest repute. Yet it had by no means been always so. In former times it had both counted several distinguished names among its cultivators, and had reached a very striking degree of effect in some of its productions. About the end of the fifteenth century, the celebrated painter Albert Durer, who was also eminent as a copper-plate engraver, practised cutting in wood. When the art was first introduced it was employed chiefly to furnish ornamental borders for the title-pages of books; and these decorations were in general merely broad stripes of black, enlivened by a few simple figures, such as circles or hearts, which were left white upon the dark ground, by being, not raised, but scooped out in the wood. In the same manner, when any object, the shape of a human or of any other being, for instance, was to be represented, it was the practice merely to cut away the block according to the requisite outline, leaving all the space within untouched, so that when inked and applied to the paper, it left its impression in a blot of unrelieved and uniform blackness throughout. The picture of the devil, in particular, used often to be exhibited in this sable, and, as many no doubt deemed it in this case, peculiarly suitable guise. It soon, however, became usual to introduce white lines, effected, of course, by the easy process of merely cutting grooves in the wood, to mark the shades at the knees, shoulders, and other parts of the figure; and this improvement made the representation both less sombre and more natural. At a

still later period the outline alone and the shaded parts were left prominent. This may be considered to have been the commencement of the existing style of the art. But the period during which wood-engraving was carried to the greatest perfection was about the beginning of the sixteenth century, when a method was followed by some of the more eminent artists, which gave to their performances an effect unattained by their predecessors, and which the best productions of succeeding times have perhaps scarcely surpassed. This was the method of cross-hatching, or the cutting of the wood into a congruities of squares or lozenges by two series of prominent lines running transversely to each other. By this means they produced not only shading, but gradations of shading, with as much perfection as is done in copperplate engraving; for the different parts of the picture had only to be hatched more or less closely, according as they were intended to be dark or light. The difficulty, however, of carving these crossing lines upon the wood must have been exceedingly great; and, indeed, it has been supposed by some that the effect in question was produced by the paper being impressed, not upon one, but upon two blocks successively. The method of cross-hatching in wood has, at all events, been long abandoned; but some attempts that have been made in very recent times have shewn that it is perfectly practicable to produce the same effect as in the works of the old masters by a single block, although at the expense of extraordinary labour and skill. If the old method had consisted in any such half-mechanical process as the application of successive blocks, it probably would not have fallen so completely into oblivion. The extraordinary pains it cost and the time it consumed occasioned its disuse.

When the practice of cross-hatching was aban-

done, however, wood-engraving may be said to have ceased to be cultivated as an art. In this country in particular it was seldom resorted to except to furnish a few of the simple ornaments used in common printing, such as a border for the title-page, a tail-piece, or a coarse cut to put at the head of a street ballad. From this state of contempt it was raised again to the rank of one of the fine arts, by the genius and perseverance of the individual the mention of whose name has given occasion to this brief sketch of its history, and who, by his labours in its cultivation and improvement, raised himself also from obscurity to distinction. According to Mr. Bielby's advice, Bewick probably continued to give much of his attention to cutting in wood during the remainder of his apprenticeship. As soon as it was over he repaired to London, where he went into the employment of a person who practised this trade, such as it then existed, somewhere in the neighbourhood of Hatton Garden. It is probable, however, that he soon found he was not likely to learn much from his new master; for, in a very short time, he returned to the country. With his taste, too, for rural scenery and enjoyments, and the observation of nature, he found little in London in which he took much interest. When Mr. Bielby, therefore, now offered to take him into partnership, he at once resolved to retrace his steps to Newcastle. Nor even after he had obtained his highest celebrity, did he ever again think of establishing himself in the metropolis. He spent the remainder of his life in his native district.

The first specimen of his talents by which Bewick made himself publicly known was a cut of an old hound, which, being laid before the Society of Arts, obtained a prize which they had that year offered for the best wood-engraving. This was in 1775.

The block had been cut for an edition of Gay's Fables, which had been projected some time before by Mr. Thomas Saint, the printer of the Newcastle Courant. The work itself appeared in 1779, and immediately attracted general attention by the striking superiority of its embellishments, which were all from wood-cuts executed by Bewick and his younger brother John, who, when Bielby and he entered into partnership, had become their apprentice. From this time the reputation of the artist went on increasing steadily, and he produced a succession of works which very soon gave altogether a new character to his art itself.

The work, however, which established his fame was his History of Quadrupeds, which appeared in 1790. He had been employed many years in preparing this publication, all the cuts in which were not only engraved by himself or his brother, but were all copied from his own drawings. He had continued to cultivate his early talent for the delineation of animals with unwearied industry, having been in the habit of taking sketches of all the striking specimens that came under his notice; while, in order to obtain accurate representations of those of greater variety, he never failed to visit whatever menageries came to Newcastle, and there to draw them from the life. His assiduous studies from nature no doubt greatly contributed to the excellence of the cuts in the History of Quadrupeds. Many of the vignettes also, with which this publication was adorned, had uncommon merit as original sketches; for Bewick did not confine his attempts with his pencil to the mere delineation of animals.

But Bewick was principally indebted for the great superiority of his productions over those of his predecessors, to an entirely new mode of operation, which he introduced into the art. The secret of the

old method of cross-hatching, as we have mentioned, had been long lost; or, at least it had been entirely abandoned from the extraordinary difficulty of the only known manner of practising it. But Bewick produced nearly the same effects by another, and much simpler contrivance. Till his time, the block, when prepared for the press, presented only two varieties of surface, the parts which were intended to receive the ink and make the impression being left in relief; while all the rest of the wood was cut away to so great a depth, as entirely to prevent it from touching the paper. The consequence was, that the dark portions of the engraving were all of one shade, while the only other colour introduced was the pure white of the paper. But Bewick effected a variety of tints, and thereby a much truer and more natural perspective, by leaving certain parts of his blocks not quite so prominent as those that were intended to produce the darkest lines, while at the same time he did not lower them so much as altogether to prevent them from coming in contact with the paper when applied to take off the cut. The portions of the surface which were left in this state communicated an impression varying in depth of shade according to the degree in which the wood was scooped away; and the cut thus exhibited upon the paper all the gradations to be found in a copper-plate engraving. It is said that this improvement was first suggested to Bewick by his friend, the late Mr. W. Bulmer (afterwards the eminent London printer), who was a native of Northumberland as well as himself, and, serving his apprenticeship in Newcastle at the same time, used always to take off the proofs of Bewick's cuts. To the skill and contrivance of the artist himself, however, we are doubtless to ascribe the first application and practical demonstration of the new method, as well as the subsequent improvements by

which he eventually gave to it probably all the perfection of which it is susceptible.

It would be out of place in a sketch like this to follow up what has been said by a catalogue of the various works which Mr. Bewick gave to the world, after the period in his history at which we are now arrived, or which made their appearance illustrated by his embellishments. We have traced the steps by which he rose, through the force of his own talents and industry, to the head of his profession; and it is not necessary that we should pursue his career farther. Suffice it to say, that he amply sustained throughout the remainder of his long life the promise of his early progress. No man was ever more devoted to his profession. Its labours were as much his enjoyment as his business. He was always an early riser; and from the hour at which he got out of bed till evening, he was generally to be found at work, and whistling merrily all the while. For what are called the pleasures of society he cared very little; his social hours were passed in the midst of his family, or occasionally among a small number of select friends when the task of the day was done. Every thing in the least degree savouring of effeminate indulgence he despised. His ordinary exercise was walking; but he was fond of all the manly and invigorating sports of the country, and desired no better relaxation from the toils of the workshop than an occasional participation in such cheap and simple amusements. The whole economy of his life was regulated upon a principle of rigid temperance, as well as of the most steady and persevering exertion. He was remarkable at all times for the moderation with which he ate and drank; and in respect to other matters he shewed such a contempt for luxury, that he generally slept, even in the depth of winter, with the windows of his chamber open, though in consequence he sometimes, on awaking,

found the snow lying on his bed-clothes. For money, which men in general prize so highly, Bewick had all the indifference of a philosopher. The number of works which his unwearied application produced was, as might be expected, extraordinarily great. But he did not confine his studies and performances merely to the art in which he has chiefly earned his fame. He made himself competently acquainted with various branches of knowledge; and with natural history in particular he was intimately conversant. He also engraved occasionally on copper as well as on wood. Even the greater leisure which he was obliged to allow himself during the few last years of his life, when the infirmities of old age compelled him partially to relinquish his professional labours, was not given up to mere idleness. He availed himself of this release from his ordinary occupations to write a memoir of his own life, which is said to be composed with much minuteness of detail, and to be of considerable extent*. But to the very last hour of his existence his art continued to occupy his thoughts. His last undertaking—directed, like most of those by which it had been preceded, mainly by an anxiety for the diffusion of sound knowledge and morality—was the preparation of a series of cuts for the labouring part of the population, which might supplant the tasteless and often corrupting prints usually found among the embellishments of the cottage; and a proof impression of the first of this intended collection, a cut of an old horse, heading an address against cruelty to animals, was brought to him only two or three days before his death. This eminent artist and excellent man died on the 8th of November, 1828, in the 76th year of his age.

* In the account of Bewick in vol. xiv. of the *Annual Biography*, to which we have been particularly indebted for the materials of this sketch.



CHAPTER. IX.

Usefulness of such encouragements as the examples here given are calculated to afford to youthful genius in every department of study. Self-educated Poets: John Taylor; Antonio Bianchi; Ramsay; Bloomfield.

THE individuals with whom our last three chapters have been occupied have not earned their distinction by the cultivation of any branch of what is properly called science or literature; but their lives do not on that account furnish us with less suitable illustrations of the subject of the present work. Our object is to inculcate the importance, to demonstrate the practicability, and to point out the method, of intellectual improvement generally; and especially to make the young reader understand and feel, by an array of examples taken from every condition of society and every walk of mental exertion, that, in the pursuit of any description of knowledge, no difficulties arising from external circumstances can eventually resist a steady determination to excel; so that a man's success or failure in such an attempt depends, in fact, more upon himself than upon any circumstances in which he may be placed. Wherever, therefore, we have been able to find a case of extraordinary attainments made in despite of such obstacles as usually repress all endeavour after intellectual cultivation, we have not hesitated to bring it forward, whether it was that of an individual who had distinguished himself in philosophy, in scholarship, or in art. What we have wished to establish and make evident is, the power which every man really desirous of education has, in the absence of all aid from others, to educate himself; and that this power is not

confined to the case of any particular sort of acquirement, but exists in nearly an equal degree in regard to every species of knowledge or skill, of which any one may be ambitious to possess himself. And one moment's consideration will shew the vast importance of such a truth being generally diffused and felt in all its universality. How much apprehension and despondency would even those of the children of poverty and neglect, who have been eventually most successful in their efforts to educate themselves, been saved from, had they all possessed such an assurance as these examples are calculated to afford, that many others had triumphed in the same or a harder struggle before them? Would not this of itself have helped to smooth the roughest of their difficulties, and carried them forward on their way with new strength, even when their hearts were most ready to fail them? Nay, how many might not such an assurance have led to high attainments, and perhaps to achievements beneficial to themselves and to mankind, in some one of the various paths of intellectual enterprize, who, frightened by the apprehended arduousness of the task, have either never made an attempt to emancipate themselves from the ignorance in which they were reared; or, having begun the pursuit of knowledge, have stopt in their career ere they had made any considerable progress? Nor let it be said that the mere force of talent, where it really exists, will of itself be sufficient to overcome everything that may tend to repress it. Even genius of the highest order is often diffident, and easily dismayed; its quickness of sensibility makes it apprehensive, and prone both to exaggerate difficulties where they do exist, and to create them where they do not. On these accounts it frequently needs encouragement where a coarser nature, and faculties of immeasurably less real power, might safely be

left to make their way without any pains being taken to invigorate or sustain their possessor's confidence of success. We cannot then doubt the usefulness of diversifying our illustrations as much as possible by selecting them from all the different departments of biography. We would offer to every aspirant, in every line of intellectual pursuit, an example by which he may at least learn that he is setting out upon no impracticable or hitherto unaccomplished journey, but that a road as difficult as his own, if not the very same, has been travelled by another before him. Whether, therefore, it be literature or science, or any branch of art, in which it is his desire to accomplish himself, let him be as destitute at the commencement of his career of all the ordinary means of instruction as he may, here is his assurance that the way is still open to him, not only to mediocrity of attainment in his chosen pursuit, but even, it may be, to the highest distinction.

We propose now to notice a few of the more remarkable instances, not already adverted to, in which a genius for another of the fine arts, Poetry, which is, however, at the same time, a department of literature also, has burst through all the impediments of an unfavourable worldly lot, and prompted its possessor to the successful pursuit of that education which here, as everywhere else, can alone enable even the most extraordinary native powers of mind to produce anything of much value. For it is certainly a very unfounded, though by no means an uncommon notion, that the case of poetic talent forms an exception to this general rule, and that to be a great poet a man has only to be born such. There is no instance on record of an individual either securing or deserving any considerable or permanent distinction by his poetical productions, who had not stored his mind with much and various knowledge,—in other words,

who had not educated himself well, although never, it may be, matriculated in any university. The germ of a genius for poetry has no doubt sometimes made its appearance in individuals nearly altogether uneducated; but where is to be found the case of this description in which the seed, so buried in an uncultivated soil, has ever grown to anything worth the gathering? It is indeed very much to be apprehended that this mistaken notion in regard to the uselessness of education to a poet, which is sometimes carried so far as to amount to a belief that a poet is actually spoiled by being educated, has not unfrequently had the effect of preventing persons who felt, or supposed, themselves to be gifted with poetic powers, from exerting themselves with so much ardour and perseverance as they otherwise might have done in the general cultivation of their faculties, or even, in some cases, from making any such attempt at all. Some poets of the humbler class, at any rate, might probably be mentioned, who would have written better if they had taken more pains to add other acquirements to their talent for versifying. We had in this country, in the seventeenth century, a famous popular writer, named JOHN TAYLOR, but who was generally called the Water Poet, from the occupation by which he won his livelihood, which was that of a waterman. Taylor, whose parents were poor people, had learned a very little Latin at a school in the city of Gloucester, where he was born; but this, which was in truth merely a few pages of the rudiments very imperfectly conned, he soon forgot, and he never attempted to recover it. Yet he shewed considerable industry in tagging rhymes, both while engaged in the laborious employment we have mentioned, and at an after period, when he kept a victualling-house at Oxford. During the civil wars he published a great many effusions on the royalist side

of the question, some of which shew considerable powers of humour, and give ground for believing that, with more study and a larger acquaintance with literature, the author would have produced excellent compositions. The mention of Taylor reminds us of another water-poet, ANTONIO BIANCHI, a common Venetian gondolier, whose epic, entitled "David, King of Israel," in twelve cantos, made its appearance at Venice about the middle of the last century. From the accounts, however, given of this poem, which is written in the Venetian dialect, it appears to be, notwithstanding the provincial and unclassical character of the language, a work of a very superior order to anything that the English waterman ever produced, both in genius and in the evidence which it affords of the author's reading and information. Bianchi afterwards published a critical tract, which was deemed to display considerable ability. But an acquaintance even with the most classic poetical productions of their country is, or was, far from uncommon among the Venetian gondoliers. The writer of the notes to the fourth canto of 'Childe Harold's Pilgrimage' tells us that many portions of Tasso's 'Jerusalem' used to be familiar to most of them, and that editions of the entire poem, translated into the Venetian dialect, were formerly in general circulation. On one occasion, in January, 1817, he mentions that he himself, accompanied by Lord Byron and another Englishman, went to an island a short way from the city in a boat rowed by two men, one of whom was a carpenter and the other a gondolier, the former of whom placed himself at the prow, the latter at the stern. "A little after leaving the quay of the Piazzetta," continues the writer, "they began to sing, and continued their exercise until we arrived at the island. They gave us, among other essays, the death of Clorinda, and the palace of Armida;

and did not sing the Venetian, but the Tuscan verses. The carpenter, however, who was the cleverer of the two, and was frequently obliged to prompt his companion, told us that he could *translate* the original. He added, that he could sing almost three hundred stanzas, but had not spirits (*morbin* was the word he used) to learn any more, or to sing what he already knew: a man must have idle time on his hands to acquire, or to repeat, and, said the poor fellow, 'look at my clothes and at me; I am starving.'" Bianchi, we ought to add, was also the author of a second poem, of considerable extent, entitled "Solomon, or the Temple," as well as of several minor productions.

In our own country we have had many writers of verse who have arisen among the ranks of the labouring population, but, with the exception of Burns, no great poet. Perhaps the name that should be placed next to that of Burns is that of his countryman, ALLAN RAMSAY, the author of the Gentle Shepherd, certainly one of the most natural, if not most poetical, pastorals to be found in any language. Ramsay was the son of one of the common workmen in the lead-mines belonging to the Earl of Hopetoun, in the south of Scotland; and, as soon as his strength permitted, he was himself employed in the mines as a washer of ore. What education he had he must have obtained at the village school, and it probably extended little beyond the elements of reading and writing. Having come to Edinburgh about the year 1700, when he was fifteen years of age, he entered upon his apprenticeship to a barber; and this profession he afterwards exercised in that city for many years. Like John Folcz, of Nuremberg, who was mentioned in our former volume*, and the still more famous Burchiello, of Florence, whose sonnets, written in the

* Vol. i. p. 45.

fifteenth century, are still admired in Italy for the purity of their style, Ramsay did not find the business he had chosen so unfavourable as might be supposed to intellectual cultivation. During the day he had abundant opportunities for thought in his sedentary occupation of making wigs; and he used to spend the leisure of his evenings in composing songs and other short poetical pieces in his native dialect, with no higher aim at first than that of adding to the entertainment of the social parties in which he was wont occasionally to mix. These compositions, however, were often written with so much spirit, that, in a short time, they brought the author into general notice, and, humble as his condition was, he began to be sought after by the most distinguished wits of the northern capital. The connexions which he thus formed enabled him at length to escape from his original trade; and he commenced business in the more appropriate vocation of a bookseller. After this, Ramsay wrote and edited various works, and took his rank in all respects as one of the literary characters of the day. He lived till the year 1758, when he died at the age of seventy-three. The fancy of this poet is not very brilliant, but he had the art of writing his native Doric mellifluously, and his humour, though sometimes coarse, has a genial vigour about it which is very effective. In many of his effusions, too, and especially in his principal work, 'The Gentle Shepherd,' there is a natural simplicity and faithfulness of delineation, which all hearts, even the least poetical, are sure to feel and appreciate. These qualities accordingly have secured to him a popularity which, instead of having suffered diminution with the lapse of years, is probably greater now than it was in his life-time; for his writings, it is likely, were then scarcely, if at all, known out of Scotland, whereas his Pastoral is now familiar, by reputation at least, to

many English readers. As the immediate predecessor of Fergusson and Burns, Ramsay has every claim to be considered the father of modern Scottish poetry.

One of the most respectable names among the humbly-born and self-educated poets of the southern part of the island, is that of the late ROBERT BLOOMFIELD, the author of the *Farmer's Boy*. Bloomfield was born in 1766, at a small village in Suffolk. His father, who was a tailor, died before the infant was a year old, leaving his widow with the charge of five other children besides Robert. In these circumstances, in order to obtain a maintenance for herself and her family, she opened a school, and, of course, taught her own children the elements of reading along with those of her neighbours. The only school education which Robert ever received, in addition to what his mother gave him, was two or three months' instruction in writing at a school in the town of Ixworth. At the time when he was sent to this seminary, he was in his seventh year; and he was taken away so soon in consequence of his mother marrying a second husband, who probably did not choose to be at any expense in educating the offspring of his predecessor, especially as his wife, in due time, brought him a family of his own.

We have no account of how the boy spent his time from his seventh to his eleventh year; but at this age he was taken into the service of a brother of his mother, a Mr. Austin, who was a respectable farmer on the lands of the Duke of Grafton. His uncle treated him exactly as he did his other servants, but that was kindly, and just as he treated his own sons. Robert, like all the rest of the household, laboured as hard as he was able; but, on the other hand, he was comfortably fed and lodged, although his board seems to have been all he re-

ceived for his work. His mother undertook to provide him with the few clothes he needed; "and this," says Mr. Capel Lofft, "was more than she well knew how to do." Indeed she found so much difficulty in fulfilling her engagement, that she at length wrote to two of her elder sons, who were employed in London as shoemakers, requesting them to assist her by trying to do something for their brother, who "was so small of his age," she added, "that Mr. Austin said he was not likely to be able to get his living by hard labour." To this application her son George wrote in reply, that if she would let Robert come to town he would teach him to make shoes, and his other brother, Nat, would clothe him. The anxious and affectionate mother of the future poet assented to this proposal; but she could not be satisfied without accompanying her son to the metropolis, and putting him herself into his brother's hands. "She charged me," writes Mr. George Bloomfield, in giving an account of the incident, "as I valued a mother's blessing, to watch over him, to set good examples for him, and never to forget that he had lost his father."

When Bloomfield came to London he was in his fifteenth year. What acquaintance he had with books at this time is not stated, but it must have been extremely scanty. We find no notice, indeed, of his having been in the habit of reading any at all while he was with Mr. Austin. Yet it would appear from the sequel of his brother's account that he had at least contrived to retain so much of what he had learned in his younger days as still to be able to read tolerably. The place in which the boy was received by his two brothers was a garret in a court in Bell Alley, Coleman Street, where they had two turn-up beds, and five of them worked together. "As we were all single men," says George, "lodgers

at a shilling per week each, our beds were coarse, and all things far from being clean and snug, like what Robert had left at Sapiston. Robert was our man to fetch all things to hand. At noon he fetched our dinners from the cook's shop; and any one of our fellow-workmen that wanted to have anything fetched in would send him, and assist in his work, and teach him, for a recompense for his trouble. Every day when the boy from the public-house came for the pewter pots, and to hear what porter was wanted, he always brought the yesterday's newspaper. The reading of the paper we had been used to take by turns; but, after Robert came, he mostly read for us, because his time was of least value." The writer goes on to state that in this his occupation of reader of the newspapers, Robert frequently met with words which were new to him, and which he did not understand, a circumstance of which he often complained. So one day his brother, happening to see on a book-stall a small English dictionary, which had been very ill used, bought it for him for fourpence. This volume was to Robert a valuable treasure; and by consulting and studying it he soon learned to comprehend perfectly whatever he read. The pronunciation of some of the hard words, however, still puzzled him a good deal; but by a fortunate accident he was at length put in the way of having his difficulties here also considerably diminished. One Sunday evening, after a whole day's stroll in the country, he and his brother chanced to walk into a dissenting meeting-house in the Old Jewry, where a preacher of extraordinary abilities and great popularity was delivering a discourse. This was Mr. Fawcet, whose sermons, which have been printed, are very powerful compositions. Fawcet's manner was highly rhetorical, and "his language," says Mr. George Bloomfield,

"was just such as the *Rambler* is written in." Robert was so much struck by his oratory that, from this time, he made a point of regularly attending the chapel every Sunday evening. In addition to the higher improvement of Mr. Fawcet's discourses, he learnt from him the proper accentuation of difficult words; which he had little chance of hearing pronounced elsewhere. He also accompanied his brother sometimes, but not often, to a debating society, which was held at Coachmaker's Hall, and a few times to Covent Garden theatre. Beside the newspapers, too, he at this time read aloud to his brothers and their fellow-workmen several books of considerable extent—a History of England, British Traveller, and a Geography, a sixpenny number of each of which, in folio, they took in every week. But these "he always read," says his brother, "as a task, or to oblige us who bought them." He calculates that Robert spent in this way about as many hours every week in reading as boys generally do in play.

These studies, however, even although somewhat reluctantly applied to, doubtless had considerable effect in augmenting the boy's knowledge and otherwise enlarging his mind. But it was a work of a different description from any of those that have been mentioned which may be said to have first awakened his literary genius. "I at that time," continues Mr. George Bloomfield, "read the London Magazine; and, in that work, about two sheets were set apart for a Review. Robert seemed always eager to read this Review. Here he could see what the literary men were doing, and learn how to judge of the merits of the works that came out. And I observed that he always looked at the 'poet's corner.' And one day he repeated a song which he composed to an old tune. I was much surprised that he

should make so smooth verses; so I persuaded him to try whether the editor of our paper would give them a place in poet's corner. He succeeded, and they were printed." This is the way in which many a young literary aspirant has first tried his strength. Thus, as we noticed in our former volume, the Ladies' Diary was the repository of Thomas Simpson's earliest mathematical speculations; and it was in the columns of a Philadelphia newspaper that Franklin commenced his career as an author. A Bristol journal, in like manner, received the earliest antiquarian lucubrations of Chatterton, then only a boy of fifteen, while much about the same time the first of his Rowleian forgeries appeared in the Town and Country Magazine.

After this Bloomfield contributed other pieces to the same publication into which his first verses had been admitted; and under the impulse of its newly kindled ambition his mind would appear to have suddenly made a start forwards which could not escape the observation of his associates. "Indeed, at this time," says his brother, "myself and fellow-workmen in the garret began to get instructions from him." Shortly after, upon removing to other lodgings, they found themselves in the same apartment with a singular character, a person named James Kay, a native of Dundee. "He was a middle-aged man," says Mr. George Bloomfield, "of a good understanding, and yet a furious Calvinist. He had many books, and some which he did not value; such as the Seasons, Paradise Lost, and some novels. These books he lent to Robert, who spent all his leisure hours in reading the Seasons, which he was now capable of reading. I never heard him give so much praise to any book as to that."

It was the reading of the Seasons, in all proba-

bility, which first inspired him with the thought of composing a long poem on rural subjects. The design was also in some degree favoured by a visit of two months which he was induced to pay about this time to his native district, in order to escape from the annoyance with which he was threatened, owing to a dispute that had taken place in the trade to which he belonged between those workmen who had and those who had not served a regular apprenticeship. As Bloomfield belonged to the latter class, the others, who had formed themselves into an association, talked of prosecuting his master for employing him; and he begged to be suffered to retire till the storm should blow over. On this occasion his old master, Mr. Austin, kindly invited him to make his house his home; and the opportunity he thus had of reviewing, with a more informed eye, the scenes in which he had spent his early years, could hardly fail to act with a powerful effect in exciting his imagination. It was at last arranged that he should be taken as apprentice by his brother's landlord, who was a freeman of the city; and he returned to town. He was at this time eighteen years of age. It was not intended that his master should ever avail himself of the power which the indentures gave him, and he behaved in regard to this matter very honourably. George, therefore, remained with his brother for about two years longer, by which time he had taught him to work as expertly as himself.

For some years after this, Robert's literary performances seem to have amounted merely to a few effusions in verse, which he used generally to transmit in letters to his brother, who had now gone to live at Bury St. Edmunds, in his native county. Meantime he studied music, and became a good player on the violin. In his twenty-fifth year he married, when "he told me in a letter," says his brother,

“ that he had sold his fiddle, and got a wife. Like most poor men, he got a wife first, and had to get household stuff afterward. It took him some time to get out of ready furnished lodgings. At length, by hard working, &c. he acquired a bed of his own, and hired the room up one pair of stairs, at 14, Bell Alley, Coleman Street. The landlord kindly gave him leave to sit and work in the light garret, two pair of stairs higher.”

The frequency of the developement of literary talent among shoemakers has often been remarked. Their occupation, being a sedentary and comparatively noiseless one, may be considered as more favourable than some others to meditation; but, perhaps, its literary productiveness has arisen quite as much from the circumstance of its being a trade of light labour, and therefore resorted to, in preference to most others, by persons in humble life who are conscious of more mental talent than bodily strength. Partly for a similar reason literary tailors have been numerous. We have mentioned in our former volume the Italian writer Gelli, our learned countrymen Hill and Wild, &c.; and to these we might add many others, as, for example, George Ballard, author of ‘Memoirs of Learned British Ladies,’ and who made himself a good Saxon scholar while practising his trade,—the antiquaries, Stow and Speed, who both flourished in the sixteenth century, the former the author of ‘The Survey of London,’ and other very elaborate works, and the latter of a valuable History of Great Britain,—and the late celebrated mathematician, Jean Henri Lambert, who, when young, after working all day with his father, who was a tailor, used often to spend the greater part of the night in reading, and in this manner, by the assistance of an old work which came by chance into his possession, instructed himself in the elements of mathematical science. Of lite-

rary shoemakers again, or persons who have contrived to make considerable progress in book-learning, while exercising that handicraft, we have already noticed, among others, Benedict Baudouin, Anthony Purver, Joseph Pendrell, Gifford, and Holcroft. We may add to the list that extraordinary character Jacob Behmen, the German mystic, of whose works we have an English translation in two volumes quarto, and who continued a shoemaker all his life. But Bloomfield, before entering upon the exercise of this trade, had had the education of his faculties begun while following the equally contemplative and much more poetical occupation of a keeper of sheep—a condition, the leisure and rural enjoyment of which had fed the early genius of the painter Giotto, the logician Ramus, the mechanician Ferguson, the linguist Murray, and many others of the lights of modern literature and art, as in the ancient world it is said to have done that of the poet Hesiod. Bloomfield's literary acquirements, however, with the exception of his acquaintance with the mere elements of reading and writing, appear to have been all made during the time he was learning the business of a shoemaker, and afterwards while he worked at the same business as a journeyman.

It was while he sat plying his trade in his garret in Bell Alley, with six or seven other workmen around him, that Bloomfield composed the work which first made his talents generally known, and for which principally he continues to be remembered, his 'Farmer's Boy.' It is a curious fact, that, notwithstanding the many elements of disturbance and interruption in the midst of which the author must in such a situation have had to proceed through his task, nearly the half of this poem was completed before he committed a line of it to paper. This is an instance of no common powers, both of memory and of self-

abstraction. But these faculties will generally exist in considerable strength when the mind feels a strong interest in its employment. They are faculties also which practice is of great use in strengthening. Bloomfield's feat, on this occasion, appears to have amounted to the composing and recollecting of nearly six hundred lines without the aid of any record ; and the production of all this poetry, in the circumstances that have been mentioned, perhaps deserves to be accounted a still more wonderful achievement than its retention. Like his prototype, Thomson, whose general scheme he also followed, Bloomfield seems to have commenced his poem with the division relating to winter.

When the *Farmer's Boy* was finished, which it appears to have been in April, 1798, it was submitted to several booksellers and other persons in London, none of whom, however, probably took the trouble of even examining the unrecommended production. At last, in November of the same year, it was forwarded by Mr. George Bloomfield to the late Mr. Capel Lofft, who then resided on his estate in the immediate neighbourhood of the poet's birthplace. The poem was accompanied by a letter containing the narrative of the author's life, from which we have extracted the particulars given above. Induced probably, in part, to look into the manuscript by the circumstance of its being the production of a native of Suffolk, Mr. Lofft soon found the work to be well deserving of attention on its own account. He immediately entered into a correspondence with the author ; and the result was the publication of the poem, after a few provincialisms and grammatical errors by which it was disfigured had been corrected, in the month of March, 1800. It immediately produced a considerable sensation ; and although a portion of the interest which was felt in regard to it is doubtless to be

attributed to the extraordinary circumstances in which it was announced to have been written, it yet owed much of its popularity also to its intrinsic merits. Within the first three years after its appearance, seven editions, comprising in all twenty-six thousand copies, had been printed; and new impressions have since been repeatedly called for. It was early translated into French and Italian, and part of it even into Latin, which last circumstance drew from the poet a few verses printed among his minor productions.

The publication of the *Farmer's Boy* at once called forth the author from obscurity to a fair prospect both of fame, and what to him must have been hitherto unhopèd for fortune. The change which had taken place in his condition and expectations is well and graphically described in the simple language of his brother, whose exertions in his behalf had so large a share in bringing about what had now taken place. "I have him," he writes to Mr. Loft, in reference to Robert's first appearance in London, "in my mind's eye, a little boy; not bigger than boys generally are at twelve years old. When I met him and his mother at the inn, he strutted before us, dressed just as he came from keeping sheep, hogs, &c.—his shoes filled full of stumps in the heels. He, looking about him, slipped up: his nails were unused to a flat pavement. I remember viewing him as he scampered up:—how small he was. I little thought that little fatherless boy would be one day known and esteemed by the most learned, the most respected, the wisest, and the best men of the kingdom." It is gratifying to know that those excellent and affectionate relations, his mother and brother, both lived to witness the prosperity of him who in other days had been to each the object of so much anxious care. It was the dearest of the poet's

gratifications, when his book was printed, to present a copy of it to his mother, to whom upon that occasion he had it in his power, for the first time, to pay a visit, after twelve years absence from his native village.

Bloomfield published several volumes of poetry after the *Farmer's Boy*—among others a small volume entitled 'Rural Tales, Ballads, and Songs,' which were written, he tells us, during the interval between the completion of the composition of his first work, and its appearance in a printed form. Soon after this, however, his health, which had never been very vigorous, began to give way; and he was obliged to resign an appointment in the Seal Office which had been given to him by the Duke of Grafton, and on receiving which he had relinquished his original trade. He now found his musical turn a resource—and realized a small income by manufacturing *Æolian* harps. But his health gradually grew so much worse, that he was at last obliged to leave London altogether, upon which he retired to Shefford in Bedfordshire. Here he remained till his death, on the 19th of August, 1823, in the fifty-eighth year of his age.

Although he was an extraordinary instance of what the force of native talent will sometimes accomplish, where education has been nearly altogether withheld, yet Bloomfield gave plentiful evidence, especially in his first production, of the disadvantages under which he laboured from the want of early cultivation. A better education in his youth would have saved his homely genius from being misled into affectations uncongenial to its true spirit; and his want of a competent director in his studies exposed his taste to be corrupted by bad examples. It is probably, indeed, a mistake to suppose that the circumstance of an individual having been what is called self-taught,

is generally favourable to the originality of his literary productions. There is more reason for suspecting, that even those self-taught writers who have displayed most of this highest element of power, would have exhibited it in still greater abundance if they had enjoyed, in addition to their rare gifts of nature, the advantages of a regular education. It is certain, at any rate, that the literary performances of men who have been their own teachers, have not, except in a few extraordinary cases, been in any degree peculiarly distinguished by this quality. Of the numerous tribe of self-taught verse-makers, especially, the great majority have been the merest imitators. A fair specimen of this race, the individuals of which, although they sometimes excite a temporary attention, generally drop very speedily into oblivion, we have in a writer named STEPHEN DUCK, who flourished in the early part of the last century. Duck was born about the year 1700, at the village of Charlton, in Wiltshire. He was at school for a short time in his boyhood, when he learned a little reading, writing, and arithmetic. When about fourteen, however, he was sent to work as an agricultural labourer; and, being employed for several years in the lowest rural occupations, without ever opening a book, he soon forgot what little learning he had ever possessed. Still, as he used afterwards to tell, even at this time his thoughts were often engaged on subjects very foreign to his daily employments. At last he began to read a little, and this gradually inspired him with a desire to recover his lost knowledge, scanty as it had been. At this time he was about twenty-four years of age, with a wife and family to support; and, being engaged in hard work all day, he had but very little time for study. He was also without books, and had no money to buy any. Yet such was his ardour to obtain the means of instructing himself, that for some time,

whenever he had an hour's release from his regular employment, he devoted it to extra work; and in this way he saved money enough to purchase, first, a treatise on vulgar fractions, then one on decimal fractions, and lastly, one on land-surveying. All these works he made himself master of, by studying them during the night, when every body about him was asleep. Soon after this, he became intimately acquainted with a person in the same condition of life as himself, but who had passed some years in service in London, whence he had brought down a few dozens of books with him to the country. Of these some were treatises on arithmetic; among the others were the Bible, Paradise Lost, the Spectator, Seneca's Morals, Telemachus, an English Dictionary and Grammar, Ovid, Josephus, seven plays by Shakespeare, and a few more by other writers; Dryden's Virgil, Hudibras, and the works of Waller and Prior. Duck had, it seems, been always fond of poetry and music; though hitherto the best specimens of either which he had had an opportunity of enjoying had been only a few rustic ballads. But his perusal of some of the above works inspired him with new enthusiasm, and in no long time he began to attempt writing verses himself. The first poetical work by which he was greatly struck, was Paradise Lost. Yet he read it through twice or thrice, with the aid of his dictionary, before he understood it. The new beauties he was continually discovering, however, made all this labour delightful. He studied the book, we are told, as a student of Greek or Latin would do one of the ancient classics, and making all the while as much use of his dictionary and grammar as if it had been written in a foreign language. These literary labours were still generally pursued during the night. Sometimes, however, he used to take a book with him in his pocket when he went out to his daily work in the

fields; and if by working with more activity than usual he could get through what he had to do in less than the usual time, he would devote the few precious moments he had gained to the perusal of his book.

Even while at work he often employed himself in composing verses. It was some time before he thought of committing any of his compositions to paper; but at last he was induced to address a letter in verse to a gentleman, who, having heard of his acquirements, had sought him out, and made his acquaintance; and this effusion having been shewn to several other persons, was generally regarded as a very surprising performance for one in his circumstances. Some clergymen, in particular, to whom it was submitted, were so much pleased with it, that they rewarded the author with a small gratuity. From this time his talents began to be generally talked of; and, encouraged by the praise he received, he did not suffer his poetical faculty to lie dormant. The consequence was, that in a short time he had accumulated a respectable store of verse. It seems to have been not long before the year 1730, that Duck attracted the notice of the Reverend Mr. Spence, already mentioned as the patron of Robert Hill, the learned tailor, and the blind poet Blacklock. Spence, who did himself great credit by the interest he took in these cases of indigent merit, immediately conceived the idea of bringing the claims of his protégé before the public in the most effective manner, through the press; and, accordingly, as many of his poems were collected as formed a quarto volume, which made its appearance in that year. Besides the general reputation which the author acquired by this publication, it procured for him the particular favour and patronage of Queen Caroline, who immediately settled upon him a pension of thirty

pounds a-year. In 1733 he was made one of the Yeomen of the Guard. He now applied himself to the study of the Latin language—in which, having made some progress, he was admitted into holy orders. On this the queen appointed him, in the first instance, keeper of her library at Richmond, and in a short time after he was preferred to the living of Byfleet, in Surrey. Meanwhile, a second edition of his poems had appeared in 1736, to which we find the names of the queen and other members of the royal family prefixed as subscribers. Duck became much beloved and respected by the people of Byfleet in his capacity of pastor, and lived there happily for many years. But the termination of his history is very melancholy. He at last fell into low spirits, and drowned himself in the Thames, near Reading, in the year 1756. His poems have now long been forgotten. They had little merit, except considerable smoothness of versification, which even in those days the example of Pope had rendered a common quality.

CHAPTER X.

H. K. White; Hawkesworth; Goldsmith; Mendelsohn.

IN selecting our examples from the class at present under review of those who, in the midst of unfavourable circumstances, have distinguished themselves by their ardour in the pursuit of knowledge, there is one name not to be omitted, that of the late gifted and amiable HENRY KIRKE WHITE. As it is probable, however, that most of our readers are acquainted with the narrative of his life which has been so delightfully written by Mr. Southey, we shall confine ourselves to a short notice of its leading incidents. He was born in 1785, at Nottingham, where his father followed the business of a butcher. He was sent to school at three years of age, and soon became so fond of reading, that, when he had got his book in his hand, it was difficult to get him even to leave it for a few minutes, that he might take his meals. When no more than seven, he began to attempt to express his ideas on paper; his first composition being a tale, which, ashamed to shew it to any one else, he communicated to the servant, to whom he had for some time been secretly giving instructions in writing. His school acquisitions before the age of eleven, in addition to reading and writing, were arithmetic and French; in both of which studies he had already distinguished himself above all his school-fellows. Soon after this he also began to write verse.

His father, however, who was anxious to bring him up to his own business, although very much against both his own wish and that of his mother, now

insisted that he should be employed one whole day in the week, and during his leisure hours on others, in carrying the butcher's basket. But he expressed so much dislike to this occupation, that it was at last arranged that he should be sent to learn the hosiery trade; and at the age of fourteen, accordingly, he began to work as a stocking-weaver. To a heart like his, full of the love of literature, and all whose young visions were already those of a student, this destination was a very cheerless one. Yet he hardly dared to complain, for he knew that his family could scarcely afford to educate him to any higher employment. His mother, however, moved by his evident wretchedness, contrived, after he had been about a year at the loom, to prevail upon his father to allow him to be placed in the office of Messrs. Coldham and Enfield, attorneys in Nottingham, who agreed to take him without a premium, on condition of his serving two years before being articled.

He now felt himself in something like his proper sphere, and his whole mind assumed new alacrity. Although nearly the whole day was necessarily given to the study of his profession, for he attended in the office, as he informs us himself in one of his letters, from eight in the morning till eight at night, he still found time to apply himself to the Greek and Latin languages; in the latter of which, with very little assistance, he enabled himself, in ten months, to read Horace with tolerable ease. This progress, however, was obtained at the cost of almost incessant application. He read during his walks, and at his meals; and not a moment indeed of his leisure was given to anything except the improvement of his mind. In this manner it was surprising how much he accomplished. The papers he left behind him shewed, Mr. Southey tells us, that he had applied himself to his legal studies with extraordinary industry. Besides the

knowledge which he acquired of Greek and Latin, he also made considerable progress at this time in Italian, Spanish, and Portuguese. Chemistry, electricity, astronomy, all shared largely in his attention. While pursuing these severer studies, he contrived to accomplish himself to a considerable extent in drawing and music; and he found an occasional amusement in practical mechanics, in which he shewed much ingenuity and neatness of hand. Another accomplishment which he wished to acquire was the art of extempore speaking; and with this view he got himself elected a member of a debating society, which then existed at Nottingham. Here he very soon distanced all his competitors.

But this was not the only mode in which he had already begun to seek distinction. So early as the first year after his emancipation from the stocking-loom, he had sent a translation from Horace to a periodical work then existing, called the 'Monthly Preceptor,' the proprietors of which were in the habit of offering prizes for the best contributions on subjects which they proposed; and a silver medal had been awarded to him for his performance. This honour seems to have kindled his literary ambition to greater fervour than ever. He began to sigh for the advantages of a University education. After having thus frequently tried his powers in the 'Preceptor,' he became a correspondent to another magazine called the 'Monthly Mirror.' Some of the essays which he sent to this publication were of distinguished merit, and attracted considerable notice. Among other persons whose attention they excited was Mr. Capel Lofft, whose patronage of Bloomfield we recorded a few pages back; and the encouragement of this gentleman, whose exertions had recently been so fortunate in the case of another poet, determined Henry to commit a volume of his verses

to the press. This was about the close of the year 1802.

The volume made its appearance in the end of 1803, or beginning of 1804. It was published by subscription, and dedicated by permission to the Duchess of Devonshire. What pecuniary return it brought the author is not stated; but the sale probably did not do a great deal more than defray the expenses of the publication. Although favourably noticed in several of the periodical works of the day, it was made the subject of a very harsh article in the 'Monthly Review.' This so stung the sensibility of the young poet, that he sent a remonstrance to the editors, which produced from them, in their next number, an expression of their regret, that Mr. White should have been so much hurt by the severity of their criticism; but no acknowledgment was paid of the poetical merit of the publication they had condemned. This treatment distressed Henry exceedingly. In one of his letters he says, "This Review goes before me wherever I turn my steps; it haunts me incessantly; and I am persuaded it is an instrument in the hands of Satan to drive me to distraction. I must leave Nottingham." Fortunately, however, the poems had fallen into the hands of Mr. Southey, who, bringing to their perusal both a better judgment and a kinder heart than the writer in the Monthly Review, considered them "to discover strong marks of genius." On afterwards seeing the Review, this gentleman's indignation was so strongly excited by what he deemed its cruelty and injustice, that he immediately wrote to Henry a letter of encouragement and advice, with an offer to do anything in his power to forward his views. This generous and seasonable interference contributed greatly to heal the poet's wounded feelings; and enabled him in a short time to forget the sneers of his anonymous critic.

No prospect, however, had yet opened of his desire of going to the University being gratified; while the desire itself was every day growing stronger. The reading of some religious works about this time had made a great impression upon him; and his feelings had become ardently devotional. He determined to give up his life to the preaching of Christianity. His friends exerted themselves in vain to shake his resolution; he had made up his mind, if he could not obtain admission at Oxford or Cambridge, to join some dissenting communion, and to endeavour to find the means of pursuing his studies at an academy, or at one of the Scottish Universities. But we must refer to Mr. Southey's interesting narrative for a detail of the alternating hopes and disappointments by which both his mind and frame were racked, before he at last secured the object of his fond ambition. At one time he had given up all hopes of ever being able to escape from his present profession; and the view which he took of the line of conduct which it became him to pursue in these circumstances, is in the highest degree creditable to his sense of propriety and duty. "All my hopes," says he, in a letter to his mother, "of getting to the University are now blasted; in preparing myself for it I have lost time in my profession; I have much ground to get up, and, as I am determined not to be a *mediocre* attorney, I must endeavour to recover what I have lost." He immediately set about a course of more severe application than ever, allowing himself rarely more than two or three hours of sleep during the night, and often never going to bed at all. This excessive application, after some time, brought on an alarming illness, from which his friends thought that he never entirely recovered.

But at last, through the influence of the Reverend Mr. Simeon, of King's College, Cambridge, to whom

he had been recommended, a sizarship was procured for him at St. John's. His mother, who had for some years kept a boarding-school, and his elder brother, engaged each to allow him fifteen or twenty pounds yearly; and Mr. Simeon generously undertook to afford him thirty pounds more, with the aid of a friend, who is stated to have been Mr. Wilberforce*, a name made venerable by a life spent in doing good. Accordingly, in October 1804, he quitted his employers at Nottingham, who had most kindly agreed to give him up the remainder of his time, although his services were every day becoming more valuable to them. He did not, however, immediately proceed to Cambridge, but, by Mr. Simeon's advice, placed himself for the first year in the house of the Rev. Mr. Grainger, of Winteringham, in Lincolnshire. While residing with this gentleman, he applied himself to classical learning with an ardour to which every thing gave way, devoting often fourteen hours a-day to hard study; and though his unremitting toils soon laid him once more on a sick bed, convalescence came only to send him back to his books with as much zeal as ever. When he went to Cambridge, to use Mr. Southey's words, "the seeds of death were in him, and the place to which he had so long looked on with hope, served unhappily as a hothouse to ripen them."

The exertions of this extraordinary young man at the University were such as might have been expected from his previous career. A scholarship having become vacant during his first term, he was advised to offer himself as a competitor for it; but after having studied for this purpose with his usual immoderate application till within a fortnight of the close of the term, he found himself so ill, that he was obliged to decline coming forward. To add to

* Gorton's Biographical Dictionary, vol. ii. p. 1181.

his misfortune, he had now the general college examination before him; and, although far from well, he was urged, if it was at all possible, to persevere in preparing himself for this occasion. He followed this counsel, and having by the aid of strong medicines been enabled to hold out during the six days of the examination, he was at its close declared the first man of his year. Immediately after this he went to London, with the view of benefiting his health by a temporary relaxation from study. But he did not make much progress in recovering his strength during this short excursion. Still, when he returned to Cambridge, his application continued unabated. It is mentioned as an instance of the manner in which he used to turn every moment to account—in his own phrase, to *coin* time—that he committed to memory a whole tragedy of Euripides, during his walks. At the end of this term he was again pronounced first man, and also one of the three best theme-writers. By exhibitions, too, which were procured for him, he was now enabled to live without the assistance of his friends. At the end of the term, a tutor in mathematics for the long vacation was provided for him by his college; but this unfortunately only induced him to continue his studies at a time when relaxation was become absolutely necessary to preserve his life. Finding himself very ill, he again proceeded to London; where, however, as before, he got no better. He returned to the University worn out both in body and in mind, and, after a short attack of delirium, died on Sunday the 19th of October, 1806.

A monument has been erected to the memory of Kirke White, in the Church of All Saints, Cambridge, at the expense of Mr. Boott, a native of the United States of America. This gentleman, on visiting Cambridge, was disappointed in finding no tablet

recording the talents and virtues of the young poet ; and he resolved to do what England had left undone. This circumstance is highly creditable to the American character ; and is one amongst many evidences of the triumph of right feelings over those mutual jealousies which have too often separated nations sharing the same blood, and speaking the same language.

We shall conclude this chapter by the mention of one or two other individuals, from the list of the cultivators of elegant literature, whose rise to eminence has been in like manner impeded for a time by an untoward fortune. Dr. HAWKESWORTH, one of the most popular writers of the last century, and whose periodical work, the 'Adventurer,' entitles him to a high place among English essayists, was originally a watchmaker, and afterwards became clerk to a writing stationer, in which situation it was that he commenced his career as an author, by some communications which he sent to the 'Gentleman's Magazine.' From this beginning he made his way, by the persevering exertion of his talents, both to distinction and to considerable wealth. Hawkesworth must have been indebted for his literary acquirements almost entirely to himself. Together with his name may be quoted that of his much more distinguished contemporary, Dr. GOLDSMITH, who was, however, more regularly educated. Goldsmith was one of nine children of a very poorly endowed clergyman of the Church of Ireland, in which country he was born in the year 1728. Of academical instruction he had his full share ; for he attended successively the Universities of Dublin, Edinburgh, and Leyden. At the two last mentioned places he studied medicine, which he had chosen as his profession, after having been originally intended for trade, and then successively for

the church and the law. His eccentric, imprudent, and reckless habits, however, which had been constantly involving him in one difficulty or other from his boyhood, acquired strength with his years; and he had not been long at Leyden when he found himself reduced by his thoughtlessness and extravagance to a state of destitution, as bad as that which a short time before had forced him to take flight from Edinburgh. On this he left the University, and set out to travel over the Continent, possessed of nothing in the world but the clothes he wore and his flute. It was on the latter he depended for his support, his practice being, when, after walking all day, he arrived at a village in the evening, to assemble the inhabitants around him to dance to his music, in return for which they generally gave him lodgings for the night and wherewithal to procure him food for the next day. In this manner he walked over a great part of Flanders, the south of France, Germany, Switzerland, and Italy. At last he arrived in London with, it is said, only a few pence in his pocket. In this emergency he was fortunate enough to meet with his countryman and college acquaintance, Dr. Sleight, who had been one of Barry's first patrons when he came up to Dublin; and by the aid of this gentleman he obtained the situation of assistant teacher in a school at Peckham. Soon afterwards he offered his services to an apothecary in the metropolis, and with him he lived for some time. It was while in this situation that he first turned his thoughts to literary labour as a means of support. He began by writing for the Monthly Review and the Public Ledger, to which last he contributed the series of essays in the form of letters from a Chinese residing in England to his friends in China, which were afterwards collected and published under the title of the 'Citizen of the

World.' He had been employed in this manner for several years, gaining only a scanty and precarious livelihood, when, in 1765, he published his celebrated poem 'The Traveller.' This immediately brought him into notice, and placed him among the first writers of the day. He had now better employment, and as much as he could undertake; but, his improvidence continuing as great as before, his difficulties were not much diminished. The very year following that in which the Traveller appeared, Dr. Johnson found him unable to leave his lodgings in consequence of a debt he had contracted, and to pay which his kind friend disposed of the manuscript of his 'Vicar of Wakefield.' That exquisitely beautiful tale accordingly appeared in 1766; and soon after was published his 'History of England,' in a series of letters from a nobleman to his son, which immediately excited great attention and became extremely popular. From this time till his death, Goldsmith gave to the world a succession of works which prove that with all his faults a want of industry cannot be laid to his charge. His comedy of the Good-natured Man, a History of Rome, and another History of England, in four volumes, the poem of the Deserted Village, the comedy of She stoops to Conquer, a History of Greece, and his four volumes entitled a History of Animated Nature, beside abridgments of his different historical works, and numerous minor pieces in prose and verse, all proceeded from his pen between the years 1768 and 1774, in the latter of which he died at the early age of forty-six. Nor are even those of the works we have enumerated, which partake most of the character of mere compilations, unmarked by many traces of the author's genius. Goldsmith, as Johnson has said of him on his monument in Westminster Abbey, touched no subject which he did not adorn. The

purity and elegance of his style, and the chastity, in all respects, of his manner as a writer, form a remarkable contrast to what we are told of his general conduct and demeanour. The dissimilarity is said to have been equally great between the wit, spirit, and good sense of his literary productions, and the eccentricity of his conversation, which is described as sometimes approaching to childishness. But Goldsmith was an extraordinary instance how perfect the reflective or meditative powers of the mind will sometimes be, while those which fit a man for the business of active life are weak or wanting. A mere child as he seemed when called upon to exert the latter, in the ease with which he wielded the former he had few equals and no superior. As his friend Johnson used to say of him, with his pen in his hand he was a sage, without it a fool. Most of Goldsmith's follies, however, were the results of a simplicity and good nature, which did no dishonour to his heart, however they may have impeded his advancement in the world. From the time he rose into notice as a writer, till his death, he was the prey of his poorer brethren of the quill, who, when he had received any money for his works, borrowed or begged from him his last sixpence. Nay, he was often wont, it is said, to borrow money in order to satisfy these plunderers. The consequence was, that he was always in difficulties, which he certainly needed not to have been if he could have taken better care of his gains; for he was both one of the most successful and, as we have seen, one of the most industrious literary labourers of the day. Considering, indeed, the idle and wandering life he had so long led, Goldsmith's comparatively steady application in the latter years of his life, as testified by what he actually accomplished, deserves to be accounted not a little remarkable. It is probable, however, from the knowledge and general

cultivation of mind which he displayed even in his first literary works, that he must long have been a more diligent student, than we should be inclined to think from the general sketch that has been handed down to us of his early history.

At the same period with Goldsmith flourished the celebrated MOSES MENDELSON. Mendelsohn was born at Dessau, the capital of the small principality of Anhalt, in 1729, the same year which gave birth to Heyne and Lessing. The copies of the Pentateuch which are used in the Jewish Synagogues are, as is well known, all in manuscript; and to transcribe these was the chief occupation of Mendelsohn's father. He also kept a day-school for the children of his Hebrew brethren. Nevertheless, with all his labours his gains were extremely scanty; and his son was accustomed from his earliest years to poverty and privation.

After being taught the elements of Hebrew scholarship by his father, Moses was sent at an early age to a public seminary, where the other young Jews of the place who were intended for a learned profession were educated. The system pursued at this establishment, however, was little calculated to nurture or strengthen the more important mental faculties—the chief or rather almost the only exercise of the pupils being to get by heart portions of the rabbinical commentaries which they could not understand. It is said that when no more than seven years old Mendelsohn began to discern the absurdity of this method of study, and applied himself of his own accord to the obtaining of a correct acquaintance with the grammar of the sacred tongue as an indispensable preliminary to his further progress. So early as his tenth year he had begun to write verses in Hebrew. He was fortunate soon after this in obtaining the instructions of David Frankel, a man of profound

learning, who was then chief Rabbi at Dessau, and whom the young student greatly attached to himself by his application and his thirst for knowledge. By Frankel's assistance and his own industry, the boy soon acquired a knowledge of the scriptures and their principal commentaries, rare at that time, even among the more learned classes of his nation.

The ardour with which he pursued his studies at this early age was too great for a frame which never had been very strong; and it brought on ere long a nervous disorder, the consequences of which remained with him during his life. It produced in particular a deformity of the spine, which was found to be incurable. The work which he had been most eagerly engaged in studying, when attacked with this illness, was the *More Nevochim*, or *Guide for the perplexed*, of the great Moses Maimonides, the learned Spanish Jew of the twelfth century; and in allusion to this circumstance Mendelsohn would long afterwards remark that it was Maimonides who had spoilt his figure and ruined his constitution. "But still," he would add, "I doat on him for many hours of delight he has afforded me; and, if he has unwittingly weakened my body, has he not made me ample amends by invigorating my mind*?"

When Mendelsohn was about fourteen years of age, his friend and instructor Frankel left Dessau for Berlin, and he was now almost without an associate. It was time, besides, that he should think of doing something to gain his own subsistence. His father, accordingly, who was tenderly attached to him, and would willingly have kept him longer under his humble roof, was at last prevailed upon by his earnest entreaties to permit him to proceed to Berlin, in the hope that through Frankel's assistance he might procure some employment in that large city. The good Rabbi was scarcely able to do anything for him

* See Memoir of Mendelsohn, by M. Samuels. Lond. 1825.

from his own resources ; but he recommended him to a benevolent friend, who gave him an attic-room in his house to sleep and study in, and allowed him two days' board every week. The only resource he possessed for a long time, in addition to this, was a little employment as a transcriber, which Frankel procured for him. With the proceeds of this he contrived to exist and to pursue his studies ; but his privations were often very great. It was his custom at this time, as he used afterwards to relate, when he bought a loaf, to notch it into portions that might last him till he counted upon obtaining his next supply of money ; and, however hungry, he would never eat more at a meal than he had thus allowed himself.

It was not at this period the practice among the Jews to study the classic languages ; but Mendelsohn, inquisitive after all knowledge, and reading with avidity every accessible work which promised him any information, soon discovered that without an acquaintance with Greek and Latin his literary researches must remain extremely bounded. He therefore resolved to acquire these languages. But how he was to take the first step in this pursuit it was not very easy to understand. The Hebrew and the German were the only languages he knew, and there was no Greek or Latin grammar, as far as he was aware, written in either. In this difficulty a fortunate chance brought him acquainted with a brother Jew, a person of the name of Kish, from Prague, who was a medical practitioner, and knew something of Latin. Mendelsohn prevailed upon this man to give him gratuitously a quarter of an hour's instruction every day, till he had made himself master of the Latin nouns and verbs. When he had advanced thus far, he dispensed with his instructor, Having purchased for a trifle an old dictionary which had been very ill used, he considered himself

to be in possession of all the necessary aid for commencing the work of translation; which accordingly he forthwith essayed on the first Latin book he could obtain. This, it is related, happened to be no other than a Latin translation of Locke on the Human Understanding—the whole of which he toiled through. After this achievement he applied himself to the Roman classics, and found that he could read them in general with ease and pleasure.

Mendelsohn's classical studies had probably already begun to subject him to unpleasant suspicions and imputations from the more bigotted among his Israelitish brethren. This may have been partly the reason that led him to attach himself about this time to a Polish Jew of the name of Israel Moses, who had come to reside in Berlin, having been obliged to leave his native country in consequence of being supposed to hold opinions too liberal for the taste of the great majority of his nation. This person, among his other acquirements, was a proficient in the mathematics—a branch of learning of which as yet Mendelsohn knew nothing. On the other hand, Israel Moses was altogether ignorant of Latin. It was agreed therefore that the two friends should become each other's instructors. The Pole accordingly carried Mendelsohn through the elements of geometry by means of a Hebrew translation of Euclid; and in return received lessons from the latter in Latin and German. Such was the manner in which this ardent student availed himself of every chance opportunity of making a new acquisition in useful or liberal knowledge—rarely having it in his power to travel towards his object by the most direct and usual road, but not deterred on that account from seeking it by any by-path, however circuitous, that lay open to him.

During the time he remained at Berlin in obscurity and indigence, Mendelsohn's studies extended to

many other subjects beside those we have mentioned. In particular he made himself familiar with both the French and English languages. But after several years had passed away without improving his worldly circumstances, a rich Jew of the name of Bernard, who resided in the city, fortunately heard of his talents and his worth, and, being at the time in want of a tutor for his children, determined to employ him in that capacity. To poor Mendelsohn this was at that time an elevation that satisfied his highest ambition. He had now not only a comfortable home, but a salary which enabled him to buy books, and to take lessons in those branches of scholarship of which he was yet ignorant. It was after this that he began the study of the Greek language, to which he had not ventured to apply himself, so long as he was unable to obtain the assistance of a master. The duties of his situation allowed him considerable leisure, which he devoted with his wonted ardour, both to various new departments of science and literature and to the farther prosecution of those upon which he had already entered. He thus extended his mathematical acquirements to algebra and fluxions; while natural philosophy, natural history, general history, and metaphysics, all came in for a share of his attention.

Among his other accomplishments were a remarkably beautiful hand-writing, and great skill in accounts. Trivial as these acquirements may be deemed, it so turned out that to them, principally, Mendelsohn was indebted for the prosperity of his future life. His diligence in the performance of his regular duties, and his excellent general conduct, soon raised him high in the favour of his employer; but that gentleman was particularly struck with the talent he displayed in the arts we have just mentioned. He at last resolved to remove him from the school-room to the counting-room, and to employ him

as one of his clerks. From this situation he afterwards promoted him to a higher place in his establishment, which was a large silk-manufactory; and at last he appointed him manager of the whole concern.

Mendelsohn was now in the enjoyment of a handsome income; but neither this nor the laborious duties of his place relaxed his diligence as a student. His evenings, and a great portion of the night, were still regularly given to literature and philosophy. He had long looked with anxious and compassionate interest upon the general ignorance of his Hebrew brethren; and the desire of diffusing among them the light of modern literature and science had become, as it continued to be throughout his life, the first wish of his heart. With this view he projected, in conjunction with a friend, a Hebrew periodical work, to consist of short essays on such parts of science and morals as could most easily be made popular and interesting, to be entitled 'The Moral Preacher.' Of this work, however, the first in which Mendelsohn tried his powers as a public writer, only two numbers appeared; when he felt it prudent to discontinue it in consequence of the outcry raised against it by his more bigotted brethren, to whom such an attempt to displace their ancient rabbinical manuals of instruction seemed fraught both with presumption and profanity. But Mendelsohn, though turned from his course for the moment, was not thus to be driven to relinquish finally what he deemed to be as much the path of his duty as it was of his ambition.

About the year 1754, an event took place which greatly influenced Mendelsohn's future career; we mean his introduction to Gotthold Ephraim Lessing, afterwards so celebrated among the literary ornaments of his country, but who was then, like his new friend, only a young man of twenty-five, and only beginning to be known as a writer. Mendelsohn is said to have been first made known to Lessing by a

Jewish medical practitioner of the name of Gumpertz, by whom he had been assisted in learning some of the modern languages. They had also occasionally played at chess together; and it was as a proficient in this game that the young Jewish philosopher was first recommended to the acquaintance of the future author of 'Nathan the Wise.' But these two congenial minds soon turned their intercourse to higher ends. To Mendelsohn this connexion was especially important, inasmuch as it speedily introduced him to various other literary men then residing in Berlin, to whose society, from their difference of religious creed, he would not otherwise have had access. In this manner he became the intimate associate of Nicolai, Abbt, and others, who afterwards greatly distinguished themselves in the regeneration of the literature of their country. These young men were the principal supporters of various periodical works which then existed at Berlin; and Mendelsohn now joined his contributions to theirs. He had not yet, however, published any work in his own name; when one day his friend Lessing brought him a philosophical treatise which had just been published, and requested him to read it and give his opinion of it. On returning the book some days afterwards, Mendelsohn observed that he thought he could without much difficulty refute the author's positions. Encouraged by his friend, he accordingly sat down to the composition of his reply. When he had finished it, he brought the manuscript to Lessing, and requested him to be kind enough to read it, which the latter promised to do as soon as he should be at leisure. At their next interview, however, somewhat to Mendelsohn's surprise, the matter was never mentioned by Lessing; and Mendelsohn was too modest to introduce it himself. This happened several times—till at last the anxious author ventured to ask his friend if he had found time to look to

the manuscript. Lessing again complained of want of leisure; but promised him that he should certainly contrive to find time to read it immediately. "In the mean time," he added, "here is a small volume on the same subject, which has just appeared; take it home with you, and let me know what you think of it." Mendelsohn's surprise may be conceived when on opening this volume he found it to be his own work already in print—his 'Philosophical Dialogues,' as he had entitled it. "Put it into your pocket," said Lessing, enjoying his amazement, "and this Mammon along with it; it is what I got for the copy-right."

From this time Mendelsohn took his place in the very front rank of the literary men of Germany. It does not, however, belong to this rapid sketch even to enumerate the long succession of works by which, during almost every year of his remaining life, he sustained and added to his fame. For the classical elegance of his German style he was considered as almost without a rival among his contemporaries. His treatise, in particular, on the immortality of the soul, entitled 'Phaedon,' attracted, immediately on its appearance, universal attention, and being translated into English, French, Dutch, Italian, Danish, and Hebrew, spread the fame of the author over all Europe. But the great effort of his life still continued to be the moral and intellectual improvement of his brethren of the house of Israel. For this purpose he brought all the resources of his learning and genius to the illustration of the Hebrew scriptures; and his translations of the Books of Moses and the Psalms, the latter in verse, are reckoned among his very greatest performances. The incessant literary labours of this illustrious man were often carried on under the pressure of ill-health, and always amidst the interruptions of business or of society. He

eventually became the partner of Mr. Bernard in his silk-manufacturing establishment, and lived in the enjoyment of opulence. In his thirty-third year he married, and had the happiness before his death of seeing his family growing up around him. One of his publications, which he entitles 'Morning Hours,' consists of a series of lectures on natural philosophy, which he was for some years in the habit of delivering to his children every morning for two or three hours after sunrise. His habits of living were extremely simple and abstemious. "It was inconceivable," says Mr. Samuels*, to whose Memoir we have been principally indebted for the above facts, "that the quantity of food to which he restricted himself, could sustain a human being; and at the same time it was affecting to see him press his guests, good humouredly, to partake of viands and liquors, which himself, though ever so desirous, durst not venture to taste. * * * He was very fond of company, and never courted solitude, except from four or five o'clock in the morning, till about eight or nine, when he adjourned to his counting-house, and remained there till noon. After dinner he generally attended to business again, till about four in the afternoon. About this hour his friends and pupils used to meet at his house; and, on his return, he usually found a numerous assembly in his room, who anxiously awaited his appearance. There were theologians, literati, philosophers, public functionaries, merchants, natives, foreigners, old and young, in promiscuous groups, with whom he conversed till eight o'clock, on various topics." Mendelsohn died, in consequence of a cold which he caught in returning one morning from the synagogue (in his attendance on which he was always extremely regular), on the 4th of January, 1786, in the fifty-eighth year of his age.

* Memoir, p. 139—140.

CHAPTER XI.

John of Salisbury; Roger Bacon.

THE persons with whom we have been occupied in the chapters immediately preceding the present have all belonged to what may almost be called our own times; or, at least, their pursuits have been such as indicate an advanced state of literature, philosophy, and civilization generally. It is only within the last two or three centuries that anything like a spirit of independent speculation has formed a pervading characteristic of the literature of modern Europe. Up to that period the intellect of our forefathers may be said, in most of its efforts, to have walked in leading-strings. The peculiar circumstances in which literature sprung up a second time in western Europe after the subversion of the Roman empire, sufficiently explain why it remained so long in a state of pupillage. But the extended period in modern history called the Dark Ages was only the night of the human mind, and by no means its sleep, as it has sometimes been described. The numbers of those who then dedicated themselves to literary pursuits were very great, and their zeal and industry in many cases such as has never been surpassed. As an evidence of the assiduity with which it was customary for men to apply themselves to the studies then in fashion, we may quote the account which our countryman JOHN OF SALISBURY, who flourished in the twelfth century, gives us of the education he had received. "He says," (we quote the version of the original Latin which Mr. Turner has given in his History of England *,) "that in the year after Henry I. died, he went to the

* Vol. i. p. 507.

Peripatetic School at Paris,* on the Mount of St. Genevieve, and there studied logic; he afterwards adhered to Master Alberic, as *opinatissimus dialectus* (a dialectician in the highest repute), and an *acerimus impugnator* (most keen impugner) of the nominal sect. He was two years with him and Robert Metridensis, an Englishman, both men *acuti ingenii* and *studii pervicacis* (of acute genius and resolute studiousness). He then for three years transferred himself to William de Conchin, to imbibe his grammatical knowledge. After this he followed Richard called the Bishop, retracing with him all he had learned from others, and the Quadrivium †; and also heard the German Harduin. He restudied rhetoric, which he had learned from Master Theodoric, and more completely from Father Helias. Being poor, he supported himself by teaching the children of the noble, and contracted an intimate acquaintance with Master Adam, an Englishman, and a stout Aristotelian. He prosecuted afterwards the study of logic with William of Soissons. Returning at the end of three years, he heard Master Gilbert on logic and on divine subjects; then Robert Pullen, and also Simon Periacensis, a faithful reader, but a heavy disputer. These two last were his only teachers in theology. Thus, he adds, I passed twelve years, occupied by these various studies."

One of the most extraordinary individuals that appeared during the dark ages was our countryman

* So translated by Mr. Turner; but the phrase in the original is *Ad Peripateticum Palatinum*, which means "to the Peripatetic of Palais," the common name by which the celebrated Abelard was known in that age, from his place of birth, Palais, in Bretagne.

† In the middle ages all the branches of elementary education were considered as comprehended in the two great divisions called the *Trivium* and the *Quadrivium*; the former of which embraced grammar, logic, and rhetoric; and the latter arithmetic, astronomy, geometry, and music.

ROGER BACON; and his history affords us so admirable an example of the successful pursuit of knowledge in the midst of all sorts of difficulties and discouragements, that we shall devote a few pages to present it with some fullness of detail. Bacon was born at Ilchester, in Somersetshire, in the year 1214. After remaining for some years at the University of Oxford, he went to finish his education at that of Paris, then the most distinguished seat of learning in Europe. Here he received his doctor's degree; after which he returned to his own country, and, entering himself a brother of the Franciscan order, again took up his residence at Oxford. At this time all the four orders of mendicant friars had establishments both at Oxford and Cambridge; and their members were, in truth, especially the Franciscans, the great support and ornaments of both Universities. At the period, however, when Bacon commenced his career, the Aristotelian metaphysics and logic, although they had already begun to be studied, had not acquired in this country that extraordinary ascendancy of which we find them only a few years after in possession. He, at all events, applied himself from the first chiefly to the mathematical and natural sciences, the principal of which, as cultivated at this time, may be enumerated under the heads of chemistry or alchemy, astronomy or astrology, medicine, and mechanics. To these may be added, as having engaged a considerable share of Bacon's attention, the minor departments of geography, music, and optics; which last especially was one of his favourite studies, and that in which he displayed, more perhaps than in any other, his brilliant and inventive genius. Nearly all these sciences were as yet mixed up with the wildest errors and follies, which were, however, universally looked upon as their most fundamental and unques-

tionable principles, and were accordingly steadily kept in view by all who taught or studied either the theory or the practical applications of any of them. The grand object of chemistry, at the time to which we refer, was the discovery of the philosopher's stone, or the secret of manufacturing gold; but the experiments which were constantly making with a view to this end had incidentally given birth to some real discoveries, especially in regard to the fusibility, malleability, and other properties of the different metals. Of these we may just state, that lead and copper were the two which the most persevering efforts were made to convert into gold, the former exciting the hope of a favourable result by its great weight, and the latter by its colour; no bad example of the purely imaginary grounds which formed the whole theory and foundation of this art. Medicine was in much the same condition with chemistry, being studied, also, chiefly in the writings of the Arabian doctors, who had taken a particular pleasure in mystifying this science with all manner of occult speculation, and bedizening it with their frivolous fancies and inventions. Its natural alliance with chemistry, in the first place, subjected it to be corrupted by all the absurdities of the Hermetic philosophy*. But as these had originated chiefly in one of men's strongest passions, the love of wealth, so another passion still stronger, the fear of disease and death, operated in the case of medicine to give birth to a variety of other delusions, which retained

* The science occupied with the pursuit of the philosopher's stone was so called in memory of the Egyptian philosopher Hermes, styled also Trismegistus, or the thrice-great (supposed by some to be the same personage with the heathen god Mercury), who, it was pretended, had first cultivated it about two thousand years before the birth of Christ, and to whom several existing works upon the subject were ascribed, although, it is almost needless to say, without any foundation.

their hold upon the public credulity with even yet more invincible obstinacy. In the unphilosophical times to which we now refer it was little more than a heap of quackeries and superstitions; or at least the truths which it taught were so mixed up with the merest dreams and imaginations, and these latter were held to be so much the more important and essential part of it, that, if not the very vainest and falsest of all the sciences of the period, there certainly was no other, even as then studied, which was disfigured upon the whole by more frivolity and nonsense. As the chemists thought of nothing but their elixir, or universal solvent, of the metals, so the physicians had their elixir vitæ, or universal medicine, which was to cure all diseases, and, if not altogether to put an end to the custom of dying; at least to protract life to more than antediluvian longevity. Then, the Arabian writers, in whose works the science was principally studied, had introduced into it a cloud of mystical and metaphysical notions from those other departments of inquiry to which they were almost all of them attached. One of the greatest of the Arabian physicians, Avicenna, was one of the most devoted admirers that ever lived of the metaphysical works of Aristotle; which, however, he ingenuously confesses he had perused no fewer than forty times before he understood them. Another of these doctors, Averroes, had written so many commentaries on the Greek philosopher, that he obtained the name of the most *Peripatetic** of the Arabians. Another of them, called Alcendi, or Alchindus, had a strange theory with regard to the virtues of medicines, maintaining that they could only be properly mixed according to the principles of music—a notion which

* The philosophy of Aristotle was called the *Peripatetic*, from a Greek word signifying *to walk about*, because its founder was wont to walk about while he conversed with and instructed his disciples.

seems intended to defy either explanation or comprehension. But it was the intimate connexion it had formed with the philosophy of the stars, as then received, which gave to the medical science of the thirteenth and some succeeding centuries, the greater part of its weakness and absurdity. Medicine, in truth, was for a long time considered as only one of the branches of astronomy or astrology, terms which in those days were synonymous. One of Roger Bacon's own expressions is, that the most important department of astronomy is the science of medicine. Operations, accordingly, used to be performed, and remedies administered, not so much in conformity to the appearance or nature of the disease, as according to the aspect of the constellations. For it was the study of the influence which the heavenly bodies were supposed to exert over human affairs and the fortunes of individuals, that constituted the favourite astronomy of the times; or rather no part of astronomy was studied at all, except with a view principally to the observation and detection of this imaginary sympathy between the stars and men. In those days this was not the belief merely of a few of the most ignorant and credulous of the vulgar, but the nearly universal creed even of the learned. The science of judicial astrology, as it was called, from the judgments with respect to the future which its professors pretended by means of it to draw from the stars, was imported into Europe much about the same time with that of alchemy, and from the same Arabian school. The Arabian writers, however, had found it in the works of their predecessors, the disciples of the Greek school of Alexandria; and especially in their commentaries on a celebrated work by the geographer Ptolemy, now commonly known by the name of his *Almagestum*, or *Almagest*, although that is only an Arabic term, signifying *The Great Work*, which was

bestowed upon the book as a complimentary title by those who translated it into that language. The *Almagest* of Ptolemy may therefore be considered as the grand source of all the astrological superstitions both of the East and of modern Europe.

Bacon himself informs us in one of his works that, notwithstanding the state of unreclaimed barbarism in which all the more important departments of learning still remained, there never had been known such an intellectual excitement as had arisen in his time. We have a gratifying proof of the zeal now felt in behalf of philosophy, and the honour in which it was held, in the reception Bacon is recorded to have met with on his return from France to his own country, to which he was welcomed as one of the glories of the age; while a sum of money was immediately collected and given to him to enable him to prosecute those scientific investigations by which he had already acquired so much celebrity. He tells us himself that in the course of twenty years he had been enabled by this liberality of his friends to expend, in collecting books, performing experiments, and constructing instruments, no less than two thousand pounds,—a much larger sum in those days than in our own. Thus encouraged and supported he pursued his researches in natural science for some time without interruption, and with a zeal and indefatigable application to which the works he has left us furnish abundant testimony. Unfortunately, however, for his peace, though nothing that is recorded of him is more honourable to the purity and intrepidity of his moral character, he could not remain a silent witness of the disgraceful ignorance and profligacy of the generality of his ecclesiastical brethren; and his denunciations upon this subject became at last so loud and unguarded that they reached the ears of those

who were most certain both to feel their justice and never to forgive them. Immediately he felt what it was to have provoked the hostility of so all-powerful a community as the church then was, and to stand as a mark for both the open fury and concealed rancour of a body of men, kept united and powerful by their common interests and common fears, and having in their hands, not only many of the terrors of civil authority, but the whole of that still more formidable power which belonged to an absolute supremacy over the creed, the consciences, and the passions of the people. The life of the philosopher becomes now, with little intermission, only a tale of persecution and cruel suffering. The ignorance and stupid bigotry of the times made it unhappily too easy a matter for his enemies to find the means of amply avenging themselves. It was little more than a century since the Pope himself had experienced how perilous a task he attempted when he set about reforming the corruptions of the clergy. Gregory VII. had, about the time to which we refer, signalized his accession to the chair of St. Peter by some strenuous endeavours to repress the abounding irregularities which had long pervaded all ranks of the priesthood; when both the inferior clergy and many of the bishops themselves openly and indignantly repelled his interference, sarcastically replying to his exhortations and threatenings, by asking him if he expected they were to live like angels. Nor was this all. The superior virtue and learning of the Pontiff served only to expose him to the blackest imputations. The first was represented as a mere shew of austerity, artfully kept up to cover a life of real dissoluteness. Of the other, advantage was taken to point him out to popular horror as a magician or necromancer, a charge under which his memory long laboured, in common with that of some of the

greatest men who were unfortunate enough to have lived in those dark times. And this last was the very calumny of which the enemies of Bacon availed themselves in order to destroy him. His great reputation as a master of the secrets of natural science, and the fame of his many ingenious experiments and contrivances, easily enabled them, in that ignorant age, to represent him both to the people and to the court of Rome, as working his wonders by supernatural means, and as actually in league with the devil. Nothing more was necessary to effect his ruin. An order arrived from the Pope, in the first instance, to restrain him from teaching, as he had been in the habit of doing, in the University; and, a short time after, he was put in confinement, secluded from all intercourse with his friends, and, as we find him complaining himself, subjected to such cruel privations that he was often near perishing of hunger. In this state he remained probably for some years. Luckily, however, in the year 1264, the excellent and learned Cardinal Fulcodi, who had previously been Papal Legate in England, where he had known or heard of Bacon, became Pope under the title of Clement IV.; and he, immediately on his accession, not only ordered the release of the philosopher, but took him under his especial protection. It was at the request of this Pontiff that Bacon made that collection of his principal writings known by the title of his *Opus Majus*, or *Greater Work*, which, after remaining in manuscript for nearly five hundred years, was printed in London in the earlier part of last century. It consists, in fact, of a discourse on the various subjects to which the author's studies had been directed, written in the form of a letter to the Pope; and while it repeats, as was to be expected, many things to be found in his other works, may be considered as the most complete and con-

nected account of his whole system of philosophy which has come down to us. But Clement reigned only about three years and a half; and with him expired Bacon's only security against the malevolence of his enemies. It does not appear that he was positively molested for some time; but, soon after the accession of Nicholas III., the General of his order, Jerome de Ascoli, ventured again to interdict the reading of his works, and to consign him to a prison, by a sentence which was confirmed by that Pontiff. Bacon was at this time in the sixty-fourth year of his age, and he remained in confinement for ten years. At last Jerome de Ascoli became himself Pope, under the title of Nicholas IV., and the persecuted old man, in the hope of being permitted to spend his few remaining days in freedom, stooped to appeal to the magnanimity of his former enemy, by addressing to him a treatise which he had composed in his prison on the means of avoiding the infirmities of Old Age, as a sample of the speculations to which he was wont to devote himself, and an evidence of the innocence and usefulness of those studies which had been so much calumniated. Whether the vanity or better feelings of Nicholas were actually touched by this submission to his judgment and compassion does not very distinctly appear. It has been affirmed that the appeal was powerfully backed by the intercession of some of Bacon's most distinguished countrymen; but it is certain, at all events, that he soon after regained his liberty, and returned to his old residence at Oxford. Nor was he yet so completely worn out by age, hard study, and the cruelty of his oppressors, that he was ready only to lay himself down and die. On the contrary, it is ascertained that he lived about six years after his deliverance, in the course of which he composed and published his work entitled 'A Compendium of Theology,' which still exists in manu-

script in the King's Library. He died in the year 1294, at the age of eighty.

For the age in which he flourished Bacon was a miracle, and altogether deserving of the title by which his contemporaries distinguished him—the *Wonderful Doctor*. In his genius and intellectual character, indeed, he did not belong to his age. He scarcely participated in its prevailing tastes, or gave himself at all to its favourite studies. He complains, in one of his treatises, of the futile speculations which passed under the name of learning and philosophy in his time; when the Roman law was the sole object of attention among secular scholars, and those of his own order occupied themselves about nothing except the most perplexed subtleties of theology. Elegant literature and true science were alike neglected on all hands. Even those, he tells us, who professed the warmest admiration and most earnest study of the works of Aristotle had no acquaintance with that philosopher except through the medium of translations, so wretched that they seldom conveyed the meaning of their originals nor any other meaning. He asserts, in another place, that there were not above four scholars in Christendom who knew even the rudiments of either Greek or Hebrew, much less of Arabic; while the Latin itself was so imperfectly understood that there was scarce one living writer who expressed himself in it with any degree of elegance or purity. Nor was the number of even tolerable mathematicians greater. Of those who applied themselves to that study, most stopped, he says, at the fifth proposition of Euclid. Hence this proposition used to be called the *Pons Asininus*, or *Asses' Bridge*, a name by which it is still known.

His own attainments, even as a scholar, to say nothing of his discoveries, were most extraordinary. He had travelled, indeed, the whole circle of lite-

ature and the sciences, in so far as it had been extended in those days, and surpassed his contemporaries as much in the depth and accuracy as in the universality of his knowledge. His Latin style, though by no means perfectly classical, is distinguished by an ease, neatness, and perspicuity, which we look for in vain in almost any other writer of those days. He was distinguished besides for his knowledge of both the Greek and Hebrew languages, of the former of which he wrote a Grammar, which still exists in manuscript. It is remarkable for a curious passage it contains, in which it is gravely proposed, as a piece of ecclesiastical reform, that every bishop, in consecrating a church, should be obliged to write the characters of the Greek alphabet on the floor with the end of his pastoral staff, or, if that were too much for his scholarship, at least the three marks which were employed by the Greeks, in addition to their alphabetical characters, in the notation of numbers. The study of languages was one, indeed, to which Bacon had given a great deal of attention. It forms the subject of the third book of his *Opus Majus*, and its importance is there vindicated by much ingenious and philosophical reasoning.

Ethics, theology, logic, and metaphysics, enjoyed each of them its share of the attention of this universal genius, as we learn either from those of his works that still exist, or from others, now lost, that are recorded to have been written by him. But it is his scientific researches and discoveries that make the most brilliant part of his fame.

Some have gone so far as to consider Bacon the greatest mechanical genius that has appeared since the days of Archimedes. It is evident, from the testimony of his own writings, that he had at least speculated profoundly as to what might be done by

mechanic power, and meditated many curious contrivances, some of which we can hardly doubt that he had actually executed, from the terms in which he speaks of them. In a little work, which he calls his 'Discovery of the Miracles of Art and Nature, and of the Nullity of Magic,' and which has been translated into English, he has a chapter on 'Admirable Artificial Instruments,' which, in reference to this point, is in the highest degree interesting. Among other machines which he speaks of here, although he does not describe their construction, are a ship which might be managed by one man as well as one of the common construction could by a whole crew; a chariot which ran with inconceivable swiftness entirely by machinery; an apparatus for flying; and an engine for depressing or elevating the greatest weights by the application of a very small force, which he describes as only three fingers high and four broad. Another instrument, he says, may be easily made whereby one man may, in despite of all opposition, draw a thousand men to himself, or any other thing that is tractable. A contrivance to serve the same purpose as the modern diving-bell is also mentioned. "Such engines as these," he remarks, "were of old, and are made even in our days." All of them, he tells us, he has himself seen, "excepting only," he adds, "that instrument of flying," (we use the words of the old English translation), "which I never saw, or know any who hath seen it, though I am exceedingly acquainted with a very prudent man who hath invented the whole artifice."

The errors into which this great man occasionally falls, read us a valuable lesson in the right method of philosophizing. He was, to an extent very remarkable, when we consider the age in which he

lived, an experimental philosopher* ; but still he had not learned by any means the whole importance of that diligent inquisition of nature which was, some centuries later, demonstrated by his illustrious namesake, to be the one sure foundation of philosophy. There is one thing, accordingly, with which we cannot fail to be struck in following his speculations. His experiments are almost all directed, not to the *ascertainment* of principles, but only to their *exemplification*. It may sometimes have chanced that he did in this way discover, or rather obtain a hint of, a new truth in science, or a hitherto unsuspected property in the substances or instruments he was employing ; but this was always merely an accidental result, and never the direct object of his examination of them. Hence, although he made some important additions to the truths of philosophy, he effected no diminution in the long list of errors and falsehoods by which it was in his time encumbered. With him, as with all his contemporaries, all was true that was generally believed, or that was to be found in any of those works which it was customary to regard as authorities. It is abundantly plain that he had no clear conception of the true grounds of belief in philosophy. With all the ingenious and original views, accordingly, in which his writings abound, they contain at the same time, it must be admitted, not a little of both hasty and extravagant inference. For not only does it never enter his imagination to doubt the correctness of anything that has been stated by his predecessors, or to examine nature with a view to ascertain the reality of those properties which they

* "Whoever," says Mr. Hallam, "reads the sixth part of the 'Opus Majus,' upon experimental science, must be struck by it as the prototype, in spirit, of the *Novum Organon*."—*History of the Middle Ages*, ii. § 81.

have imputed to her, but, with a corresponding ignorance, or disregard of the true laws of evidence as to such matters, he continually advances to his general conclusions from much too limited an induction of particulars, and without anything like a sufficient consideration of the whole circumstances, even of the cases to which his attention is directed. Thus, there can be little doubt that some even of the mechanical designs we have just mentioned were merely his imaginations of what might be accomplished by the most perfect combinations of certain natural powers, which, however, he had never actually applied, so as to produce such effects, nor contemplated very attentively in any case with reference to all the conditions of his supposed invention. It is with the same looseness that we find him in another place asserting the possibility of making lamps that would burn for ever, and talking, on the authority of Pliny, of a certain stone which attracts gold, silver, and all other metals, "the consideration whereof," he remarks with some simplicity, "makes me think there is not anything, whether in divine or outward matters, too difficult for my faith." And, indeed, it appears to be so; for many of the stories which he quotes, especially those from Aristotle's *Secretum Secretorum**, which is one of his greatest authorities, are such as one should think could hardly have failed to prove too monstrous for his belief, if it had not been of this infinite capacity.

The influence of this sanguine and over credulous disposition is very discernible in his optical speculations. He was here blinded and misled in the most extraordinary manner by certain notions he had imbibed from the prevailing philosophy, upon the subject of

* Literally *The Secret of Secrets*,—a spurious production, attributed to Aristotle, in high favour in the dark ages, and filled with the most ridiculous marvels and absurdities.

what were called the *species* of objects, which were certain shadows, or images of themselves, which bodies of all kinds were imagined to be continually throwing off, and which, when received into the mind, constituted the *ideas* of the things from which they had come. In conformity with this singularly absurd theory, Bacon contends, that any object may reflect upon another the *species* or image of whatever power or quality is inherent in itself; that a man, for example, may, by means of words spoken under strong emotion, transmit to another object, no matter whether sentient or not, such an emanation of the passion under which he labours, that a certain effect which he desires to operate on that object shall be thereby immediately produced. If such a phenomenon as this has never been actually exhibited, he conceives that it is owing solely to the emotion never having existed in sufficient intensity when the experiment was attempted. After this we need not wonder at what he says about the reflective powers of mirrors. Glasses, he assures us, "may be framed to send forth species, and poisonous infectious influences, whither a man pleaseth; and this invention Aristotle shewed Alexander, by which he erected the poison of a basilisk upon the wall of a city, &c. &c." In another place we are informed, in a jargon which will scarcely bear translation, "that all things are to be known by the science of Perspective, since all the doings of nature take place through the multiplication of species and virtues from the agents of this world into the patients." And many other passages might be quoted in the same style.

These were the prejudices of education, which even such a mind as that of Bacon was not powerful enough altogether to escape from. They were in part, too, the natural produce of that sanguine temperament which appertained to him as a man of

inventive genius, and one given rather to look forward to the future than back upon the past. The minds that have enlarged the bounds of science by positive discoveries, seem to be of a different order from those to which we are indebted for the demolition of ancient systems of imposture or delusion. Lord Bacon, who first overthrew the despotism of Aristotle, and rid philosophy of the standard superstition by which it had so long been encumbered and overshadowed, achieved nothing beyond the old border-line of the territory which he had thus cleared. Newton, on the other hand, whose conquests were all on the outer side of this hitherto untraversed bourn, might, possibly, had he lived in another age, have failed to detect those consecrated errors in the method of philosophizing which were so happily exposed by Lord Bacon.

Astronomy is another of the departments of mathematical physics, in which Friar Bacon had made wonderful proficiency for his age. As a proof of this, we may mention, that he is recorded to have suggested, in a letter to his patron, Clement IV., the same reformation of the Calendar which was introduced three hundred years afterwards by Pope Gregory XIII., and which has been long adopted by nearly all Christendom, our own government having formally recognised and enacted it in the year 1752; and Russia being now the only country in which the old reckoning prevails. Geography and chronology were also favourite studies of Bacon's; and both are ably and learnedly treated of among those of his works which still exist.

We have already mentioned the extraordinary imaginations which in those days formed so important a part of physical science; and, in regard to most of these, this great man had not risen above the universal faith of his age. He was a believer

in all the wild pretensions both of astrology and alchemy. Of the latter art, indeed, he was one of the earliest disciples among the Latins, as the Christian inhabitants of Europe used then to be called in contradistinction to the Jews and Saracens, by whom it had been cultivated for several centuries before. But it is unnecessary to refer more particularly to any of his unintelligible disquisitions on these subjects, which, couched as they generally are in a most peculiar and mystical style, seem in truth hardly intended to convey any meaning even in the original, and certainly were never meant to be translated. It is sufficient to remark, that the influence of the stars upon human affairs is one of the fundamental laws of his astronomy; and that he has no doubt of the existence of a universal menstruum, or solvent, having the power both of converting all other metals into gold, and of purifying the human body from all its corruptions, and prolonging life through many ages.

In his pursuit of the philosopher's stone, however, Bacon had undoubtedly acquired a considerable knowledge of the properties of various natural substances, and made several real discoveries in chemistry. Of these, the most remarkable of which his works give us any notice, is his discovery of gunpowder. We have no account from himself of the manner in which he arrived at this discovery; but nothing can be more probable than the statement of another old writer that he was indebted for it merely to the accident of a vessel, in which the different ingredients of the composition happened to be mixed, exploding on being heated. The way in which he himself mentions the matter is exceedingly curious, and very characteristic of the philosophy of the times. He describes the wonderful properties of his secret mixture in various parts of his works. For example,

in his Treatise on the Miracles of Art and Nature, he enumerates, among "his strange experiments," "the making of thunder and lightning in the air; yea, with a greater advantage of horror than those which are only produced by nature; for a very competent quantity of matter, rightly prepared (the bigness of one's thumb) will make a most hideous noise and coruscation." In another place he ventures so far as to intimate, that the preparation in question is a compound of "nitre, or saltpetre, and *other ingredients.*" In one passage only, however, and that in a chapter thrown in by way of appendix at the end of one of his works, does he actually record the names of these other ingredients. And even on this occasion, instead of declaring them plainly, and at once, he wraps them up in a mysterious *anagram*, or series of syllables formed by an intricate transposition of the letters of which the words meant to be understood, are composed. "The substance is prepared," says he, "from the *luru mope can ubre*, of saltpetre, and of sulphur." The sentence, of course, is in Latin; and the letters in italics, when restored to their proper order, make exactly the words *pulvere carbonum*, in English, the *powder of charcoal*; so that the meaning of the whole is, that the composition is formed by mixing together the powder of charcoal, of saltpetre, and of sulphur, the very three ingredients, as is well known, from which gunpowder is generally made. This curious passage proves incontestably Bacon's possession of the secret; but it is not at all probable that it is to him or his writings that the world at large has been indebted for the knowledge of it; for it is singular enough, that the barbarous syllables to which he thus confided it, retained their trust so faithfully, that they continued an unexplained riddle for nearly five hundred years, when their meaning was at last discovered by the

ingenious author of the article we have already referred to in the *Biographia Britannica*. It may be added, that this mode of recording scientific discoveries was common long after the time of Bacon, as might be proved by many examples which it would be easy to cite. Newton himself first announced an important portion of his doctrine of fluxions by an anagram.

Bacon's renown as a mighty magician, however, was the part of his fame that lived longest in the popular memory. It is entirely in this character that he figures in a very curious production which appears to have been a great favourite with our ancestors, about the beginning of the seventeenth century, entitled 'The famous History of Friar Bacon, containing the wonderful things that he did in his life; with the lives and deaths of the two conjurers, Bungey and Vandermast; very pleasant and delightful to be read.' This veracious chronicle gives a most minute account of his fabrication of the marvellous brazen head, of which we read so much in all the old histories of the philosopher and his inventions. This fabrication of a brazen head, we may remark, is a feat which we find attributed to most of the few other individuals who were distinguished as cultivators of science in those times. William of Malmesbury, among the other wonders he relates of the famous Gerbert, who became Pope under the title of Sylvester II., in the year 999, mentions such an image of his constructing, which was in the habit of answering many difficult questions. The same story is told of another very remarkable man, William of Paris, or of Auvergne, as he is sometimes called, who was born some years before Bacon, and has probably a better claim than the English philosopher to be accounted the father of alchemy among the Latins, while he is at the same time honour-

ably known as a most profound and original thinker on moral and metaphysical subjects, in an age when these departments of philosophy were especially under the control of routine and authority. We read, too, of a brazen head made by one of Bacon's patrons and most intimate friends, the celebrated Robert Grosseteste, or Greathead, Bishop of Lincoln, a prelate of great genius and learning, but who had made himself obnoxious by his independent conduct, not only to the general body of the clergy, of whose corrupt manners he was a severe censor, but to the reigning Pope Innocent IV. himself, some of whose impositions he had resisted with a boldness that might surprise those who have so read the history of the Roman Catholic Church as to have gathered no other notions with regard to it except that of the unlimited authority of its head, and the uniform and unquestioning obedience of its inferior members. Bishop Greathead, often called Robert of Lincoln, wrote several works, which still exist, both in theology and science; and was distinguished, like his friend Bacon, for his philosophical as well as his mathematical knowledge. Lastly, we may mention the complete man of brass made by the famous Albertus Magnus, or Albert the Great, of which it is recorded that it was so fond of talking that Thomas Aquinas, while a pupil of Albert's, one day knocked it to pieces as a disturber of his studies. Albert was a contemporary of Friar Bacon's, and like him long enjoyed the reputation of profound skill in the art of magic. He was undoubtedly a very extraordinary man. The extent and variety of his attainments seem to have been wonderful, for the age in which he flourished; and his industry and fertility as a writer must be regarded as almost unparalleled if he really composed the whole of that immense mass which was printed at Lyons in the middle of the

seventeenth century, under the title of his collected Works, in twenty-one volumes folio. A large portion of these consists of Commentaries on Aristotle, whose works, however, he knew only through the medium of the wretched Latin translations then existing.

Attached as Friar Bacon was to those vain speculations, known under the names of the sciences of astrology and alchemy, he was so far from ever pretending to operate by supernatural means, that one of his works, his 'Treatise on the Miracles of Art and Nature,' to which we have already referred, is written principally for the purpose of proving the nullity or absurdity of what was called the Art of Magic, and exposing the tricks of its professors. In the beginning of this little work, after enumerating the various methods by which these impostors pretended to perform their wonders, he affirms, that "no true philosopher did ever regard to work by any of these ways." And immediately after, nothing can be more sensible than the manner in which he expresses himself on the subject of charms, spells, &c. "Without doubt," says he, "there is nothing in these days of this kind, but what is either deceitful, dubious, or irrational, which philosophers formerly invented to hide their secret operations of nature and art from the eyes of an unworthy generation." The domination which he imagined the heavenly bodies to possess over human affairs, was certainly an absurd dream; and so was his other favourite fancy about the tincture which possessed the power of curing all diseases, and turning everything into gold: but neither of them proceeded upon the idea of anything like supernatural or magical agency. The moral influence which he attributed to the stars, he conceived to be as truly a law of nature as that which directed their motions, or retained them in their orbits; and one, the operation and effects of which equally admitted of being made

matter of calculation and science. In the same manner, his universal solvent was merely one of the yet undiscovered essences or compounds of natural chemistry, the expectation of ever finding which might be wild and unwarrantable enough, and the properties ascribed to it such, in fact, as nothing existing did actually possess: but still there was not necessarily anything magical, either about the supposed nature of the substance itself, or the manner in which it was to be applied, or even the processes and experiments by which it was sought to be discovered. It is quite true that some of the other cultivators of these visionary sciences professed to avail themselves of the aid of spells or spirits, or other supernatural means, in prosecuting their researches; but Bacon never did. The worst that can be said of him is, that his language, when he is speaking of the subject, is occasionally somewhat mystical—which arises, in a great part, it is but fair to observe, merely from his employment of the peculiar and technical phraseology of which the sciences in question, as well as all others, have their share. Nothing, therefore, could be more undeserved than the opprobrium to which he was exposed as a student of necromancy, or as one who ever even professed to work enchantments. It has been said that this calumny only arose many years after his death, and that he himself never was annoyed by it; but both his history and his writings, we cannot help thinking, prove the contrary. In his book on Old Age, he distinctly complains of being hindered from making such experiments as he would have wished, by “the rumours of the vulgar.” And in various other passages we find him alluding to the difficulties and dangers which philosophy had to encounter from the same cause. It is gratifying, however, to observe, that in whatever spirit this accusation may have been originally

brought against him, and with however much affected horror his name may have long been regarded by his brother churchmen, who used to nail his books, we are told, to the shelves of their libraries, and to allow them to remain in that state covered with dust, and a prey to the moths and worms, he seems even, in his character of a magician, to have been a favourite with the people in general. In "The Famous History of Friar Bacon," instead of being represented as in league with the powers of evil, we find him, on various occasions, opposing and foiling them in a style that would do honour to any legendary saint in the calendar; and when his fellow conjurers, Bungey and Vandermast, are consigned, at the close of their career, to the usual fate of persons of their craft, he is, by an extraordinary piece of indulgence on the part of the chronicler, released from the dreadful penalty by being made, in a fit of repentance, to burn his books of magic, to turn anchorite, and to study divinity. Everything that is told of him, too, speaks in favour of the kind and generous manner in which he used to dispense his enchantments; and, upon the whole, he is represented to us, in point of moral character, very much in the same light in which his own writings, so evidently the produce of a simple, benevolent, and philosophic spirit, would lead us to regard him. He was, indeed, a genuine lover of knowledge and philosophy, for which he was ever ready to suffer all things,—preferring them infinitely to all things. He unfolds to us, in short, very clearly, what manner of man he must have been, by a single remark: when speaking of one of his projects or contrivances, he calls it, with delightful enthusiasm, "an invention of more satisfaction to a discreet head, than a king's crown."

CHAPTER XII.

Professors of Optical Discovery.—Dollond; Ramsden; Herschel; Thomas Phelps and John Bartlett; Fraunhofer; Palitzsch.

THE truth, as we have already remarked, with regard to many of the inventions mentioned by Friar Bacon, probably is, that he had rather deduced them as possibilities from the philosophical principles in which he believed, than actually realised them experimentally. Among others, certain optical instruments to which he attributes very wonderful powers existed merely, there can be little doubt, as conceptions of his mind, and had never been either fashioned or handled by him.

The invention of spectacles, however, may be considered as having been traced, on evidence of unusual clearness in such matters, to about the time of the death of Bacon. By the testimony of more than one contemporary writer this useful contrivance is assigned to a Florentine named Salvini degl' Armati; although he, it is said, would have kept the secret to himself, had it not been for another subject of the same state, Father Alexander de Spina, who, having found it out by the exertion of his own ingenuity and penetration, was too generous to withhold from the world so useful a discovery. This was about the close of the twelfth century. From this time magnifying, or burning, lenses continued to be made of various sizes. But nearly three hundred years more elapsed before any additional discovery of much importance was made in optical science; although in the early part of the sixteenth century Mamolicus of Messina, and, soon after him, Baptista Porta, began once more

to direct attention to its principles by their writings and experiments. The latter is said to have first performed the experiment of producing a picture of external objects on the wall of a darkened chamber, by the admission of the light through a lens fixed in a small circular aperture of the window-shutter, the origin of the modern Camera Obscura; and the former made an imperfect attempt to explain the phenomenon of the rainbow. The fortune of ascertaining the true principles of this phenomenon, however, was reserved for Antonio de Dominis, Archbishop of Spalatro, who published his exposition of them in the year 1611.

It appears to have been about this time, also, or not long before, that the telescope was invented; although the accounts that have come down to us regarding this matter are extremely contradictory. As magnifying lenses had been long known, and were commonly in use, nothing is more probable than that, as has been suggested, more than one person may, ere this, have accidentally placed two lenses in such a position as to form a sort of rude telescope; and this may account for various evidence that has been adduced of something resembling this invention having been in use at an earlier period. But what is certain is, that the discovery of the telescope which made it generally known took place only about the close of the sixteenth century. It seems also to be generally agreed, that it was in the town of Middleburg, in the Netherlands, that the discovery in question was made; and moreover, that it was made by chance, although the accounts vary as to who was the fortunate author of it. The story commonly told is, that the children of a spectacle-maker, while playing in their father's shop, having got possession of two lenses, happened accidentally to hold them up at the proper distance from each

other, and to look through them at the weather-cock on the top of the steeple ; when, surprised at seeing it apparently so much nearer and larger than usual, they called to their father to come and witness the phenomenon ; after observing which he was not long in fabricating the first telescope. The wonderful powers of the new instrument were soon rumoured over Holland and other countries, and the account excited everywhere the greatest interest and curiosity. At last, as we have mentioned in our former volume, it reached Galileo at Venice ; and he re-invented the instrument by the application of his own sagacity and scientific skill*.

The microscope was also discovered about this time—but by whom is equally uncertain. These instruments, however, contributed greatly to revive a taste for optical investigations ; and some of the greatest philosophers of the time, especially Kepler and Des Cartes, successively distinguished themselves in this branch of science, so that some of its most important principles were, ere long, much more accurately ascertained than they had hitherto been, and the phenomena depending upon them more correctly explained. The early part of the seventeenth century, indeed, exhibits one of the busiest periods in the whole history of optical discovery ; nor did the almost constant advance of the science stop, till the publication of the Dioptrics of Des Cartes in 1637.

Its next distinguished cultivator was James Gregory, whose Optics appeared in 1663. It was he, as is well-known, who first proposed the reflecting telescope—which, on that account, is often called by his name, although he did not succeed in actually constructing such an instrument. This was first accomplished a few years afterwards, by Sir Isaac Newton, whose investigations on the subject of light,

* See the Life of Galileo, in the Library of Useful Knowledge.

in its whole extent, were destined to create, in regard to that department of physics, nearly as complete a change in the opinions of the age as that which he subsequently effected, by the publication of his 'Principia,' in regard to the mechanism of the heavens. By his celebrated experiment of interposing a prism, or triangular bar of glass, in the way of the solar beam, admitted through a small hole into an otherwise darkened chamber, he had made it produce on the wall, not a white circle, as it would have done if allowed to pass on without interruption, but an elongated image, or spectrum, as he called it, displaying a series of seven different colours, namely, red, orange, yellow, green, blue, indigo, and violet,—hence often spoken of as the seven prismatic colours. This phenomenon proved the hitherto unsuspected facts,—first, that white or common light is, in reality, composed of seven different species of rays; and, secondly, that each of these several rays is refrangible in a different degree from the others, that is to say, on passing into a new medium, they do not proceed together in one direction, but each starting from the common point of entrance, takes a separate course of its own, so that the beam spreads out into the resemblance of a fan. This is called the divergence, or *dispersion* of the rays of light; and from some other experiments which Newton made, he was induced to believe that whatever transparent substances or media *refracted* a beam of light in the same degree, or, in other words, changed in the same degree its general direction, were also equal in their *dispersive* powers, or made the different rays separate from one another to the same extent. From this followed a very important consequence. The magnifying powers of the common telescope depended entirely upon the refraction of the light in its passage through the several lenses; but it could not

undergo this operation without the rays being at the same time dispersed ; and this necessarily threw a certain indistinctness over the image which such telescopes presented to the eye. Here, therefore, was a defect in the refracting telescope, which admitted of no cure ; for the dispersive bearing the same relation in all substances to the refractive power, you could not obtain the requisite refraction without its inseparable companion, the same amount of dispersion. It was this consideration which made Newton give up all thoughts of improving the refracting telescope, and apply himself, as Gregory had done, to the construction of one which should present its image, not by refracting, but by reflecting, the light from the object.

This rapid sketch of the progress made in the improvement of the telescope up to the beginning of the eighteenth century, will be sufficient to enable the unscientific reader to understand the general nature and importance of a very happy discovery, which, since that time, has so greatly improved that instrument, and of the author of which, one of the most remarkable examples of self-educated men, we are now about to give some account.

JOHN DOLLOND was born in Spitalfields, on the 10th of June, 1706. His parents had come to this country from Normandy, on the revocation of the Edict of Nantes, in 1685 ; and, along with many thousands more of their countrymen, had established themselves in the above-named district of the English metropolis, in their original business of silk-weavers. Dollond's earliest years, also, were spent at the loom ; and it had become the more necessary that he should apply himself to his occupation with his utmost industry, in consequence of his father having died while he was yet an infant. Even during his boyhood, however, we are told, he began to shew an in-

clination for the study of the mathematics; and before he was fifteen, he used to amuse himself, during what little leisure he could command, in constructing sun-dials and solving geometrical problems, although at this time he had scarcely had an opportunity of looking into any book on these subjects. These early habits of study he continued as he grew up towards manhood; so that, notwithstanding the disadvantages under which he laboured, he had, ere long, accumulated a considerable store of learning on his favourite subjects of inquiry. He married early, and an increasing family forced him to make still more unremitting exertions for their support,—so that, although he seems now to have become a master manufacturer, he had still less time for private study than ever. But the leisure which business deprived him of during the day, he procured for himself, as many other ardent students have done, by stealing it from the hours usually allotted to sleep. In this manner he continued to improve himself in geometry and algebra; after which he applied himself to different branches of natural philosophy, and with especial ardour, it is recorded, to the kindred departments of astronomy and optics. But Dollond's studies at this time were not confined even to what is commonly called science. He found time to attain a competent knowledge of anatomy, to read a great deal of divinity, and even without any instructor to make himself so far master of the Greek and Latin languages as to enable himself to translate the New Testament from the one into the other.

Such a man was destined for something above the handicraft to which he had been bred. Dollond, however, pursuing all the while his solitary studies, continued in his original business, even for some years after his eldest son Peter was come to an age to join

him in it. But Peter had also been his father's associate in his philosophical inquiries and experiments; and the tastes, as well as the knowledge, which he had thus acquired, naturally made him feel ambitious of entering upon some other line of exertion, in which his talents and attainments might find a more appropriate employment than his father's business afforded. So, after having been for some time in partnership with his father, he determined to set up on his own account as an optician. He was at this time only about twenty years of age, and does not appear to have received any other instructions in the art he had resolved to follow than those which his father had given him. But his ingenuity, skill, and diligence, were speedily crowned with the success they deserved. So great was the encouragement he received, indeed, that after a short while it was arranged that his father should join him; and accordingly, in the year 1752, John Dollond gave up his old business of a silk-manufacturer, and entered again into partnership with his son as an optician.

Being now free to devote his whole attention to the art, and the sciences connected with it, which had for so many years occupied his scanty leisure, he was not long in displaying the powers of his cultivated and inventive genius, by various improvements on the instruments which he fabricated. Of these, however, we can only afford space to notice the one from which his name derives its chief distinction.

We have stated above the conclusion to which Newton had arrived in regard to the dispersive power of different substances, namely, that it always bore a certain relation to the refractive power; and the inference which he thence drew as to the impossibility of improving the common or refracting telescope. In consequence of this decision of Newton, the attention of the students of optical science was,

for a considerable time after, principally directed to the simplification of the reflecting telescope. But this instrument, especially when constructed of a large size, was attended with many inconveniences in the management, and, from the difficulty of keeping the mirrors clean, was extremely liable to get out of order. The reflected light, besides, was never so strong as that obtained by refraction. Notwithstanding, therefore, the coloured fringe in the image formed by the refracting telescope, that instrument still continued to be generally used for ordinary purposes. At length the distinguished mathematician, Euler, undiscouraged by the circumstance which had made Newton give up the same task in despair, resolved once more to make some attempt to correct the peculiar imperfection which had hitherto attached to it. He began his experiments about the year 1747; but, after continuing them for several years, he failed in obtaining any success. He published, however, several speculations upon the subject in the Berlin Memoirs, which excited very general interest in the scientific world. In these papers he announced and proceeded upon a certain law with regard to the relation between the refractive and dispersive powers; and it was on the subject of this assumed principle of calculation that he was first opposed by Dollond. The ground which the English optician took was, that Euler's asserted law was irreconcilable with one of the experiments recorded by Newton—as in truth it was; but the experiment in question, and Dollond's inference from it, Euler attempted to shew were alike inadmissible, on considerations which appeared to him to demonstrate the self-contradiction to which they led. Dollond's paper, with Euler's reply, appeared in the Philosophical Transactions for 1752; so that the controversy must have been commenced

by Dollond some time before he set up as a regular optician.

It was some years after this that the Swedish mathematician, Klingenstierna, in a paper which he sent to the French Academy of Sciences, demonstrated on purely geometrical considerations the inadmissibility of the law which Dollond had deduced from the experiment made by Newton. Dollond, who had not been convinced by Euler's calculations, could not resist this new proof of the incorrectness of the principle which he had hitherto advocated; but as it was a direct consequence, and acknowledged by all to be so, of what Newton had stated as the result of his experiment, it followed, of course, that this great observer had, for once, deceived himself; and that the only way to determine the point was to have recourse again to the fountain-head of all philosophy, the testimony of nature. It is a striking evidence of the habitual reverence felt for Newton's accuracy, that, during all the time this dispute had been carried on, no one had till now adventured upon the task of following his footsteps over this intricate ground, and so tracing out where he had erred. This, however, Dollond at last determined to do; and having begun his experiments in the year 1757, he prosecuted them in the spirit, as he says himself, of "a resolute perseverance;" till at length, after he had devoted nearly all his time to that one object for about a year and a half, in June 1758, he found himself in a condition to lay before the Royal Society, as the result of his investigations, a new discovery of the most interesting nature. The experiments which he had made, had refuted, not only the law which he had himself advanced with regard to the relation between the refractive and dispersive powers, but also, and as completely, that which had been propounded by his opponent. Both these deductions had been

equally founded on the assumption, sanctioned by the authority of Newton, that these two powers actually did always bear a certain relation to each other; but Dollond had now discovered that the amount of the one was, in fact, altogether independent of that of the other—that where two substances, in other words, had the same, or nearly the same, refracting power, their powers of dispersion might nevertheless be widely different; and conversely. Crown-glass and flint-glass, for instance, he found to differ very slightly in their power of refracting, or turning aside from its original course the entire beam of light which entered them from another medium; while, in dispersing the several rays of which it was composed, or, to repeat the figure we have already used, spreading them out into a fan, the former produced only two-thirds of the effect produced by the latter, so that, when the rays were allowed to arrange themselves in a coloured spectrum, that image was, in the one case, a third longer than it was in the other.

The discovery of this hitherto unsuspected principle gave a new aspect to the whole subject of refraction, and at once pointed out the method to be adopted in order to remedy the great defect of the refracting telescope. To retain the requisite degree of refraction, and at the same time to get rid of the dispersion of the rays, it was necessary only to form the lens of two different glasses, or other transparent substances, so arranged, that the dispersive powers of the one should counteract those of the other, while the refraction, or at least a sufficient amount of it, remained undestroyed. There were many experiments, it is true, to be made, before the idea thus suggested could be practically realized; but the perseverance and ingenuity of the same mind which had discovered the principle, at length succeeded also in

triumphing over the difficulties that lay in the way of its application. Dollond was not long in producing refracting telescopes which presented images retaining scarcely a perceptible remnant of that coloured border always existing in the old instruments. When the successful result of his attempts was first reported abroad, many of the continental mathematicians refused for some time to give credit to his alleged discovery; and Euler, in particular, was still so prepossessed in favour of his own hypothesis, which the new doctrine overthrew, that he continued for several years to hold that the greater distinctness of the image in Dollond's telescopes arose from some other cause than the correction of the unequal refrangibility of the rays. This illustrious philosopher, however, at last became convinced of his error, and frankly acknowledged it.

For this great discovery the Royal Society presented Dollond with the Copley Medal. The new telescope, to which the name of *Achromatic*, or *Colourless*, has been given, was afterwards considerably improved by its inventor; and has, since his time, been brought by others to still greater perfection. Meantime it spread the fame of the English optician over Europe, and gave him at once a high rank among the philosophers of his age. In 1761 he was elected a Fellow of the Royal Society, and appointed optician to his Majesty. But he did not live long to enjoy these honours. On the 30th of November, in the same year, while perusing a newly published mathematical disquisition, on which he had been engaged for a considerable time, he was suddenly struck with apoplexy, and died in a few hours. His son, who had been so long associated with him, carried on the business for many years, in such a manner as fully to sustain the reputation of the establishment, and died only about ten years ago.

The mention of Dollond naturally recalls the name of another of the most eminent of our English opticians, the late Mr. **JESSE RAMSDEN**, who in like manner was not originally bred to the profession which he followed with such distinguished success. Ramsden was born in 1735, at Salterhebble, near Halifax, where his father kept an inn. The education he received in his boyhood embraced both a little Latin and the elements of geometry and algebra. But when he was of the usual age for being put to a business, his father took him from school, and bound him apprentice to a clothier in Halifax; and in this line he continued till he reached his twentieth year, when he came up to London, and obtained employment as a clerk in a wholesale warehouse. He held this situation for about two years and a half; but in the mean time he had industriously availed himself of what leisure he could command to renew and extend his acquaintance with science; and so enamoured did he gradually become of these pursuits, that he at last resolved to make an effort to establish himself in some line more closely connected with his favourite studies than that which he had heretofore followed. With this view, notwithstanding that he was now so far beyond the age at which the learning of a business is usually begun, he bound himself apprentice for four years to Mr. Burton, of Denmark-court, a mathematical instrument maker. On the expiration of this term, he and a fellow-workman of the name of Cole entered into business together, Ramsden serving the other as journeyman at a salary of twelve shillings per week. This connection, however, did not last long; and on its termination Ramsden opened a shop of his own. His chief employment for some time consisted in repairing optical and other mathematical instruments which had got out of order; and in this the industry and ability he displayed soon

brought him into notice, and procured him a rapidly increasing business. But he did not rest satisfied with merely performing in a superior manner such work as he undertook of this description; the different instruments which passed through his hands forcibly attracted his attention to the imperfections by which each happened to be characterised, and called his powers of contrivance into exercise in devising how they might be improved. In order to accomplish himself the more completely for this task, he laboured assiduously till he acquired, entirely by his own application, the art of grinding glass, and of handling the file, the lathe, and the other instruments used by opticians. Thus furnished with the practical skill and dexterity requisite to enable him to apply his ingenuity and mathematical knowledge, he proceeded to enter upon a regular and comprehensive examination of all the different optical instruments in use, with a view to the remedying of their several defects.

This resolution, and the perseverance with which it was followed up, eventually made Ramsden one of the greatest optical mechanics that the world has ever produced. The list of the instruments which are indebted to him for the most ingenious and valuable improvements, embraces nearly all those of greatest importance and most common use in astronomy, and the connected sciences. Hadley's quadrant, the sextant, the theodolite, the barometer, the transit instrument, and many others too numerous to specify, all came out of his hands, it might almost be said, with new powers, and certainly, at all events, with much more in every case than they before possessed, both of manageableness and of accuracy. In this last respect, especially, the instruments constructed by him far surpassed any that had before been produced; and they were indebted for

much of their superiority to a new dividing or graduating engine which he had contrived, the principle of which was extremely ingenious. It consisted essentially of a marker moved forward by the turning of a very fine-threaded screw. It is easy to make a screw with a hundred turns of the thread in an inch; and by attaching to it a handle or index of sufficient length, so that the extremity may be over a properly divided circle of considerable magnitude, the movement of such a screw may be regulated with perfect precision to the thousandth part of one of its entire revolutions. Now, as by such a revolution it would only advance the marker the hundredth part of an inch, it is evident that, by being turned only the thousandth part of an entire revolution every time the marker is allowed to descend and make an impression upon the plate of metal or other surface to be divided, a hundred thousand equidistant lines may actually be drawn upon every inch of that surface. For this most useful contrivance the Board of Longitude awarded him a premium of 615*l.*; and in return he engaged to graduate whatever sextants were put into his hands for that purpose, at the rate of three shillings a-piece. His engine, indeed, enabled him to perform the operation in about twenty minutes, whereas it had been wont to occupy many hours*. But the additional accuracy which was given to the instrument to which it was applied by the new method, was of still greater importance than its comparative expedition and cheapness. Hadley's quadrant, for instance, used to be so coarsely divided, and in other respects so defectively made, before it received Rams-

* See a letter, dated London, 1st September, 1788, from Professor Piazzì of Palermo, to M. de Lalande, containing an account of Ramsden, in the *Journal des Savans*, for November of that year. There is a translation of this letter, with a few notes, in vol. xvi. of Tilloch's *Philosophical Magazine*.

den's improvements, that, in endeavouring to ascertain the longitude by it, the observation might in some cases lead to an error of fifty leagues; but Ramsden constructed it in so superior a manner, that even his commonest instruments did not admit of an error being fallen into of more than the tenth part of that amount, and with those of a more expensive description accuracy was ensured in all cases to within a single league.

Soon after he commenced business, Ramsden married Miss Dollond, daughter of the inventor of the achromatic telescope, part of the patent for which came in this way into his possession. In 1786 he was elected a Fellow of the Royal Society, having been proposed by his friends without his knowledge, after his diffidence in his claims to such a distinction had made him long withhold his consent to their taking that step. In 1794 he was chosen a member of the Imperial Academy of Sciences at Petersburg; and in 1795 the Royal Society awarded him the gold medal annually bestowed by them for eminence in science.

The Reverend Lewis Dutens, the author of the 'Researches on the Origin of Discoveries,' who was intimately acquainted with Ramsden, has given us an account of his friend, which contains some interesting particulars of his character and habits. After noticing his great activity, the uncommon force of his reasoning powers, and the accurate and retentive memory with which he was endowed, the writer proceeds to remark, that perhaps, after all, the most distinguishing quality of his mind was a certain elegance, and taste for precision and high finish, which appeared not more in the instruments he manufactured than in every thing he did. "This feeling for perfection," Mr. Dutens goes on to say, "led him, in the most minute and insignificant parts of

his instruments, to a polish and grace, which sometimes tempted those to smile who did not perceive that the same principle which enabled him to carry the essential parts of his instruments to a degree of perfection unknown, and considered as impossible before his time, induced him to be dissatisfied if a blemish of any sort, even the most trifling, appeared to his exquisite eye. To these uncommonly strong natural endowments he added all that the most constant and intense study could bestow. Temperate to abstemiousness in his diet, satisfied with an extremely small portion of sleep, unacquainted with dissipation or amusement, and giving but very little time even to the society of his friends, the whole of those hours which he could spare from the duties of his profession were devoted either to meditation on further improvements of philosophical instruments, or to the perusal of books of science, particularly those mathematical works of the most sublime writers which had any connection with the subjects of his own pursuits. Mr. Ramsden's only relaxation from these constant and severe studies was the occasional perusal of the best authors both in prose and verse; and when it is recollected that at an advanced age he made himself so completely master of the French language as to read with peculiar pleasure the works of Boileau and Moliere, he will not be accused of trifling even in his lighter hours. Short and temperate as were his repasts, a book or a pen were the constant companions of his meals, and not seldom brought on a forgetfulness of hunger; and when illness broke his sleep, a lamp and a book were ever in readiness to beguile the sense of pain, and make bodily sickness minister to the progress of his mind. Of the extent of his mathematical knowledge he was always from innate modesty averse to speak, although I have heard him say that he never was at a loss when his

profession required the application of geometry. His knowledge in the science of optics is well known to have been perfect ; and when we add that the works of Bouguer and the great Leonard Euler were his favourite study, we shall not lightly rate his proficiency in mathematics. Of his skill in mechanics it is unnecessary to speak. Nor let it be supposed that his science in his profession was limited to the higher branch of invention and direction of the labours of others. It is a well known fact, that such was his own manual dexterity, that there was not any one tool, in any of the numerous branches of his profession, which he could not use with a degree of perfection at least equal to that of the very best workman in that particular branch ; and it is no exaggeration to assert that he could with his own hands have begun and finished every single part of his most complicated instruments. It may not be foreign to this part of his character to observe that his drawings were singularly neat and accurate, and his handwriting so beautiful that when he chose to exert his skill few writing-masters could equal it."

In order to ensure that perfect accuracy which it was his object to give to every instrument he sold, Ramsden had all the parts of the work done under his own inspection ; and for this purpose he kept men of every necessary branch of trade in his establishment. He availed himself also to the utmost of the advantages to be derived from the division of labour—allotting to every workman his particular department, from which he was never called away to another. He employed about sixty men in all ; but such was his reputation over all Europe, and so numerous were the orders he received, that even with this large establishment he found it impossible to execute them with the requisite expedition. About this, indeed, he did not give himself much trouble ;

what alone he cared for was, that every instrument which bore his name should be worthy of his reputation, no matter what time or pains it should cost to make it so. No man was ever more nobly indifferent to the mere pecuniary gains of his art. If he had been anxious to enrich himself, he might have easily accumulated a large fortune; but for that object he would have had to enlarge his already extensive establishment so much further, that his personal superintendence of every part of it would have been impossible. So far was he from being influenced by any views of this kind, that it is asserted he never executed any one of the many great works for which he received commissions from public bodies, both in his own and other countries, without being a loser by it as a tradesman. When an instrument did not answer his expectations, he never hesitated to take it to pieces, or to destroy it, whatever had been the cost bestowed upon its construction. Admirable as all his instruments were, too, for their accuracy, their high finish, their durability, and all the other qualities that make up the excellence of such productions, he generally put a less price upon them—in some cases a much less price—than was charged for inferior works of the same kind by other artists.

Mr. Ramsden died on the 5th of November, 1800, at Brighton, to which place he had gone a short time before with the view of recovering his health, which, never vigorous, had latterly been greatly impaired by his unremitting exertions. He died possessed of only a small fortune; and, in the spirit in which he had lived, he left the greater part of it to be divided among his workmen, in proportion to their merits and their length of service.

One of the very greatest names in the modern history of astronomical discovery is that of the late illustrious SIR WILLIAM HERSCHEL; and he also

was self-instructed in the science in which he earned his high reputation. Herschel was born at Hanover, in 1738, and was the son of a musician in humble circumstances. Brought up, as well as his three brothers, to his father's profession, for which it has been said that he qualified himself without much teaching, he was placed, at the age of fourteen, in the band of the Hanoverian Guards. A detachment of this regiment having been ordered to England, in the year 1757 (or, according to another account, in 1759), he and his father accompanied it; but the latter returned to Germany in the course of a few months, and left his son, in conformity with his own wish, to try his fortune in London. For a long time the young man had to struggle with many difficulties; and he passed several years principally in giving lessons in music to private pupils in the different towns of the north of England. At last, in 1765, through the interest of a gentleman to whom his merits had become known, he obtained the situation of organist at Halifax; and next year, having gone to fulfil a short engagement at Bath, he gave so much satisfaction by his performances, that he was appointed to the same office in the Octagon Chapel of that city, upon which he went to reside there. The place which he now held was one of some value; and, from the opportunities which he enjoyed, besides, of adding to its emoluments by engagements at the rooms, the theatre, and private concerts, as well as by taking pupils, he had the certain prospect of deriving a good income from his profession, if he had made that his only or his chief object.

But long before this his active and aspiring mind had begun to direct its attention to other pursuits offering a wider scope for the exercise of its talents. While yet only an itinerant teacher of his art in country towns, Herschel had assiduously devoted

his leisure, not only to the making himself more completely master of the language of his adopted country, but also to the acquiring of a knowledge of the Italian, the Latin, and even the elements of the Greek. At this time, probably, he looked to these attainments principally with a view to the advantage he might derive from them in the prosecution of his professional studies; and it was no doubt with this view also that he afterwards applied himself to the perusal of Dr. Robert Smith's 'Treatise on Harmonics,' one of the most profound works on the science of music which then existed in the English language. But the acquaintance he formed with this work was destined ere long to change altogether the character of his pursuits. He soon found that it was necessary to make himself a mathematician, before he could make much progress in following Dr. Smith's demonstrations. He now, therefore, turned with his characteristic alacrity and resolution to the new study to which his attention was thus directed; and it was not long before he became so attached to it, that almost all the other pursuits of his leisure hours were laid aside for its sake.

During his residence at Bath, although greatly occupied with professional engagements, the time he devoted to his mathematical studies was rather increased than diminished. Often, we are told, after a fatiguing day's work of fourteen or sixteen hours among his pupils, he would, on returning home at night, repair for relaxation to what many would deem these severer exercises. In this manner, in course of time, he attained a competent knowledge of geometry, and found himself in a condition to proceed to the study of the different branches of physical science which depend upon the mathematics. Among the first of these latter that attracted his attention were the kindred departments

of astronomy and optics. It has been stated * that Herschel's first attempts in the fabrication of magnifying-glasses were occasioned by his reading something upon that subject in a copy of Smith's Optics, which accidentally fell in his way; but this story is perhaps nothing more than a version of the fact already mentioned, that his acquaintance with the mathematics began in his study of the 'Treatise on Harmonics,' by the writer in question. Another account of the matter, which has been given † is, that having in the course of his philosophical studies, applied himself to the sciences of optics and astronomy, he became desirous of beholding with his own eyes those wonders of the heavens, of which he read so much, and for that purpose he borrowed from an acquaintance a two-foot Gregorian telescope. This instrument interested him so greatly, that he determined to procure one of his own, and commissioned a friend in London to purchase one for him, of a somewhat larger size. But he found the price was beyond what he could afford. To make up for this disappointment he resolved to attempt to construct a telescope for himself; and after encountering innumerable difficulties in the progress of his task, he at last succeeded, in the year 1774, in completing a five-foot Newtonian reflector. This was the beginning of a long and brilliant course of triumphs in the same walk of art, and also in that of astronomical discovery.

Herschel now became so much more ardently attached to his philosophical pursuits, that, regardless of the sacrifice of emolument he was making, he began gradually to limit his professional engagements and the number of his pupils. Meanwhile

* By Lalande, in his continuation of Montucla's *Histoire des Mathématiques*, iii. 502.

† See Annual Biography, vol. vii.

he continued to employ his leisure in the fabrication of still more powerful instruments than the one he had first constructed ; and in no long time he produced telescopes of seven, ten, and even twenty feet focal distance. In fashioning the mirrors for these instruments his perseverance was indefatigable. For his seven-foot reflector, it is asserted that he actually finished and made trial of no fewer than two hundred mirrors before he found one that satisfied him. When he sat down to prepare a mirror, his practice was to work at it for twelve or fourteen hours, without quitting his occupation for a moment. He would not even take his hand from what he was about, to help himself to food ; and the little that he ate on such occasions, was put into his mouth by his sister. He gave the mirror its proper shape, more by a certain natural tact than by rule ; and when his hand was once in, as the phrase is, he was afraid that the perfection of the finish might be impaired by the least intermission of his labours.

It was on the 13th of March, 1781, that Herschel made the discovery to which he owes, perhaps, most of his popular reputation. He had been engaged for nearly a year and a half in making a regular survey of the heavens, when, on the evening of the day that has been mentioned, having turned his telescope (an excellent seven-foot reflector, of his own constructing) to a particular part of the sky, he observed among the other stars one which seemed to shine with a more steady radiance than those around it ; and, on account of that and some other peculiarities in its appearance, which excited his suspicions, he determined to observe it more narrowly. On reverting to it after some hours he was a good deal surprised to find that it had perceptibly changed its place—a fact which, the next day, became still more in-

disputable. At first he was somewhat in doubt whether or not it was the same star which he had seen on these different occasions ; but, after continuing his observations for a few days longer, all uncertainty upon that head vanished. He now communicated what he had observed to the Astronomer Royal, Dr. Maskelyne, who concluded that the luminary could be nothing else than a new comet. Continued observation of it, however, for a few months dissipated this error ; and it became evident that it was, in reality, a hitherto undiscovered planet. This new world, so unexpectedly found to form a part of the system to which our own belongs, received from Herschel the name of the *Georgium Sidus*, or Georgian Star, in honour of the King of England ; but by continental astronomers it has been more generally called either *Herschel*, after its discoverer, or *Uranus*. Subsequent observations, made chiefly by Herschel himself, have ascertained many particulars regarding it, some of which are well calculated to fill us with astonishment at the powers of the sublime science which can wing its way so far into the immensity of space, and bring us back information so precise and various. In the first place, the diameter of this new globe has been found to be nearly four and a half times larger than that of our own. Its size altogether is about eighty times that of our earth. Its year is as long as eighty-three of ours. Its distance from the sun is nearly eighteen hundred millions of miles, or more than nineteen times that of the earth. Its density, as compared with that of the earth, is nearly as twenty-two to one hundred ; so that its entire weight is not far from eighteen times that of our planet. Finally, the force of gravitation near its surface is such, that falling bodies descend only through fourteen feet during the first second, instead of thirty-two feet, as with us. Herschel

afterwards discovered, successively, no fewer than six satellites, or moons, belonging to his new planet.

The announcement of the discovery of the *Georgium Sidus* at once made Herschel's name universally known. In the course of a few months the king bestowed upon him a pension of three hundred a year, that he might be enabled entirely to relinquish his engagements at Bath; and upon this he came to reside at Slough, near Windsor. He now devoted himself entirely to science; and the constructing of telescopes, and the observation of the heavens, continued to form the occupations of the remainder of his life. Astronomy is indebted to him for many other most interesting discoveries beside the celebrated one of which we have just given an account, as well as for a variety of speculations of the most ingenious, original, and profound character. But of these we cannot here attempt any detail. He also introduced some important improvements into the construction of the reflecting telescope—beside continuing to fabricate that instrument of dimensions greatly exceeding any that had been formerly attempted, and with powers surpassing, in nearly a corresponding degree, what had ever before been obtained. The largest telescope which he ever made, was his famous one of forty feet long, which he erected at Slough, for the king. It was begun about the end of the year 1785, and on the 28th of August, 1789, the enormous tube was poised on the complicated, but ingeniously contrived mechanism by which its movements were to be regulated, and ready for use. On the same day a new satellite of Saturn was detected by it, being the sixth which had been observed attendant upon that planet. A seventh was afterwards discovered by means of the same instrument. This telescope has recently been taken down, and replaced by another of only half the

length, constructed by Mr. J. Herschel, the distinguished son of the subject of our present sketch. Herschel himself eventually became convinced that no telescope could surpass in magnifying power one of from twenty to twenty-five feet in length. The French astronomer, Lalande, in his continuation of Montucla's History of the Mathematics, states, that he was informed by George III. himself, that it was at his desire that Herschel was induced to make the telescope at Slough of the extraordinary length he did, his own wish being that it should not be more than thirty feet long.

So extraordinary was the ardour of this great astronomer in the study of his favourite science, that for many years, it has been asserted, he never was in bed at any hour during which the stars were visible. And he made almost all his observations, whatever was the season of the year, not under cover, but in his garden, and in the open air—and generally without an attendant. There was much that was altogether peculiar to himself, not only in the process by which he fabricated his telescopes, but also in his manner of using them. One of the attendants in the king's observatory at Richmond, who had formerly been a workman in Ramsden's establishment, was forcibly reminded, on seeing Herschel take an observation, of a remark which his old master had made. Having just completed one of his best telescopes, Ramsden, addressing himself to his workmen, said, "This, I believe, is the highest degree of perfection that we opticians by profession will ever arrive at; if any improvement of importance shall ever after this be introduced in the making of telescopes, it will be by some one who has not been taught his art by us."

Some years before his death the degree of Doctor of Laws was conferred upon Herschel by the Uni-

versity of Oxford ; and in 1816, his late Majesty, then Prince Regent, bestowed upon him the Hanoverian and Guelphic Order of Knighthood. He died on the 23rd of August, 1822, when he was within a few months of having completed his eighty-fourth year.

To this distinguished name, and those of Dollond and Ramsden, it would be easy, if our space permitted, to add those of many other self-taught cultivators of the same departments of science. Among more recent opticians, no one has attained a higher eminence, either as an artist or as a scientific experimentalist and speculator, than **FRAUNHOFER**, the late superintendent of the establishment for the manufacture of optical glasses at Munich, who rose from the condition of a common workman. Of astronomical observers, again, some might also be mentioned who have been of very humble station. There is a print—a copy of which may be seen in the rooms of the Astronomical Society—of two very remarkable individuals who were employed during a considerable part of the last century in the Earl of Macclesfield's observatory at Sherburn. The elder of these, as the inscription below the engraving informs us, was named **THOMAS PHELPS**, and he, it is stated, "from being a stable-boy in the year 1718, to the then Lord Chief Justice Parker, afterwards Earl of Macclesfield, rose by his merit to the upper employments in the family, and at last, for his uncommon genius, was promoted to be Observer in the observatory at Sherburn Castle." Phelps, it is added, was born at Chalgrove, in Oxfordshire, in January 1694, and was in his eighty-second year when his portrait was taken. The other, **JOHN BARTLETT**, is described as having been "originally a shepherd, in which station he, by books and observation, acquired such a knowledge in computation, and of the heavenly bodies, as in-

duced the late George, Earl of Macclesfield, to appoint him Assistant Observer in his observatory at Sherburn Castle." Bartlett was born at Stoke Talmage, in Oxfordshire, August 22nd, 1721, old style, and was in his fifty-fourth year at the time his picture was taken. In the print, Phelps is represented as standing and looking through a telescope, while Bartlett is sitting by him with his tablets, or a sheet of paper, in the one hand, and a pen in the other, ready, seemingly, to note down what his associate may announce. There is a penetrating eagerness and sagacity in the eye and general aspect of the old man; and that of the other is also a striking head, with a less keen and vivacious physiognomy than Phelps, but more massive, and indicating, perhaps, more a meditative and calculating mind. In a manuscript note on the back of the copy of this print, which belongs to the Astronomical Society, it is stated that "Phelps was the person who, on the 23rd of December, 1743, discovered the great comet, and made the first observation of it; an account of which is contained in the Philosophical Transactions, but not the name of the observer." The comet of 1758, so famous in consequence of its return having been predicted more than half a century before by the great astronomer Halley, was also, it may be remarked, first perceived by an observer in a humble rank of life. It was on the 25th of December in that year that the luminary in question was detected with only the naked eye, at Prohlis, near Dresden, by a Saxon peasant of the name of PALITZCH, at a time when all the greatest astronomers in Europe were seeking for it in vain with their telescopes. Nor did Palitzch owe his discovery merely to his superior powers of vision. This Saxon peasant was really an astronomer. "George Palitzch," says Lalande, "born in the obscure condi-

tion of a common labourer, had succeeded both in finding happiness in his humble lot, and in acquiring various branches of knowledge which are rarely found possessed by men of higher stations who have had the advantage of a careful education. More in the way of being struck with the spectacle of the heavens than if he had lived in a town, he had by his own efforts studied and made himself master of astronomy, as well as those parts of geometry, such as plane and spherical trigonometry, upon which it depends. By the exertion of a meritorious economy, he had formed for himself an observatory, furnished with the instruments most important for the pursuit of his favourite study. Few opportunities of making interesting observations escaped him; and notwithstanding this his occupations as an agriculturist were duly attended to. Natural History and Botany were also among the studies in which he took great delight; and he had a very well-arranged cabinet of natural productions, as well as a garden full of rare plants, which he carefully cultivated. He was distinguished by such exceeding modesty, that he always refused even to give any details of his life, notwithstanding they must have been so full of interest. Such was the astronomer and philosopher Palitzch, to whom was reserved the honour of being the first of all the astronomers of Europe in the discovery of the return of this anxiously expected comet." Palitzch, we may add, who was born in 1723, continued to cultivate astronomy, as well as his garden and his fields, for many years after this event—and died at last in his native village in 1788. He had been for some time a corresponding member both of the Royal Society of London and of the Imperial Academy of St. Petersburg.

CHAPTER XIII.

Discovery and Improvement of the Steam Engine—James Watt.

ALL the inventions and improvements of recent times, if measured by their effects upon the condition of society, sink into insignificance, when compared with the extraordinary results which have followed the employment of steam as a mechanical agent. To one individual, the illustrious JAMES WATT, the merit and honour of having first rendered it extensively available for that purpose are pre-eminently due. The force of steam, now so important an agent in mechanics, was nearly altogether overlooked until within the two last centuries. The only application of it which appears to have been made by the ancients, was in the construction of the instrument which they called the *Æolipile*, that is, the Ball of *Æolus*. The *Æolipile* consisted of a hollow globe of metal, with a long neck, terminating in a very small orifice, which, being filled with water and placed on a fire, exhibited the steam, as it was generated by the heat, rushing with apparently great force through the narrow opening. A common teakettle, in fact, is a sort of *Æolipile*. The only use which the ancients proposed to make of this contrivance was, to apply the current of steam, as it issued from the spout, by way of a moving force—to propel, for instance, the vans of a mill, or, by acting immediately upon the air, to generate a movement opposite to its own direction. But it was impossible that they should have effected any useful purpose by such methods of employing steam. Steam depends so entirely for its existence in the state of vapour upon the presence of a large quantity of heat, that it is reduced to a mist or a fluid almost immediately on coming into contact

either with the atmosphere, or anything else which is colder than itself; and in this condition its expansive force is gone. The only way of employing steam with much effect, therefore, is to make it act in a close vessel. The first known writer who alludes to the prodigious energy which it exerts when thus confined, is the French engineer Solomon de Caus, who flourished in the beginning of the seventeenth century. This ingenious person, who came to England in 1612, in the train of the Elector Palatine, afterwards the son-in-law of James I., and resided here for some years, published a folio volume at Paris, in 1623, on moving forces; in which he states, that if water be sufficiently heated in a close ball of copper, the air or steam arising from it will at last burst the ball, with a noise like the going off of a petard. In another place, he actually describes a method of raising water, as he expresses it, by the aid of fire, which consists in the insertion, in the containing vessel, of a perpendicular tube, reaching nearly to its bottom, through which, he says, all the water will rise, when sufficiently heated. The agent here is the steam produced from part of the water by the heat, which, acting by its expansive force upon the rest of the water, forces it to make its escape in a jet through the tube*. The supply of the water is kept up through a cock in the side of the vessel. Forty years after the publication of the work of De Caus appeared the Marquis of Worcester's famous 'Century of Inventions.' Of the hundred new

* In the same work De Caus proposes another apparatus for raising water, simply by the pressure upon its surface in a close vessel, of the air rarified by the heat of the sun. This process may be often observed taking place on a small scale in what is called the Fountain Inkglass, in which, in a warm day or a heated room, the liquid will be forced up sometimes to the very lip of the spout, by the expansion of the superjacent air within the vessel.

discoveries here enumerated, the sixty-eighth is entitled 'An admirable and most forcible way to drive up water by fire.' As far as may be judged from the vague description which the Marquis gives us of his apparatus, it appears to have been constructed upon the same principle with that formerly proposed by De Caus; but his account of the effect produced is considerably more precise than what we find in the work of his predecessor. "I have seen the water run," says he, "like a constant fountain-stream forty feet high; one vessel of water rarified by fire, driveth up forty of cold water." This language would imply that the Marquis had actually reduced his idea to practice; and if, as he seems to intimate, he made use of a cannon for his boiler, the experiment was probably upon a considerable scale. It is with some justice, therefore, that notwithstanding the earlier announcements in the work of the French engineer, he is generally regarded as the first person who really constructed a steam-engine.

About twenty years after this, namely, in the year 1683, another of our countrymen, Sir Samuel Morland, appears to have presented a work to the French King, containing, among other projects, a method of employing steam as a mechanic power, which he expressly says he had himself invented the preceding year. The manuscript of this work is now in the British Museum; but it is remarkable that when the work, which is in French, was afterwards published by its author at Paris, in 1685, the passage about the steam-engine was omitted. Sir Samuel Morland's invention, as we find it described in his manuscript treatise, appears to have been merely a repetition of those of his predecessors, De Caus and the Marquis of Worcester; but his statement is curious as being the first in which the immense difference between the space occupied by

water in its natural state and that which it occupies in the state of steam is numerically designated. The latter, he says, is about two thousand times as great as the former ; which is not far from a correct account of the expansive force that steam exerts under the ordinary pressure of the atmosphere. One measure of water, it is found, in such circumstances, will produce about seventeen hundred measures of steam.

The next person whose name occurs in the history of the steam-engine, is Denis Papin, a native of France, but who spent the part of his life during which he made his principal pneumatic experiments in England. Up to this time, the reader will observe, the steam had been applied directly to the surface of the water, to raise which, in the form of a jet, by such pressure, appears to have been almost the only object contemplated by the employment of the newly discovered power. It was Papin who first introduced a piston into the tube or cylinder which rose from the boiler. This contrivance, which forms an essential part of the common sucking pump, is merely, as the reader probably knows, a block fitted to any tube or longitudinal cavity, so as to move freely up and down in it, yet without permitting the passage of any other substance between itself and the sides of the tube. To this block a rod is generally fixed ; and it may also have a hole driven through it, to be guarded by a valve, opening upwards or downwards, according to the object in view *. Long before the time of Papin it had been proposed to raise weights, or heavy bodies of any kind, by suspending them to one extremity of a handle or cross-beam attached at its other end to the rod of a piston moving in this manner in a hollow cylinder, and the descent of which, in order to produce the elevation of the weights, was to be effected

* See an explanation of the valve at p. 82.

by the pressure of the superincumbent atmosphere after the counterbalancing air had been by some means or other withdrawn from below it. Otto Guericke used to exhaust the lower part of the cylinder, in such an apparatus, by means of an air-pump. It appeared to Papin that some other method might be found of effecting this end more expeditiously and with less labour. First he tried to produce the requisite vacuum by the explosion of a small quantity of gunpowder in the bottom of the cylinder, the momentary flame occasioned by which he thought would expel the air through a valve opening upwards in the piston, while the immediate fall of the valve, on the action of the flame being spent, would prevent its re-intrusion. But he never was able to effect a very complete vacuum by this method. He then, about the year 1690, bethought him of making use of steam for that purpose. This vapour, De Caus had long ago remarked, was recondensed and restored to the state of water by cold; but up to this time the attention of no person seems to have been awakened to the important advantage that might be taken of this one of its properties. Papin for the first time availed himself of it in his lifting machine, to produce the vacuum he wanted. Introducing a small quantity of water into the bottom of his cylinder, he heated it by a fire underneath, till it boiled and gave forth steam, which, by its powerful expansion, raised the piston from its original position in contact with the water, to a considerable height above it, even in opposition to the pressure of the atmosphere on its other side. This done, he then removed the fire, on which the steam again became condensed into water, and, occupying now about the seventeen hundredth part of its former dimensions, left a vacant space through which the piston was carried down by its own gravitation and the pressure of the atmosphere.

The machine thus proposed by Papin was abundantly defective in the subordinate parts of its mechanism, and, unimproved, could not have operated with much effect. But, imperfect as it was, it exemplified two new principles of the highest importance, neither of which appears to have been thought of, in the application of the power of steam, before his time. The first is the communication of the moving force of that agent to bodies upon which it cannot conveniently act directly, by means of the piston and its rod. The second is the deriving of the moving force desired, not from the expansion of steam, but from its other equally valuable property of condensibility by mere exposure to cold. Papin, however, it is curious enough, afterwards abandoned his piston and method of condensation, and reverted to the old plan of making the steam act directly by its expansive force upon the water to be raised. It is doubtful, however, whether he ever actually erected any working engine upon either of these constructions. Indeed, the improvement of the steam-engine could scarcely be said to have been the principal object of those experiments of his which, nevertheless, contributed so greatly to that result. It was, in fact, as we have seen, with the view of perfecting a machine contrived originally without any reference to the application of steam, that he was first induced to have recourse to the powers of that agent. The moving force with which he set out was the pressure of the atmosphere; and he employed steam merely as a means of enabling that other power to act. Even by such a seemingly subordinate application, however, of the new element, he happily discovered and bequeathed to his successors the secret of some of its most valuable capabilities.

We may here conveniently notice another in-

genious contrivance, of essential service in the steam-engine, for which we are also indebted to Papin—we mean the safety-valve. This is merely a lid or stopper, closing an aperture in the boiler, and so loaded as to resist the expansive force of the steam up to a certain point, while, at the same time, it must give way and allow free vent to the pent-up element, long before it can have acquired sufficient strength to burst the boiler. The safety-valve, however, was not introduced into the steam-engine either by Papin, or for some years after his time. It was employed by him only in the apparatus still known by the name of his *digester*, a contrivance for producing a very powerful heat in cookery and chemical preparations, by means of highly concentrated steam.

We now come to the engine invented by Captain Savery in 1698. This gentleman, we are told, having one day drank a flask of Florence wine at a tavern, afterwards threw the empty flask upon the fire, when he was struck by perceiving that the small quantity of liquid still left in it very soon filled it with steam, under the influence of the heat. Taking it up again while thus full of vapour, he now plunged it, with the mouth downwards, into a basin of cold water, which happened to be on the table; by which means the steam being instantly concentrated, a vacuum was produced within the flask, into which the water immediately rushed up from the basin. According to another version of the story, it was the accidental circumstance of his immersing a heated tobacco-pipe into water, and perceiving the water immediately rush up through the tube, on the concentration by the cold of the warm and thin air, that first suggested to Savery the important use that might be made of steam, or any other gas expanded by heat, as a means of creating a vacuum. He did

not, however, employ steam for this purpose in the same manner that Papin had done. Instead of a piston moving under the pressure of the atmosphere through the vacuum produced by the concentration of the steam, he availed himself of such a vacuum merely to permit the rise of the water into it from the well or mine below, exactly as in the common sucking-pump*. Having thus raised the water to the level of the boiler, he afterwards allowed it to flow into another vessel, from whence he sent it to a greater height by the same method which had been many years before employed by the Marquis of Worcester,—namely, by making the expansive force of the steam act upon it directly, and so force it up in opposition to its own gravity and the resistance of the atmosphere.

Savery shewed much ingenuity and practical skill in contriving means of facilitating and improving the working of the apparatus which he had devised upon these principles; and many of his engines were erected for supplying gentlemen's houses with water and other purposes, in different parts of the country. The machine also received many improvements after the death of the original inventor. It was considerably simplified, in particular, by Dr. Desaguliers, about the year 1718; and this gentleman also contrived a method of concentrating the steam by the injection of a small current of cold water into the receiver, instead of the old method employed by Savery, of dashing the water over the outside of the vessel, which cooled it to an unnecessary degree, and occasioned, therefore, a wasteful expenditure of fuel. It was Desaguliers who first introduced the safety-valve into the steam-engine, although Papin had previously suggested such an application of the contrivance. Engines upon Savery's principle have con-

* See Pursuit of Knowledge, vol. i. p. 10—13.

tinued to be constructed, down to our own times ; and, as they can be made at a comparatively small expense, they are found to answer very well in situations where water has to be raised only a short way. This engine is, in fact, merely a combination of the common sucking-pump (except that the requisite vacuum is produced by the condensation of steam and without the aid of a piston) with the contrivance proposed by De Caus and the Marquis of Worcester for the application of the expansive force of steam ; and, wherever the machine can be economically employed, the former part of it is that which operates with by far the most effect.

Not long after Savery had invented his engine, Thomas Newcomen, an ironmonger, and John Calley, a glazier, both of Dartmouth, in Devonshire, began also to direct their attention to the employment of steam as a mechanic power. Their first engine was constructed about the year 1711. This contrivance, which is commonly known by the name of Newcomen's engine, proceeded mainly upon the principle formerly adopted by Papin, but subsequently abandoned both by him and those who immediately followed him in the cultivation of this department of mechanics, of making the moving power of the machinery the weight of the atmosphere acting upon a piston, so as to carry it down through a vacuum created by the condensation of the steam. Newcomen's apparatus is, on this account, often distinguished by the name of the Atmospheric engine. Its inventors, however, instead of adopting Papin's clumsy method of cooling his steam by the removal of the fire, employed, in the first instance, the expedient of pouring cold water on the containing vessel, as Savery had done before them, though without being aware, it is said, of his prior claim to the improvement. They afterwards exchanged this

for the still better method, already described as introduced by Desaguliers into Savery's engine, of injecting a stream of water into the cylinder, which is said to have been suggested to them by the accident of some water having found admission to the steam through a hole which happened to have worn itself in the piston. This engine of Newcomen, which in the course of a very few years after its invention was brought to as high a state of perfection as the principle seems to admit of, afforded the first important exemplification of the value of steam in mechanics. Savery's, the only other practical contrivance which had been proposed, had been found quite inadequate to the raising of water from any considerable depth, its principal power, as we have already remarked, lying, in fact, in the part of it which acted as a sucking-pump, and by which, as such, water could only be raised till its column was of equal weight with a column of the atmosphere of the same base*. It was nearly useless, therefore, as an apparatus for pumping up water from mines; the grand object for which a moving force of extraordinary power was at this time in demand. But here Newcomen's engine proved of essential service. Many mines that had long remained unwrought, were, immediately after its invention, again rendered accessible, and gradually excavated to great depths; while others were opened, and their treasures sought after with equal success, which but for its assistance could never have been attempted. It was applied also to various other important purposes.

Newcomen's engine, however, notwithstanding its usefulness, especially in cases where no other known power could be applied, was still in some respects a very defective contrivance, and by no means adapted to secure the complete command of the energies of

* See vol. i. p. 12.

steam. The great waste of fuel, in particular, which was still occasioned by the degree to which the cylinder was cooled after every stroke of the piston, from the cold water injected into it, rendered it scarcely any saving of expense to employ this engine in circumstances where animal power was available. Its whole force too, the reader will observe, as a moving power, was limited to what could be obtained by atmospheric pressure alone, which, even could the vacuum under the piston have been rendered quite perfect, and all obstructions from friction annihilated, could only have amounted to about fifteen pounds for every square-inch of the surface of the piston. The expansive force of steam was not, in fact, at all employed in this contrivance as a moving power; could the vacuum necessary to permit the descent of the piston have been as expeditiously and conveniently produced by any other agency, that of steam might have been dispensed with altogether. An air-pump, for instance, attached to the lower part of the cylinder, as originally proposed by Otto Guericke, might have rendered all the service which steam was here called upon to perform; and in that case, this element, with the fuel by which it was generated, might have been dispensed with, and the machine would not have been a steam-engine at all. This view of the matter may, in some degree, account for the complete neglect of steam as a moving power which so long prevailed after Newcomen's engine was brought into use, notwithstanding the proofs of its capabilities in that character which had been afforded by the attempts of the earlier speculators. It was now regarded simply as affording the easiest means of obtaining a ready vacuum, in consequence of its property of rapid condensation on the application of cold: its other property of extraordinary expansion, which had first attracted to it the

attention of mechanics, and presented in reality a much more obvious application of it as a mechanical agent, had been entirely neglected. The only improvements of the engine which were attempted or thought of were such as referred to what may be called its subordinate mechanism, that is to say, the contrivances for facilitating the alternate supplies of the steam and the water on which its action depended; and after Mr. Beighton had, about the year 1718, made the machine itself shut and open the cocks by which these supplies were regulated, instead of having that service performed as at first by an attendant, there remained little more to be done even in this department. The steam might be applied with more ease and readiness, but not with any augmentation of effect; the power of the engine could be increased only by a more plentiful application of atmospheric pressure. It was with propriety, therefore, that Newcomen's invention was called, not a steam, but an atmospheric, engine.

For half a century, accordingly, after the improvements introduced by Beighton, who may be considered as the perfecter of this engine, no further progress worth mentioning was made in the application of steam as an agent in mechanics. The engine itself was more and more extensively employed, notwithstanding its defects; but no better method was proposed of calling into exercise the stupendous powers of the element, which, by means of only one of its remarkable properties, was here shewn to be capable of rendering such valuable service. Our knowledge of what might be done by steam was in this state when the subject at last happily attracted the attention of Mr. Watt.

JAMES WATT was born at Greenock on the 19th of January, 1736. His father was a merchant, and also one of the magistrates of that town. He received



Painted by Sir W. Boscawen, R.A.

Engraved by T. Wright

JAMES WATT.



the rudiments of his education in his native place ; but his health being even then extremely delicate, as it continued to be to the end of his life, his attendance at school was not always very regular. He amply made up, however, for what he lost in this way by the diligence with which he pursued his studies at home, where without any assistance he succeeded at a very early age in making considerable proficiency in various branches of knowledge. Even at this time his favourite study is said to have been mechanical science, to a love of which he was probably in some degree led by the example of his grandfather and his uncle, both of whom had been teachers of the mathematics, and had left a considerable reputation for learning and ability in that department. Young Watt, however, was not indebted to any instructions of theirs for his own acquirements in science, the former having died two years before, and the latter the year after, he was born. At the age of eighteen he was sent to London to be apprenticed to a maker of mathematical instruments ; but in little more than a year the state of his health forced him to return to Scotland ; and he never received any further instruction in his profession. A year or two after this, however, a visit which he paid to some relations in Glasgow suggested to him the plan of attempting to establish himself in that city in the line for which he had been educated. In 1757, accordingly, he removed thither, and was immediately appointed mathematical instrument maker to the College. In this situation he remained for some years, during which, notwithstanding almost constant ill health, he continued both to prosecute his profession, and to labour in the general cultivation of his mind, with extraordinary ardour and perseverance. Here also he enjoyed the friendship and intimacy of several distinguished persons who were then

members of the University, especially of the celebrated Dr. Black, the discoverer of the principle of latent heat, and Mr. (afterwards Dr.) John Robison, so well known by his treatises on mechanical science, who was then a student and about the same age with himself. Honourable, however, as his present appointment was, and important as were many of the advantages to which it introduced him, he probably did not find it a very lucrative one; and therefore, in 1763, when about to marry, he removed from his apartments in the University to a house in the city, and entered upon the profession of a general engineer.

For this his genius and scientific attainments admirably qualified him. Accordingly, he soon acquired a high reputation, and was extensively employed in making surveys and estimates for canals, harbours, bridges, and other public works. His advice and assistance indeed were sought for in almost all the important improvements of this description which were now undertaken or proposed in his native country. But another pursuit, in which he had been for some time privately engaged, was destined ere long to withdraw him from this line of exertion, and to occupy his whole mind with an object still more worthy of its extraordinary powers.

While yet residing in the College his attention had been directed to the employment of steam as a mechanical agent by some speculations of his friend Mr. Robison, with regard to the practicability of applying it to the movement of wheel-carriages; and he had also himself made some experiments with Papin's digester, with the view of ascertaining its expansive force. He had not prosecuted the inquiry, however, so far as to have arrived at any determinate result, when, in the winter of 1763-4, a small model of Newcomen's engine was sent to him by the Professor of Natural Philosophy to be repaired, and fitted for:

exhibition in the class. The examination of this model set Watt upon thinking anew, and with more interest than ever, on the powers of steam.

The first thing that attracted his attention about the machine before him, the cylinder of which was only of two inches diameter, while the piston descended through six inches, was the insufficiency of the boiler, although proportionably a good deal larger than in the working engines, to supply the requisite quantity of steam for the creation of the vacuum. In order to remedy this defect he was obliged, in repairing the model, to diminish the column of water to be raised; in other words, to give the piston less to do, in compensation for its having to descend, not through a perfect vacuum, but in opposition to a considerable residue of undisplaced air. He also soon discovered the reason why in this instance the steam sent up from the boiler was not sufficient to fill the cylinder. In the first place, this containing vessel, being made, not of cast-iron, as in the larger engines, but of brass, abstracted more of the heat from the steam, and so weakened its expansion; and secondly, it exposed a much larger surface to the steam, in proportion to its capacity, than the cylinders of the larger engines did, and this operated still more strongly to produce the same effect. Led by the former of these considerations he made some experiments in the first instance with the view of discovering some other material whereof to form the cylinder of the engine which should be less objectionable than either brass or cast-iron; and he proposed to substitute wood, soaked in oil, and baked dry. But his speculations soon took a much wider scope; and, struck with the radical imperfections of the atmospheric engine, he began to turn in his mind the possibility of employing steam in mechanics, in some new manner which should enable it to operate with much

more powerful effect. This idea having got possession of him, he engaged in an extensive course of experiments, for the purpose of ascertaining as many facts as possible with regard to the properties of steam; and the pains he took in this investigation were rewarded with several valuable discoveries. The rapidity with which water evaporates, he found, for instance, depended simply upon the quantity of heat which was made to enter it; and this again on the extent of the surface exposed to the fire. He also ascertained the quantity of coals necessary for the evaporation of any given quantity of water, the heat at which water boils under various pressures, and many other particulars of a similar kind which had never before been accurately determined.

Thus prepared by a complete knowledge of the properties of the agent with which he had to work, he next proceeded to take into consideration, with a view to their amendment, what he deemed the two grand defects of Newcomen's engine. The first of these was the necessity arising from the method employed to concentrate the steam, of cooling the cylinder, before every stroke of the piston, by the water injected into it. On this account, a much more powerful application of heat than would otherwise have been requisite was demanded for the purpose of again heating that vessel when it was to be refilled with steam. In fact, Watt ascertained that there was thus occasioned, in the feeding of the machine, a waste of not less than three-fourths of the whole fuel employed. If the cylinder, instead of being thus cooled for every stroke of the piston, could be kept permanently hot, a fourth part of the heat which had been hitherto applied would be found to be sufficient to produce steam enough to fill it. How, then, was this desideratum to be attained? De Caus had proposed to effect the condensation of

the steam by actually removing the furnace from under the boiler before every stroke of the piston; but this, in a working engine, evidently would have been found quite impracticable. Savery, the first who really constructed a working engine, and whose arrangements, as we have already remarked, all shewed a very superior ingenuity, employed the method of throwing cold water over the outside of the vessel containing his steam—a perfectly manageable process, but at the same time a very wasteful one; inasmuch as, every time it was repeated, it cooled not only the steam, but the vessel also, which, therefore, had again to be heated, by a large expenditure of fuel, before the steam could be reproduced. Newcomen's method of injecting the water into the cylinder was a considerable improvement on this; but it was still objectionable on the same ground, though not to the same degree; it still cooled not only the steam, on which it was desired to produce that effect, but also the cylinder itself, which, as the vessel in which more steam was to be immediately manufactured, it was so important to keep hot. It was also a very serious objection to this last mentioned plan, that the injected water itself, from the heat of the place into which it was thrown, was very apt to be partly converted into steam; and the more cold water was used, the more considerable did this creation of new steam become. In fact, in the best of Newcomen's engines, the perfection of the vacuum was so greatly impaired from this cause, that the resistance experienced by the piston in its descent was found to amount to about a fourth part of the whole atmospheric pressure by which it was carried down, or, in other words, the working power of the machine was thereby diminished one fourth.

After reflecting for some time upon all this, it at last occurred to Watt to consider whether it might

not be possible, instead of continuing to condense the steam in the cylinder, to contrive a method of drawing it off, to undergo that operation in some other vessel. This fortunate idea having presented itself to his thoughts, it was not very long before his ingenuity also suggested to him the means of realizing it. In the course of one or two days, according to his own account, he had all the necessary apparatus arranged in his mind. The plan which he devised, indeed, was an extremely simple one, and on that account the more beautiful. He proposed to establish a communication by an open pipe between the cylinder and another vessel, the consequence of which evidently would be, that when the steam was admitted into the former, it would flow into the latter so as to fill it also. If then the portion in this latter vessel only should be subjected to a condensing process, by being brought into contact with cold water, or any other convenient means, what would follow? Why, a vacuum would be produced here—into that, as a vent, more steam would immediately rush from the cylinder—that likewise would be condensed—and so the process would go on till all the steam had left the cylinder, and a perfect vacuum had been effected in that vessel, without so much as a drop of cold water having touched or entered it. The separate vessel alone, or the Condenser, as Watt called it, would be cooled by the water used to condense the steam—and that, instead of being an evil, manifestly tended to promote and quicken the condensation. When Watt reduced these views to the test of experiment, he found the result to answer his most sanguine expectations. The cylinder, although emptied of its steam for every stroke of the piston as before, was now constantly kept at the same temperature with the steam (or 212° Fahrenheit); and the consequence was, that one fourth of the fuel formerly required sufficed to feed the

engine. But besides this most important saving in the expense of maintaining the engine, its power was greatly increased by the more perfect vacuum produced by the new construction, in which the condensing water, being no longer admitted within the cylinder, could not, as before, create new steam there while displacing the old. The first method which Watt adopted of cooling the steam in the condenser, was to keep that vessel surrounded by cold water—considering it as an objection to the admission of the water into its interior, that it might be difficult in that case to convey it away as fast as it would accumulate. But he found that the condensation was not effected in this manner with so much rapidity as was desirable. It was necessary for him, too, at any rate to employ a pump attached to the condenser, in order to draw off both the small quantity of water deposited by the cooled steam, and the air unavoidably introduced by the same element—either of which, if allowed to accumulate, would have impaired the perfect vacuum necessary to attract the steam from the cylinder. He therefore determined eventually to admit also the additional quantity of water required for the business of condensation, and merely to employ a larger and more powerful pump to carry off the whole.

Such, then, was the remedy by which the genius of this great inventor effectually cured the first and most serious defect of the old apparatus. In carrying his ideas into execution, he encountered, as was to be expected, many difficulties, arising principally from the impossibility of realizing theoretical perfection of structure with such materials as human art is obliged to work with; but his ingenuity and perseverance overcame every obstacle. One of the things which cost him the greatest trouble was, how to fit the piston so exactly to the cylinder as, without affect-

ing the freedom of its motion, to prevent the passage of the air between the two. In the old engine this end had been attained by covering the piston with a small quantity of water, the dripping down of which into the space below, where it merely mixed with the stream introduced to effect the condensation, was of little or no consequence. But in the new construction, the superiority of which consisted in keeping this receptacle for the steam always both hot and dry, such an effusion of moisture, although only in very small quantities, would have occasioned material inconvenience. The air alone, besides, which in the old engine followed the piston in its descent, acted with considerable effect in cooling the lower part of the cylinder. His attempts to overcome this difficulty, while they succeeded in that object, conducted Watt also to another improvement, which effected the complete removal of what we have called the second radical imperfection of Newcomen's engine, namely, its non-employment, for a moving power, of the expansive force of the steam. The effectual way, it occurred to him, of preventing any air from escaping into the part of the cylinder below the piston, would be to dispense with the use of that element above the piston, and to substitute there likewise the same contrivance as below, of alternate steam and a vacuum. This was of course to be accomplished by merely opening communications from the upper part of the cylinder to the boiler on the one hand, and the condenser on the other, and forming it at the same time into an air-tight chamber, by means of a cover, with only a hole in it to admit the rod or shank of the piston, which might, besides, without impeding its freedom of action, be padded with hemp, the more completely to exclude the air. It was so contrived, accordingly, by a proper arrangement of the cocks and the machinery connected with them, that, while

there was a vacuum in one end of the cylinder, there should be an admission of steam into the other; and the steam so admitted now served, not only, by its susceptibility of sudden condensation, to create the vacuum, but also, by its expansive force, to impel the piston. Steam, in fact, was now restored to be, what it had been in the early attempts to use it as a mechanical agent, the moving power of the engine; but its efficiency in this capacity was for the first time both taken full advantage of, by means of contrivances properly arranged for that end, and combined with, and aided by, its other equally valuable property which had alone been called into action in the more recent machines.

These were the great improvements which Watt introduced in what may be called the principle of the steam-engine, or, in other words, in the manner of using and applying the steam. They constitute, therefore, the grounds of his claim to be regarded as the true author of the conquest that has at last been obtained by man over this powerful element. But original and comprehensive as were the views out of which these fundamental inventions arose, the exquisite and inexhaustible ingenuity which the engine, as finally perfected by him, displays in every part of its subordinate mechanism, is calculated to strike us perhaps with scarcely less admiration. It forms undoubtedly the best exemplification that has ever been afforded of the number and diversity of services which a piece of machinery may be made to render to itself by means solely of the various application of its first moving power, when that has once been called into action. Of these contrivances, however, we can only notice one or two, by way of specimen. Perhaps the most singular is that called the *governor*. This consists of an upright spindle, which is kept constantly turning, by being connected

with a certain part of the machinery, and from which two balls are suspended in opposite directions by rods, attached by joints, somewhat in the manner of the legs of a pair of tongs. As long as the motion of the engine is uniform, that of the spindle is so likewise, and the balls continue steadily revolving at the same distance from each other. But as soon as any alteration in the action of the piston takes place, the balls, if it has become more rapid, fly farther apart under the influence of the increased centrifugal force which actuates them—or approach nearer to each other in the opposite circumstances. This alone would have served to indicate the state of matters to the eye; but Watt was not to be so satisfied. He connected the rods with a valve in the tube by which the steam is admitted to the cylinder from the boiler, in such a way, that as they retreat from each other, they gradually narrow the opening which is so guarded, or enlarge it as they tend to collapse; thus diminishing the supply of steam when the engine is going too fast, and, when it is not going fast enough, enabling it to regain its proper speed by allowing it an increase of aliment. Again, the constant supply of a sufficiency of water to the boiler is secured by an equally simple provision, namely, by a *float* resting on the surface of the water, which, as soon as it is carried down by the consumption of the water to a certain point, opens a valve and admits more. And so on, through all the different parts of the apparatus, the various wonders of which cannot be better summed up than in the forcible and graphic language of a recent writer:—“ In the present perfect state of the engine it appears a thing almost endowed with intelligence. It regulates with perfect accuracy and uniformity the *number of its strokes* in a given time, *counting* or *recording* them moreover, to tell how much work it has done, as a clock records the beats

of its pendulum ;—it regulates the *quantity of steam* admitted to work ;—the *briskness of the fire* ;—the *supply of water* to the boiler ;—the *supply of coals* to the fire ;—it *opens and shuts its valves* with absolute precision as to time and manner ;—it *oils its joints* ;—it *takes out any air* which may accidentally enter into parts which should be vacuous ; and when anything goes wrong which it cannot of itself rectify, it *warns its attendants* by ringing a bell ; yet with all these talents and qualities, and even when exerting the power of six hundred horses, it is obedient to the hand of a child ;—its aliment is coal, wood, charcoal, or other combustible,—it consumes none while idle,—it never tires, and wants no sleep ;—it is not subject to malady when originally well made, and only refuses to work when worn out with age ; it is equally active in all climates, and will do work of any kind ;—it is a water-pumper, a miner, a sailor, a cotton-spinner, a weaver, a blacksmith, a miller, &c. &c. ; and a small engine, in the character of a *steam poney*, may be seen dragging after it on a railroad a hundred tons of merchandise, or a regiment of soldiers, with greater speed than that of our fleetest coaches. It is the king of machines, and a permanent realization of the *Genii* of Eastern fable, whose supernatural powers were occasionally at the command of man *.”

In addition to those difficulties which his unrivalled mechanical ingenuity enabled him to surmount, Watt, notwithstanding the merit of his inventions, had to contend for some time with others of a different nature, in his attempts to reduce them to practice. He had no pecuniary resources of his own, and was at first without any friend willing to run the risk of the outlay necessary for an experiment on a sufficiently large scale. At last he applied to Dr. Roebuck, an inge-

* Arnott's Elements of Physics, fourth edition, vol. i. p. 384.

nious and spirited speculator, who had just established the Carron iron-works, not far from Glasgow, and held also at this time a lease of the extensive coal-works at Kinneal, the property of the Duke of Hamilton. Dr. Roebuck agreed to advance the requisite funds on having two thirds of the profits made over to him ; and upon this Mr. Watt took out his first patent in the beginning of the year 1769. An engine with a cylinder of eighteen inches diameter was soon after erected at Kinneal ; and although, as a first experiment, it was necessarily in some respects of defective construction, its working completely demonstrated the great value of Watt's improvements. But Dr. Roebuck, whose undertakings were very numerous and various, in no long time after forming this connexion, found himself involved in such pecuniary difficulties, as to put it out of his power to make any farther advances in prosecution of its object. On this Watt employed himself for some years almost entirely to the ordinary work of his profession as a civil engineer ; but at last, about the year 1774, when all hopes of any farther assistance from Dr. Roebuck were at an end, he resolved to close with a proposal which had been made to him through his friend Dr. Small, of Birmingham, that he should remove to that town, and enter into partnership with the eminent hardware manufacturer, Mr. Boulton, whose extensive establishments at Soho had already become famous over Europe, and procured for England an unrivalled reputation for the arts there carried on. Accordingly, an arrangement having been made with Dr. Roebuck, by which his share of the patent was transferred to Mr. Boulton, the firm of Boulton and Watt commenced the business of making steam-engines in the year 1775.

Mr. Watt now obtained from Parliament an extension of his patent for twenty-five years from this date, in

consideration of the acknowledged national importance of his inventions. The first thing which he and his partner did, was to erect an engine at Soho, which they invited all persons interested in such machines to inspect. They then proposed to erect similar engines wherever required, on the very liberal principle of receiving as payment for each, only one-third of the saving in fuel which it should effect, as compared with one of the old construction. As this saving, however, had been found to amount in the whole to fully three-fourths of all the fuel that had been wont to be employed, the revenue thus accruing to the patentees became very great after their engines were extensively adopted. This they very soon were, especially in Cornwall, where the numerous mines afforded a vast field for the employment of the new power, partly in continuing or commencing works which only an economised expenditure could make profitable, and often also in labours which the old engine was altogether inadequate to attempt.

But the draining of mines was only one of many applications of the steam power now at his command which Watt contemplated, and in course of time accomplished. During the whole twenty-five years, indeed, over which his renewed patent extended, the perfecting of his invention was his chief occupation; and, notwithstanding a delicate state of health, and the depressing affliction of severe head-aches to which he was extremely subject, he continued throughout this period to persevere with unwearied diligence in adding new improvements to the mechanism of the engine, and devising the means of applying it to new purposes of usefulness. He devoted, in particular, the exertions of many years to the contriving of the best methods of making the action of the piston communicate a rotatory motion in various circumstances and between the years 1781 and

1785 he took out four different patents for inventions having this object in view. In the midst of these scientific labours, too, his attention was much distracted by attempts which were made in several quarters to pirate his improvements, and the consequent necessity of defending his rights in a series of actions, which, notwithstanding successive verdicts in his favour, did not terminate till the year 1799, when the validity of his claims was finally confirmed by the unanimous decision of the Judges of the Court of King's Bench.

Watt's inexhaustible ingenuity displayed itself in various other contrivances beside those which make part of his steam-engine. An apparatus for copying letters and other writings, now in extensive use; a method of heating houses by steam; a new composition, for the purposes of sculpture, having the transparency and nearly the hardness of marble; a machine for multiplying copies of busts and other performances in carving or statuary,—are enumerated among his minor inventions. But it is his steam-engine that forms the great monument of his genius, and that has conferred upon his name its imperishable renown. This invention has already gone far to revolutionize the whole domain of human industry; and almost every year is adding to its power and its conquests. In our manufactures, our arts, our commerce, our social accommodations, it is constantly achieving what, little more than half a century ago, would have been accounted miracles and impossibilities. “The trunk of an elephant, it has been finely and truly said, that can pick up a pin, or rend an oak, is as nothing to it. It can engrave a seal, and crush masses of obdurate metal like wax before it,—draw out, without breaking, a thread as fine as gossamer,—and lift a ship of war like a bauble in the air. It can embroider:

muslin and forge anchors; cut steel into ribbands, and impel loaded vessels against the fury of the winds and waves." And another application of it, which has been made only within the last few months, is perhaps destined to be productive of still greater changes on the condition of society than have resulted from any of its previous achievements. It had been employed, several years ago, at some of our collieries, in the propelling of heavily loaded carriages over rail-ways; but the great experiment of the Liverpool and Manchester Railway has, for the first time, practically demonstrated with what hitherto almost undreamt-of *rapidity* travelling by land may hereafter be carried on through the aid of steam. Coaches, under the impetus communicated by this, the most potent, and at the same time the most perfectly controllable of all our mechanical agencies, have already been drawn forward at the flying speed of thirty and thirty-five miles an hour. If so much has been done already, it would be rash to conclude that even this is to be our ultimate limit of attainment. In navigation, the resistance of the water, which increases rapidly as the force opposed to it increases, very soon sets bounds to the rate at which even the power of steam can impel a vessel forward. But, on land, the thin medium of the air presents no such insurmountable obstacle to a force making its way through it; and a rapidity of movement may perhaps be eventually attained here, which is to us even as yet inconceivable. But even when the rate of land travelling already shewn to be quite practicable shall have become universal, in what a new state of society shall we find ourselves! When we shall be able to travel a hundred miles in any direction in six or eight hours, into what comparative neighbourhood will the remotest extremes even of a large country be brought, and how little shall we

think of what we now call distance! A nation will then be indeed a community; and all the benefits of the highest civilization, instead of being confined to one central spot, will be diffused equally over the land, like the light of heaven. This improvement, in short, when fully consummated, will confer upon man nearly as much new power and new enjoyment as if he were actually endowed with wings.

It is gratifying to reflect that even while he was yet alive, Watt received from the voice of the most illustrious of his contemporaries the honours due to his genius. In 1785 he was elected a Fellow of the Royal Society; the degree of Doctor of Laws was conferred upon him by the University of Glasgow in 1806; and in 1808 he was elected a member of the French Institute. He died on the 25th of August, 1819, in the 84th year of his age.

We cannot better conclude our sketch of the life of this great inventor than by the following extract from the character that has been drawn of him by the eloquent writer (Mr. Jeffrey) whom we have already quoted. "Independently of his great attainments in mechanics, Mr. Watt was an extraordinary, and in many respects a wonderful man. Perhaps no individual in his age possessed so much and such varied and exact information,—had read so much, or remembered what he had read so accurately and well. He had infinite quickness of apprehension, a prodigious memory, and a certain rectifying and methodising power of understanding, which extracted something precious out of all that was presented to it. His stores of miscellaneous knowledge were immense, and yet less astonishing than the command he had at all times over them. It seemed as if every subject that was casually started in conversation had been that which he had been last occupied in studying and exhausting; such was

the copiousness, the precision, and the admirable clearness of the information which he poured out upon it without effort or hesitation. Nor was this promptitude and compass of knowledge confined in any degree to the studies connected with his ordinary pursuits. That he should have been minutely and extensively skilled in chemistry and the arts, and in most of the branches of physical science, might perhaps have been conjectured; but it could not have been inferred from his usual occupations, and probably is not generally known, that he was curiously learned in many branches of antiquity, metaphysics, medicine, and etymology, and perfectly at home in all the details of architecture, music, and law. He was well acquainted, too, with most of the modern languages, and familiar with their most recent literature. Nor was it at all extraordinary to hear the great mechanic and engineer detailing and expounding, for hours together, the metaphysical theories of the German logicians, or criticising the measures or the matter of the German poetry.

“ His astonishing memory was aided, no doubt, in a great measure, by a still higher and rarer faculty—by his power of digesting and arranging in its proper place all the information he received, and of casting aside and rejecting, as it were instinctively, whatever was worthless of immaterial. Every conception that was suggested to his mind seemed instantly to take its place among its other rich furniture, and to be condensed into the smallest and most convenient form. He never appeared, therefore, to be at all encumbered or perplexed with the *verbiage* of the dull books he perused, or the idle talk to which he listened; but to have at once extracted, by a kind of intellectual alchemy, all that was worthy of attention, and to have reduced it for his own use to its true value and to its simplest form.

And thus it often happened, that a great deal more was learned from his brief and vigorous account of the theories and arguments of tedious writers, than an ordinary student could ever have derived from the most faithful study of the originals, and that errors and absurdities became manifest from the mere clearness and plainness of his statement of them, which might have deluded and perplexed most of his hearers without that invaluable assistance."*

* The portrait of Mr. Watt, in this volume, is from a drawing partly copied from a picture of Sir W. Beechey, and partly from Mr. Chantrey's bust. The drawing was executed under the obliging direction of Mr. Watt, of Aston Hall, and has also had the advantage of Mr. Chantrey's suggestions.

CHAPTER XIV.

Sir Richard Arkwright.—The Cotton Manufacture.

WE propose now to give some account of an individual, whose rise from a very humble origin to affluence and distinction was the result of his persevering attention to the improvement of the machinery employed in one of the most important branches of our manufactures, and whose name is intimately connected with the recent history of the commercial greatness of this country. We allude to the celebrated Sir RICHARD ARKWRIGHT. Arkwright was born on the 23d of December, 1732, at Preston, in Lancashire. His parents were very poor, and he was the youngest of a family of thirteen children; so that we may suppose the school education he received, if he ever was at school at all, was extremely limited. Indeed, but little learning would probably be deemed necessary for the profession to which he was bred,—that of a barber. This business he continued to follow till he was nearly thirty years of age; and this first period of his history is of course obscure enough. About the year 1760, however, or soon after, he gave up shaving, and commenced business as an itinerant dealer in hair, collecting the commodity by travelling up and down the country, and then, after he had dressed it, selling it again to the wig-makers, with whom he very soon acquired the character of keeping a better article than any of his rivals in the same trade. He had obtained possession, too, we are told, of a secret method of dyeing the hair, by

which he doubtless contrived to augment his profits; and perhaps, in his accidental acquaintance with this little piece of chemistry, we may find the germ of that sensibility he soon began to manifest to the value of new and unpublished inventions in the arts, and of his passion for patent-rights and the pleasures of monopoly.

It would appear that his first effort in mechanics, as has happened in the case of many other ingenious men, was an attempt to discover the perpetual motion. It was in inquiring after a person to make him some wheels for a project of this kind, that in the latter part of the year 1767, he got acquainted with a clockmaker of the name of Kay, then residing at Warrington, with whom it is certain that he remained for a considerable time after closely connected. From this moment we may date his entrance upon a new career.

The manufacture of cotton cloths was introduced into this country only towards the end of the seventeenth century; although stuffs, improperly called Manchester cottons, had been fabricated nearly three centuries before, which, however, were made entirely of wool. It is generally thought that the first attempt at the manufacture of cotton goods in Europe did not take place till the end of the fifteenth century, when the art was introduced into Italy. Before this, the only cottons known had been imported from the East Indies.

The English cottons, for many years after the introduction of the manufacture, had only the web of cotton; the warp, or longitudinal threads of the cloth, being of linen. It was conceived to be impracticable to spin the cotton with a sufficiently hard twist to make it serviceable for this latter purpose. Although occasionally exported too in small quantities, the manu-

factured goods were chiefly consumed at home. It was not till about the year 1760 that any considerable demand for them arose abroad.

But about this time the exportation of cottons, both to the continent and to America, began to be carried on on a larger scale, and the manufacture of course received a corresponding impulse. The thread had hitherto been spun entirely, as it still continues to be in India, by the tedious process of the distaff and spindle, the spinner drawing out only a single thread at a time. But as the demand for the manufactured article continued to increase, a greater and greater scarcity of weft was experienced, till, at last, although there were 50,000 spindles constantly at work in Lancashire alone, each occupying an individual spinner, they were found quite insufficient to supply the quantity of thread required. The weavers generally, in those days, had the weft they used spun for them by the females of their family; and now "those weavers," says Mr. Guest, in his *History of the Cotton Manufacture*, "whose families could not furnish the necessary supply of weft, had their spinning done by their neighbours, and were obliged to pay more for the spinning than the price allowed by their masters; and even with this disadvantage, very few could procure weft enough to keep themselves constantly employed. It was no uncommon thing for a weaver to walk three or four miles in a morning, and call on five or six spinners, before he could collect weft to serve him for the remainder of the day; and when he wished to weave a piece in a shorter time than usual, a new ribbon, or gown, was necessary to quicken the exertions of the spinner."

It was natural, in this state of things, that attempts should be made to contrive some method of spinning more effective than that which had hitherto been in

use ; and, in fact, several ingenious individuals seem to have turned their attention to the subject. Long before this time, indeed, spinning by machinery had been thought of by more than one speculator. A Mr. Wyatt, of Litchfield, is stated to have actually invented an apparatus for that purpose so early as the year 1733, and to have had factories built and filled with his machines, both at Birmingham and Northampton. These undertakings, however, not being successful, the machines were allowed to perish, and no model or description of them was preserved*. There was also a Mr. Laurence Earnshaw, of Mottram, in Cheshire, of whom "it is recorded," says Mr. Baines, in his *History of Lancashire*†, "that, in the year 1753, he invented a machine to spin and reel cotton at one operation, which he shewed to his neighbours, and then destroyed it, through the generous apprehension that he might deprive the poor of bread"—a mistake, but a benevolent one.

It was in the year 1767, as we have mentioned, that Arkwright became acquainted with Kay. In 1768 the two friends appeared together at Preston, and immediately began to occupy themselves busily in the erection of a machine for the spinning of cotton-thread, of which they had brought a model with them. They had prevailed upon a Mr. Smalley, who is described to have been a liquor merchant and painter of that place, to join them in their speculation ; and the room in which the machine was fixed was the parlour of the dwelling-house attached to the free grammar-school, the use of which Smalley had obtained from his friend, the schoolmaster. At this time Arkwright was so poor that, an election contest having taken place in the town, of which he

* See *Essay on the Cotton Trade*, by Mr. Kennedy, *Manchester Memoirs*, second series, vol. iii.

† Vol. i. p. 115.

was a burghess, it is asserted that his friends, or party, were obliged to subscribe to get him a decent suit of clothes before they could bring him into the poll-room*. As soon as the election was over, he and Kay left Preston, and, carrying with them their model, betook themselves to Nottingham, the apprehension of the hostility of the people of Lancashire to the attempt he was making to introduce spinning by machinery having, as Arkwright himself afterwards stated†, induced him to take this step. On arriving at Nottingham, he first made arrangements with Messrs. Wrights, the bankers, for obtaining the necessary supply of capital; but they, after a short time, having declined to continue their advances, he took his model to Messrs. Need and Strutt, stocking weavers of that place, the latter of whom was a particularly ingenious man, and well qualified, from his scientific acquirements, of which he had possessed himself under many disadvantages, to judge of the adaptation of the new machinery to its proposed object. An inspection of it perfectly satisfied him of its great value; and he and Mr. Need immediately agreed to enter into partnership with Arkwright, who accordingly, in 1769, took out a patent for the machine as its inventor. A spinning-mill, driven by horse power, was at the same time erected, and filled with the frames; being, unless we include those erected many years before by Mr. Wyatt, the first work of the kind that had been known in this country. In 1771 Arkwright and his partners established another mill at Cromford, in the parish of Wirksworth, in Derbyshire, the machinery in which was set in motion by a water-wheel; and in 1775 he took out a second patent, including some additions which he had made to his original apparatus.

* Baines's History of Lancashire, vol. ii. p. 484.

† See his "Case," 1781.

In what we have hitherto related, we have carefully confined ourselves to facts which are universally acknowledged; but there are other points of the story that have been stated in very opposite ways, and have given rise to much doubt and dispute.

The machinery for which Arkwright took out his patents consisted of various parts, his second specification enumerating no fewer than ten different contrivances; but of these the one that was by far of greatest importance, was a device for drawing out the cotton from a coarse to a finer and harder twisted thread, and so rendering it fit to be used for warp as well as weft*. This was most ingeniously managed by the application of a principle which had not yet been introduced in any other mechanical operation. The cotton was in the first place drawn off from the skewers on which it was fixed by one pair of rollers, which were made to move at a comparatively slow rate, and which formed it into threads of the first and coarser quality †; but at a little distance behind the first was placed a second pair of rollers, revolving three, four, or five times as fast, which took it up when it had passed through the others, the effect of which would be to reduce the thread to a degree of fineness so many times greater than that which it originally had. The first pair of rollers might be regarded as the feeders of the second, which could receive no more than

* This was, in truth, the principal subject of Arkwright's first patent; and, accordingly, on the great trial (afterwards mentioned) which took place in June, 1785, his opponents accused him of endeavouring unfairly to prolong his first patent by means of his second.

† In Arkwright's apparatus, which was a combination of the carding and spinning machinery, this first part of the process was somewhat modified; but the principle of the two pairs of rollers, the one revolving faster than the other, which forms the peculiarity of the machine, was employed as here described.

the others sent to them; and that, again, could be no more than these others themselves took up from the skewers. As the second pair of rollers, therefore, revolved, we will say, five times for every one revolution of the first pair, or, which is the same thing, required for their consumption in a given time five times the length of thread that the first did, they could obviously only obtain so much length by drawing out the common portion of cotton into thread of five times the original fineness. Nothing could be more beautiful or more effective than this contrivance; which, with an additional provision for giving the proper twist to the thread, constitutes what is called the water-frame or throstle*.

Of this part of his machinery, Arkwright particularly claimed the invention as his own. He admitted, with regard to some of the other machines included in his patent, that he was rather their improver than their inventor; and the original spinning-machine for coarse thread, commonly called the spinning-jenny, he frankly attributed in its first conception to a person of the name of Hargrave, who resided at Blackburn, and who, he said, having been driven out of Lancashire in consequence of his invention, had taken refuge in Nottingham; but, unable to bear up against a conspiracy formed to ruin him, had been at last obliged to relinquish the farther prosecution of his object, and died in obscurity and distress.

There were, however, other parties who had an interest as well as Arkwright in these new machines, and who would not allow that any of them were of his invention. As to the principal of them, the water-frame, they alleged that it was in reality the invention of a poor reed-maker, of the name of Highs, or Hayes, and that Arkwright had obtained the know-

* So called from its having been originally moved by *water* power.

ledge of it from his old associate Kay, who had been employed by Highs to assist him in constructing a model of it a short time before Arkwright had sought his acquaintance. Many cotton-spinners, professing to believe this to be the true state of the case, actually used Arkwright's machinery in their factories, notwithstanding the patent by which he had attempted to protect it; and this invasion of his monopoly was carried to such an extent, that at last he found himself obliged to bring actions against no fewer than nine different parties*.

The first of these, in which a Colonel Mordaunt was defendant, was tried in the Court of King's Bench, in July, 1781. Upon this occasion, however, the question as to the originality of the inventions was not mooted; the defence taken being the insufficiency of the specification on which the patent had been obtained; and upon that ground a verdict was given in favour of the defendant. On this result Arkwright abandoned the other eight actions he had raised; and instead of attempting any longer to maintain his patent in a court of law, published a

* It is asserted, in the article on the cotton manufacture, in the Supplement to the Encyclopædia Britannica, and repeated in a paper on the same subject in the 91st number of the Edinburgh Review, that a trial took place upon the subject of Arkwright's first patent in the year 1772, on which occasion he obtained a verdict establishing its validity. This statement, however, for which no authority is given, appears to be altogether without foundation. No such trial is alluded to in the course of the proceedings in the Court of King's Bench in June and November, 1785, although both that of July, 1781, and that of February, 1785, are repeatedly mentioned; nor is it noticed, we believe, in any of the earlier accounts of Arkwright's machinery. Mr. Guest (who has written a history of the cotton manufacture, which is marked by a somewhat strong dislike to Arkwright) searched the records of the courts of King's Bench, Common Pleas, and Exchequer, for the year 1772, without finding any trace of it.

pamphlet, containing what he called his "Case," with a view of inducing the legislature to interfere for his protection. It is proper we should here mention that, although the first of these actions in 1781, which decided the fate of the others, thus went off without the real merits of the case having been gone into, yet several of the defendants were prepared to dispute the claim of the patentee to the invention of the machines, and that both Higs and Kay had been summoned to give their evidence upon that point, and were actually in court during the trial of the action against Colonel Mordaunt, the former having been brought over from Ireland, where he was then residing, expressly for the occasion.

Arkwright submitted to the verdict that had been given against him for nearly four years; but at last, in February, 1785, he commenced a second action upon the subject, which was tried in the Court of Common Pleas; and, having brought forward several artists who declared that they could make the machines from the descriptions which he had given in his specification, he obtained a verdict which reinstated him in the enjoyment of his monopoly. Upon this, as on the former occasion, the only question submitted to the jury was that regarding the sufficiency of the specification; although it soon appeared that several of the parties interested were determined not to rest satisfied with a decision of the matter upon that ground alone.

Accordingly, in the month of June, in the same year, a *scire-facias*, an action which is nominally at the suit of the King, was brought against Arkwright in the Court of King's Bench to repeal the patent, in the trial of which the whole of the question was at last gone into. The principal evidence on which it was attempted to be shewn that the water-frame was not invented by Arkwright was that of Higs, of Kay,

and of Kay's wife, the substance of which was, that the double rollers had been originally contrived by Highs in the early part of the year 1767, while he was residing in the town of Leigh; that he had employed his neighbour and acquaintance Kay to make a model of a machine for him upon that principle; and that Kay, upon meeting with Arkwright a short time after, at Warrington, had been persuaded by him to communicate to him the secret of Highs's invention, on the understanding, as it would appear, that the two should make what they could of it, and share the advantages between them. The evidence of each of the witnesses corroborated, so far as the case admitted, that of the others; Highs stating that he had been first informed of the manner in which Arkwright had got possession of his invention by Kay's wife, who, on her part, swore that she recollected her husband making models, first for Highs, and afterwards for Arkwright, although she could not speak with any distinctness to the nature of the machine; while Kay himself acknowledged the treachery of which he had been guilty, and gave a particular account of the manner in which he said that Arkwright had contrived to obtain from him the secret of Highs's invention. Highs also stated that, upon meeting with Arkwright in Manchester, some years after he had taken out his patent, he charged him with the source from which he had derived the machine; to which Arkwright said nothing at first, but afterwards remarked that, if any person, having made a discovery, declined to prosecute it, he conceived any other had a right, after a certain time, to take it up and obtain a patent for it, if he chose.

This famous trial lasted from nine o'clock in the morning till half-past twelve at night, and excited the greatest interest, both among those more immediately concerned, and among the public generally.

Among the witnesses examined were Mr. Cumming, the well-known watchmaker, Mr. Harrison, the son of the inventor of the marine chronometer, Dr. Darwin, and the since celebrated James Watt. The result was a verdict again invalidating the patent; which, on a motion being made for a new trial, the court refused to disturb. Arkwright after this never took any further steps to vindicate his patent rights. On this account some writers have been disposed to maintain that he really had obtained the inventions in the manner that Higs and Kay alleged. It is, however, to be remembered that it has been a common fate with those who have been fortunate enough to enrich themselves by their happy inventions to have attempts made to take from them the honour of those discoveries, of the profits of which it is found impossible to deprive them—and that it has seldom, in such cases, been difficult to find some hitherto unheard-of genius to set up his claim to the prior discovery of what, nevertheless, it would appear he scarcely knew the value of, after he had discovered it. In this particular case the other party had a strong interest in setting aside Arkwright's pretensions if they could, and the circumstance of Kay having been connected with Higs before he was employed by him, afforded them a tempting foundation on which to erect what they, no doubt, considered a very convenient theory. Then again, as for so much of their allegation as rested upon the evidence of this Kay, it was not entitled to command much attention, since it appeared both that he had some time before quarrelled with Arkwright, and that he must, even by own account, have acted so perfidious a part in regard to his first friend, Higs, as to deprive him of all claim to be believed in anything he might now choose to assert. Higs's own evidence is undoubtedly what seems to bear strongest against Arkwright; but he, from

very natural causes, might have been mistaken as to various points. He appears to have told his story in a very confused and ineffective way—much as if he either did not feel his ground to be very sure, or was not at all aware of the importance of the facts to which he was brought to speak. It is not impossible that, if he actually did invent the machine in question, Arkwright may have also hit upon the same idea about the same time; or may at least have been led to it merely by some vague rumour that had got abroad as to what Higs was about—not an unnatural supposition, when we reflect that his operations seem to have been a good deal talked of in the neighbourhood, and that the slightest hint of the principle of the water-frame would have sufficed to put an ingenious man like Arkwright in possession of the whole machine. And this after all gives us, perhaps, the most natural explanation of his conversation with Higs at Manchester. If he knew that he had really stolen his invention from that person in the manner stated in Kay's evidence, it is not likely that he would have been much disposed to meet him at all; whereas the interview appears to have been arranged by the intervention of a mutual acquaintance, who had in all probability obtained the consent of both parties to his bringing them together. His silence, when Higs charged him with having got possession of his invention, or rather merely noticed the circumstance (for the whole seems to have passed in quite an amicable manner), will depend for its interpretation very much upon the exact words used by Higs, which it is very possible he did not recollect perfectly when he gave his evidence in the Court of King's Bench twelve or thirteen years afterwards. Perhaps he said nothing about Kay at all; but merely remarked in general terms that he had been beforehand with Mr. Arkwright in thinking

of the two pairs of rollers which formed so valuable a part of his patent machinery. This was an avowal which for anything that Arkwright knew might be true, and which if incorrect he had at any rate no means of refuting;—so that nothing could be more natural than his remaining silent—although he would scarcely, one should think, have taken the thing quite so passively if he had been flatly charged with the base conduct afterwards imputed to him. The observation, again, he is said to have made a little while after is perfectly consistent with this view of the case. He waves the question as to which of the two might have been first in possession of the idea; and contents himself with simply remarking that, however that might be, he conceived any one who had made a discovery which he thought might be turned to advantage was quite entitled to take it up and prosecute it by himself, even though another might also be in possession of it, if that other shewed no intention of stirring in the business. And to this remark Highs, by his own account, quietly assented, although it certainly would have been natural enough for him to have hinted, if he really had previously advanced the charge which on the trial he said he had done, that whatever a man might do with regard to an invention that was really his own, he could hardly have a right in any circumstances to steal those of other people, and take out a patent for them.

Whatever conclusion may be come to on the subject of Arkwright's claim to the invention of the machinery introduced by him into his spinning factories, it is incontestable that to him alone belongs the merit both of having combined its different parts with admirable ingenuity and judgment, and of having by his unwearied and invincible perseverance first brought it into actual use on anything like an extensive scale, and demonstrated its power and value,

The several inventions which his patent embraced, whether they were his own or not, would probably but for him have perished with their authors; none of whom except himself had the determination and courage to face the multiplied fatigues and dangers that lay in the way of achieving a practical exemplification of what they had conceived in their minds, or to encounter any part of that opposition, incredulity, ridicule, of those disappointments, repulses, losses, and other discouragements, over all of which he at last so completely triumphed. When he set out on this career he was poor, friendless, and utterly unknown. We have already stated that, on his coming with Kay to Preston, he was almost in rags; and it may be added that when he and Kay made application immediately before this to a Mr. Atherton for some pecuniary assistance to enable them to prosecute their plans, Arkwright's appearance alone was enough to determine that gentleman to have nothing to do with the adventure. Can we have a more exciting example, then, of what a resolute heart may do in apparently the most hopeless circumstances?—of what ingenuity and perseverance together may overcome in the pursuit of what they are determined to attain? And this is the grand lesson which the history of Arkwright is fitted to teach us—to give ourselves wholly to one object, and never to despair of reaching it. Even after he had succeeded in forming his partnership with Messrs. Need and Strutt, his success was far from being secured. For a long time the speculation was a hazardous and unprofitable one; and no little outlay of capital was required to carry it on. He tells us himself in his Case that it did not begin to pay till it had been persevered in for five years, and had swallowed up a capital of more than twelve thousand pounds. We cannot doubt that it required al

Arkwright's dexterity and firmness to induce his partners to persevere with the experiment under this large expenditure and protracted disappointment. But it was the character of the man to devote his whole heart and faculties to whatever he engaged in. Even to the close of his life the management of his different factories was his only occupation, and even amusement. Although he had been from early life afflicted with severe asthma, he took scarcely any recreation—employing all his time either in superintending the daily concerns of these establishments—which were regulated upon a plan that itself indicated in its contriver no little ingenuity and reach of mind* ; or in adding such improvements to his machinery from time to time, as his experience and observation suggested. And thus it was, that from a poor barber he raised himself to what he eventually became—not merely to rank and great affluence—but to be the founder of a new branch of national industry, destined in a wonderfully short space of time to assume the very first place among the manufactures of his country. A very short review of what the cotton trade now is, as compared with its former state, will shew what it owes to Sir Richard Arkwright.

England may be said to have been a manufacturing country for five hundred years, from the time, namely, when the clothiers of Flanders came over in great

* "The originality and comprehension of Sir Richard Arkwright's mind," says the writer of the article on the cotton manufacture, in the Supplement to the 'Encyclopædia Britannica,' "were perhaps marked by nothing more strongly than the judgment with which, although new to business, he conducted the great concerns his discoveries gave rise to, and the systematic order and arrangement which he introduced into every department of his extensive works. His plans of management, which must have been entirely his own, since no establishment of a similar nature then existed, were universally adopted by others; and after long experience they have not yet in any material point been altered or improved."

numbers and settled themselves in different parts of the kingdom, on the marriage of our Edward III. to Philippa of Hainault. The manufacture of cotton cloth, however, as we have already noticed, was not introduced among us till about the middle of the seventeenth century, and made no extraordinary progress for a hundred years afterwards. As an evidence of the comparatively slight degree of interest which it excited, and of the little ingenuity which was consequently exerted in its improvement, it may be stated that the valuable invention of the fly-shuttle, which was introduced into the woollen manufacture about the year 1738, was not employed in the weaving of cottons till more than twenty years afterwards; up to which period, whenever the web was more than three feet wide, two men were constantly stationed at the loom in which it was wrought, the one to throw the shuttle from right to left, and the other to throw it back from left to right. It was not till the year 1769 that an attempt was made upon any considerable scale to spin cotton thread by machinery; for, whatever may have been done before this time by individuals of mechanical ingenuity in inventing contrivances for that purpose, it is certain that the invaluable improvement in question was really introduced into the manufacture by Arkwright when he took out his patent and built his first mill.

The revolution, therefore, we may almost say, in the whole aspect and character of our manufacturing and commercial interests, which has hence arisen, is the work of only the last sixty years. About the beginning of the last century, the quantity of cotton wool annually imported into Great Britain did not amount to 1,200,000 lbs.; and by the year 1720 it had not increased to much beyond 2,000,000 lbs. There are no returns from 1720 to 1771; but the importation had probably gone on increasing during

that interval, although at a slow rate. Nor did it make a very rapid progress even for several years after spinning by machinery was introduced, having from 1771 to 1775 averaged only 4,764,589 lbs., and for the next five years only 6,706,013 lbs. In 1784, the year immediately preceding the final repeal of Arkwright's patent, it amounted to 11,482,083 lbs. That event gave a great impulse to the manufacture, the average importation for the next five years having grown to 25,443,270 lbs. annually. In 1799 it had risen to 43,379,278 lbs., and in 1800, to 56,010,732 lbs. In 1817 it was 124,912,968 lbs., and in 1825 it actually amounted to the immense quantity of 228,005,291 lbs. The average importation of cotton wool into Great Britain may now be stated as considerably exceeding 200 millions of pounds per annum, or as amounting to fully a hundred times what it was a century ago, and to more than fifty times what it was when Arkwright began to spin.

The whole of this raw material, with the exception of about ten millions of pounds which are used in an unmanufactured state, and from ten to twenty millions which are annually exported, is spun into thread, and mostly wrought into cloth, in this country. The Reverend Dr. Cartwright invented his powerloom in 1784; but it is only since the commencement of the present century that weaving by machinery has become general. Steam was first applied as the moving power for the spinning machinery in 1785; in which year Messrs. Boulton and Watt erected one of their rotative engines for a factory belonging to the Messrs. Robinsons at Papplewick, in Nottinghamshire. In the present day the cotton is carded, spun, and woven into cloth in the same manufactory; these different operations being performed by

machinery, the several parts of which are all set in motion by a single steam-engine.

In 1787 the number of spinning factories in the county of Lancaster amounted only to 42, of comparatively inconsiderable magnitude; in August 1825, there were, according to Mr. Baines*, no fewer than 104 such factories in Manchester alone, which were worked by 110 steam-engines, of the aggregate power of 3,598 horses. The number of steam-looms now at work in the kingdom is calculated at 45,000†, of which about 8,000 are in Scotland, and above 20,000 in Manchester. In 1824, it has been stated‡ that the number of spindles constantly in motion was about six millions, and the power by which they were moved equal to that of 10,572 horses. In another statement, however, drawn up by Mr. Kennedy§, it is calculated that in 1817 (when the importation of cotton wool was not nearly so great as in 1824) the number of spindles was 6,645,833, and the moving power equal to that of 20,768 horses. Some idea may be formed of the growth of this manufacture since the year 1769, by contrasting the astonishing number of threads which it would thus appear are spun every day now, with the 50,000 which were all that were produced then.

The produce of all this machinery is, as may be supposed, immense. "In the present improved state of this (the weaving) process," says the writer of the article already referred to in the 'Encyclopædia Britannica,' "one person, generally a girl, attends to two looms, the weekly produce of which is from seven to nine pieces of cloth, of seven-eighths wide, and

* History of Lancashire, vol. ii. p. 134.

† Edinburgh Review, No. 91.

‡ Supp. to Encyc. Brit., art. Cotton Manufacture.

§ Manchester Memoirs, Second Series, vol. iii.

twenty-eight yards long." "A single factory in Manchester," says Mr. Guest, writing in 1828, "and that not of first-rate magnitude, receives the raw cotton, and turns out a web of cloth, varying in width from three quarters of a yard to a yard and a quarter, of forty miles in length every week." In 1750, it has been calculated that the whole amount of the cotton manufacture of the kingdom did not exceed the annual value of 200,000*l.*; it is now considered, on good grounds, to amount to fully thirty-six millions of pounds sterling per annum*. Sir Richard Arkwright states, in his Case published in 1781, that the capital then invested in buildings and machinery by those engaged in this trade, amounted to 200,000*l.*; it is calculated to amount now, in Lancashire alone, which possesses about four-fifths of the trade, to 8,000,000*l.*† In the year ending on the 1st of May 1818, 105 millions of yards of cotton cloth of all sorts were manufactured in Glasgow and the neighbourhood, of which the value was about 5,200,000*l.*‡ Of this about one half was exported. The value of the cotton cloths, twist, and yarn, exported from Great Britain for some years past, has been on an average about 16,000,000*l.*, leaving of course about 20,000,000*l.* worth for home consumption. The export trade in cotton is now fully three times that in woollens, the manufacture of which used to be the great staple of the kingdom.

The extraordinary perfection to which every part of the cotton manufacture has now been carried is another result for which we are entirely indebted to the introduction of machinery. Especially since the invention of the mule, a compound of the jenny and the water-frame, about the year 1790, the muslins manufactured in England have been every year

* Edin. Review, No. 91, p.

† Baines's Lancashire, vol. ii. p. 134.

‡ Encyc. Brit. Supp. vol. iii. p. 404.

attaining a greater fineness of fabric, and are now rapidly approaching to a rivalry even in this respect with the most exquisite productions of the East. As an illustration of the state of advancement to which the spinning process has been brought, it may be mentioned, that " Mr. John Pollard, of Manchester, spun, in 1792, on the mule, no fewer than 278 hanks of yarn, forming a thread of 233,520 yards, or upwards of 132 miles in length, from a single pound of raw cotton *." The diminution in the price of the manufactured article which has been produced by the successive improvements in the cotton machinery is equally extraordinary. Yarn of what is called No. 100, which even in 1786, after its price had been greatly reduced by the cancelling of Arkwright's patent, sold for thirty-eight shillings, has fallen in price every year since that time, and is now to be had for three or four shillings †. The raw material is now indeed brought from India, and manufactured into cloths in England, which, after being re-exported to that country, are actually sold there cheaper than the produce of the native looms. There can hardly be a more striking proof than this of the triumph of machinery.

Finally, it has been calculated that while the number of persons employed in the cotton manufacture in 1767, did not probably amount to 80,000, the number of those now engaged in its different departments can hardly be less than a million ‡. Yet, " in some branches of the business," it has been stated, " the spinning in particular, such is the economy of labour introduced by the use of machinery, that one man and four children will spin as much yarn as was spun by six hundred women and girls fifty years ago§."

* Edinburgh Review, No. 91, p. 15.

† Encyc. Brit. Supp. vol. iii. p. 398.

‡ Edinburgh Review, No. 91.

§ Baines's Lancashire, vol. i. p. 119.

CHAPTER XV.

Inventions of the Power-Loom—Dr. Cartwright. W. Edwards. R. Walker.

MACHINERY, in addition to being used in the spinning, is now, as we noticed in our last chapter, extensively applied to the weaving of cotton; and we now propose to give a short account of the Reverend Dr. **CARTWRIGHT**, to whose ingenuity our great national manufacture is indebted for the introduction of this crowning improvement. We have been supplied with the materials of the following sketch from a quarter which enables us to supply some original and authentic information.

Edmund Cartwright was born in the year 1743, and was the fourth son of William Cartwright, Esq. of Marnham, in Nottinghamshire. One of his elder brothers was the late Major John Cartwright, so well-known for his steady devotion through a long life to what he believed to be the cause of truth and patriotism, and for many public and private virtues which commanded the respect even of those who differed most widely from him in politics. Being intended for the church, Edmund at the usual age was entered of University College, Oxford, from whence he was subsequently elected a Fellow of Magdalen College. He early distinguished himself by his literary attainments, an evidence of which he gave to the world while yet a young man by the publication of a small volume of Poems, which was very favourably received. About the year 1774, also, he became a contributor to the Monthly Review; for which he continued to write during the following ten years.

For the first forty years of his life he had never given any attention to the subject of mechanics ; although, as was recollected long afterwards, his genius for invention in that department had once displayed itself, while at his father's house during one of his college vacations, in some improvements which he made on an agricultural machine which happened to attract his notice. But this exercise of his ingenuity, being out of the line of his pursuits at that time, led to no other attempts of the kind, nor to any further application of his thoughts to such matters.

The circumstances which many years after this led him to the invention of his weaving machine, or power-loom, as it is commonly called, cannot be better described than they have been by himself in the following statement,—first printed in the Supplement to the Encyclopædia Britannica. “Happening,” he says, “to be at Matlock in the summer of 1784, I fell in company with some gentlemen of Manchester, when the conversation turned on Arkwright's spinning-machinery. One of the company observed that as soon as Arkwright's patent expired, so many mills would be erected, and so much cotton spun, that hands would never be found to weave it. To this observation I replied, that Arkwright must then set his wits to work to invent a weaving-mill. This brought on a conversation upon the subject, in which the Manchester gentlemen unanimously agreed that the thing was impracticable ; and in defence of their opinion they adduced arguments which I was certainly incompetent to answer, or even to comprehend, being totally ignorant of the subject, having never at the time seen a person weave. I controverted, however, the impracticability of the thing by remarking that there had been lately exhibited in London an automaton figure which played at chess. Now you will not assert, gentlemen, said I, that it

is more difficult to construct a machine that shall weave, than one that shall make all the variety of moves that are required in that complicated game. Some time afterwards a particular circumstance recalling this conversation to my mind, it struck me that, as in plain weaving, according to the conception I then had of the business, there could be only three movements, which were to follow each other in succession, there could be little difficulty in producing and repeating them. Full of these ideas, I immediately employed a carpenter and smith to carry them into effect. As soon as the machine was finished I got a weaver to put in the warp, which was of such materials as sail-cloth is usually made of. To my great delight, a piece of cloth, such as it was, was the produce. As I had never before turned my thoughts to mechanism, either in theory or practice, nor had seen a loom at work, nor knew anything of its construction, you will readily suppose that my first loom must have been a most rude piece of machinery. The warp was laid perpendicularly, the reed fell with a force of at least half a hundred weight, and the springs which threw the shuttle were strong enough to have thrown a Congreve rocket. In short, it required the strength of two powerful men to work the machine, at a slow rate, and only for a short time. Conceiving in my simplicity that I had accomplished all that was required, I then secured what I thought a most valuable property by a patent, 4th of April, 1785. This being done, I then condescended to see how other people wove; and you will guess my astonishment when I compared their easy modes of operation with mine. Availing myself, however, of what I then saw, I made a loom in its general principles nearly as they are now made. But it was not till the year 1787 that I completed my inven-

tion, when I took out my last weaving patent, August the 1st of that year."

Dr. Cartwright's children still remember often seeing their father about this time walking to and fro apparently in deep meditation, and occasionally throwing his arms from side to side; on which they used to be told that he was thinking of weaving and throwing the shuttle. From the moment indeed when his attention was first turned to the invention of the power-loom, mechanical contrivance became the grand occupying subject of his thoughts. With that sanguineness of disposition which seems to be almost a necessary part of the character of an inventor, he looked upon difficulties, when he met with them in any of his attempts, as only affording his genius an occasion for a more distinguished triumph; nor did he allow even repeated failures for a moment to dishearten him. Some time after he had brought his first loom to perfection, a manufacturer, who had called upon him to see it at work, after expressing his admiration of the ingenuity displayed in it, remarked that, wonderful as was Mr. Cartwright's mechanical skill, there was one thing that would effectually baffle him, the weaving, namely, of patterns in checks, or, in other words, the combining, in the same web, of a pattern, or fancy figure, with the crossing colours which constitute the check. Mr. Cartwright made no reply to this observation at the time; but some weeks after, on receiving a second visit from the same person, he had the pleasure of shewing him a piece of muslin, of the description mentioned, beautifully executed by machinery. The man is said to have been so much astonished that he roundly declared his conviction that some agency more than human must have been called in to assist on the occasion.

After this Dr. Cartwright exercised his ingenuity in a variety of other contrivances; and introduced valuable improvements in the combing of wool by machinery, in rope-making, and in several other departments of agriculture and manufactures. For some of these inventions he took out patents, and for others premiums were bestowed upon him by the Society for the encouragement of Arts, and the Board of Agriculture. Even the steam-engine engaged his attention; and an account of some improvements which he proposed in its mechanism may be found in Rees's Cyclopaedia *. Indeed, so long as forty years ago, while residing at Eltham in Lincolnshire, he used frequently to tell his son that, if he lived to be a man, he would see both ships and land-carriages impelled by steam. It is also certain that at that early period he had constructed a model of a steam-engine attached to a barge, which he explained about the year 1793, in the presence of his family, to Robert Fulton, then a student of painting under his countryman West, and whose zeal and activity afterwards, as is well-known, brought the project of steam-navigation to such perfection in America, from whence it has extended all over the civilized world. Even so late as the year 1822, Dr. Cartwright, notwithstanding his very advanced age, and although his attention was much occupied by other philosophical speculations, was actively engaged in endeavouring to contrive a plan of propelling land-carriages by steam.

His death, however, at Hastings, in October 1823, prevented the completion of this, as well as of many other designs in the prosecution of which he had been employed. His enthusiasm for mechanical invention continued unabated to the last; and indeed his general energy both of mind and body was very little

* See article.

impaired up to within a short period of his death. In a letter to his brother, Major Cartwright, dated 24th April, 1819, he says, "I this day entered into my 77th year in as good health and spirits, thank God, as I have done on any one birth-day for the last half century. I am moving about my farm from eight o'clock in the morning till four in the afternoon without suffering the least fatigue. I sent in my claim to the Board of Agriculture for their premium for a cure of the mildew on wheat, but have not yet heard that it was admitted. I don't know whether I ever mentioned to you a machine for dibbling or planting wheat which I have brought to great perfection. I have also a very material improvement on the stocks respecting ploughs and wheel-carriages; but of this I shall say nothing till I have brought it to the proof, which I hope to do very shortly; when you shall be immediately informed of the result, whether favourable or not." The following verses, also, which he sent to a friend not long before his death, will shew at once the undiminished ardour and activity of his mind, and the generous and philanthropic motives by which his enthusiasm was sustained and directed:—

" Since even Newton owns that all he wrought
 Was due to industry and patient thought,
 What shall restrain the impulse which I feel
 To forward, as I may, the public weal?
 By his example fired, to break away,
 In search of truth, through darkness into day?
 He tried, on venturous wing, the loftiest flight,
 An eagle soaring to the fount of light!
 cling to earth, to earth-born arts confined,
 A worm of science of the humblest kind.
 Our powers, though wide apart as earth and heaven,
 For different purposes alike were given:
 Though mine the arena of inglorious fame,
 Where pride and folly would the strife disdain,
 With mind unwearied still will I engage

In spite of failing vigour and of age,
Nor quit the combat till I quit the stage ;
Or, if in idleness my life shall close,
Let well-earned victory justify repose !”

The disposition of this excellent man, indeed, naturally carried him throughout his life to promote, by every means in his power, the benefit of his fellow creatures ; and the following incident is perhaps worthy of being recorded, as illustrating how this tendency used to display itself in other parts of his conduct, as well as in his zeal for mechanical improvements. While he held the living of Goadly Maxwood, in Leicestershire, he applied himself so assiduously to the study of medicine that he acquired extensive knowledge and eminent skill in that science, and was in the habit of prescribing to his poorer parishioners with great success.

Actuated by such feelings as those we have described, Dr. Cartwright was as free as any man who ever lived from jealousy or illiberality towards other inventors. In fact, it may be safely asserted, that had he not carried his frankness and want of suspicion, as well as his indifference to pecuniary gains, beyond the limits of worldly prudence, his ingenious contrivances would in all probability have been productive of much greater benefit to himself than they ever actually were. So careless was he in regard to retaining in his own possession the valuable ideas with which his mind was continually teeming, that he has been frequently known to have given the most important assistance by his suggestions to other persons engaged like himself in mechanical pursuits, and afterwards to have forgotten the circumstance as entirely as if it had never happened. Nay, so completely did what he was engaged about at the moment occupy his mind, that he sometimes forgot his own inventions, and other productions, of an older

date, even when his attention was particularly called to them. One day, one of his daughters having chanced to repeat in his presence some lines from a poem entitled the 'Prince of Peace,' which appeared in his volume already mentioned, he exclaimed, to her surprise and amusement, "Those are beautiful lines, child; where did you meet with them!" On another occasion, being shewn the model of a machine, he examined it with great attention, and at last observed, that the inventor must have been a man of great ingenuity, and that he himself should feel very proud if he had been the author of the contrivance; nor could he be immediately convinced of what was proved to be the case, namely, that it was a machine of his own.

Dr. Cartwright was defrauded of the pecuniary profits which he might reasonably have expected from his great invention of the power-loom by various accidents, and especially by the burning of a manufactory, containing five hundred of his machines, almost immediately after it was built. It may also be added, that after he had demonstrated the practicability of weaving by machinery, other inventors applied themselves to the devising of contrivances for that purpose slightly different from his—a comparatively easy task, even where the new invention was not merely a disguised infringement of his patent, while in those cases in which it was in reality nothing more than such an infringement, it was yet so protected, that it could hardly be reached and put down as such. On these and other accounts, and in no small degree owing to Dr. Cartwright's carelessness about his own interests, the power-loom only began, in point of fact, to be extensively introduced about the year 1801, the very year in which his patent expired. So generally, however, was it felt among those best entitled to express an opinion on the sub-

ject, that to him really belonged the merit of the invention, that in the year 1808, several merchants and manufacturers of Manchester and its neighbourhood, to none of whom he was personally known, held a meeting to consider the propriety of presenting to the Lords of the Treasury a memorial of his eminent services, and of the losses he had sustained through the piracies and other unfortunate circumstances to which we have alluded. In consequence of this and other applications in his favour, the sum of ten thousand pounds was soon after granted to him by Parliament. This national recognition of his claims may be taken as a sufficient answer to some attempts that have been occasionally made to rob Dr. Cartwright of the credit of having been the author of one of the most valuable presents ever made to the manufacturing industry of his country.

As a man of education and literary habits, the inventor of the power-loom, notwithstanding his deviation from his original track of thought and study when he began to give his attention to mechanics, may yet be said to have come even to that new line of pursuit with certain acquired advantages. He brought with him at least a mind awakened to some knowledge of its own powers by the general cultivation it had received, and not undisciplined by its accustomed exercises to habits of speculation and inquiry. The individual we are now to mention, who also rose to eminence in what may be called a department of mechanics, was in these respects very differently circumstanced.

WILLIAM EDWARDS, the celebrated Welsh engineer, was born in 1719, in the parish of Eglwysilan, in Glamorganshire. He lost his father, who was a farmer, when he was only two years old; but his mother continued to hold the farm, and was in this manner enabled to bring up her family, consisting of two

other sons and a daughter, beside William who was the youngest. Her other sons, indeed, were soon old enough to take the chief part of her charge off her hands. William, in the meantime, was taught, as he grew up, to read and write Welsh ; and this was all the education he seems to have received. When about the age of fifteen he first began to employ himself in repairing the stone fences on the farm ; and in this humble species of masonry he soon acquired uncommon expertness. The excellent work he made, and the dispatch with which he got through it, at last attracted the notice of the neighbouring farmers ; and they advised his brothers to keep him at this business, and to let him employ his skill, when wanted, on other farms as well as their own. After this he was for some time constantly engaged ; and he regularly added his earnings to the common stock of the family.

Hitherto the only sort of building he had practised, or indeed had seen practised, was merely with stones without mortar. But at length it happened that some masons came to the parish to erect a shed for shoeing horses near a smith's shop. By William the operations of these architects were contemplated with the liveliest interest, and he used to stand by them for hours while they were at work, taking note of every movement they made. A circumstance that at once struck him was, that they used a different description of hammer from what he had been accustomed to employ ; and, perceiving its superiority, he immediately got one of the same kind made for himself. With this he found he could build his walls both a good deal faster and more neatly than he had been wont to do. But it was not long after he had, for the first time in his life, had an opportunity of seeing how houses were erected, that he undertook to build one himself. It was a

workshop for a neighbour; and he performed his task in such a manner as obtained him great applause. Very soon after this he was employed to erect a mill, by which he still further increased his reputation as an able and ingenious workman. Mr. Malkin, to whose work on the Scenery, &c. of South Wales, we are indebted for these particulars of Edwards's early life, as well as for the materials of the sequel of our sketch, says, that it was while building this mill that the self-taught architect became acquainted with the principle of the arch.

After this achievement Edwards was accounted the best workman in that part of the country; and being highly esteemed for his integrity and fidelity to his engagements, as well as for his skill, he had as much employment in his line of a common builder, as he could undertake. In his twenty-seventh year, however, he was induced to engage in an enterprise of a much more difficult and important character than anything he had hitherto attempted.

Through his native parish, in which he still continued to reside, flowed the river called the Taff, which, following a southward course, flows at last into the estuary of the Severn. It was proposed to throw a bridge over this river at a particular spot in the parish of Eglwysilan, where it crossed the line of an intended road; but to this design difficulties of a somewhat formidable nature presented themselves, owing both to the great breadth of the water, and the frequent swellings to which it was subject. Mountains covered with wood rose to a considerable height from both its banks; which first attracted and detained every approaching cloud, and then sent down its collected discharge in torrents into the river. Edwards, however, undertook the task of constructing the proposed bridge, though it was the first work of the kind in which he ever had engaged. Accord-

ingly, in the year 1746, he set to work; and in due time completed a very light and elegant bridge of three arches, which, notwithstanding that it was the work of both an entirely self-taught and an equally untravelled artist, was acknowledged to be superior to anything of the kind in Wales. So far his success had been as perfect as could have been desired. But his undertaking was far from being yet finished. He had both through himself and his friends given security that the work should stand for seven years; and for the first two years and a half of this term all went on well. There then occurred a flood of extraordinary magnitude; not only the torrents came down from the mountains in their accustomed channels, but they brought along with them trees of the largest size, which they had torn up by the roots; and these, detained as they floated along by the middle piers of the new bridge, formed a dam there, the waters accumulated behind which at length burst from their confinement and swept away the whole structure. This was no light misfortune in every way to poor Edwards; but he did not suffer himself to be disheartened by it, and immediately proceeded, as his contract bound him to do, to the erection of another bridge, in the room of the one that had been destroyed. He now determined, however, to adopt a very magnificent idea—to span the whole width of the river, namely, by a single arch of the unexampled magnitude of one hundred and forty feet from pier to pier. He finished the erection of this stupendous arch in 1751, and had only to add the parapets, when he was doomed once more to behold his bridge sink into the water over which he had raised it, the extraordinary weight of the masonry having forced up the keystones, and, of course, at once deprived the arch of what sustained its equipoise. Heavy as was this second disappointment to the hopes

of the young architect, it did not shake his courage any more than the former had done. The reconstruction of his bridge for the third time was immediately begun with unabated spirit and confidence. Still determined to adhere to his last plan of a single arch, he had now thought of an ingenious contrivance for diminishing the enormous weight which had formerly forced the keystone out of its place. In each of the large masses of masonry called the haunches of the bridge, being the parts immediately above the two extremities of the arch, he opened three cylindrical holes, which not only relieved the central part of the structure from all over-pressure, but greatly improved its general appearance in point of lightness and elegance. The bridge with this improvement was finished in 1755, having occupied the architect about nine years in all; and it has stood ever since.

This bridge over the Taff—commonly called the *New Bridge*, and by the Welsh *Pont y Pridd*, was, at the time of its erection, the largest stone arch known to exist in the world. Before its erection the Rialto at Venice, the span of which was only ninety-eight feet, was entitled, as Mr. Malkin remarks, to this distinction among bridges; unless, indeed, we are to include the famous aqueduct-bridge at Alcantara, near Lisbon, consisting in all of thirty-five arches, the eighth of which is rather more than a hundred and eight feet in width, and two hundred and twenty-seven in height. The bridge at Alcantara was finished in 1732. Since the erection of the bridge over the Taff several other stone arches of extraordinary dimensions have been built both in our own country and in France—such for instance as the five composing the splendid Pont de Neuilly over the Seine near Paris, the span of each of which is a hundred and twenty-eight feet,—the central arch of the bridge over the same river at Mantes, which is of the same dimensions—the Island

Bridge, as it is called, over the Liffey near Dublin, which is a single arch of a hundred and six feet in width—the bridge over the Tees, at Winston, in Yorkshire, which is also a single arch of a hundred and eight feet nine inches wide, and which was built in 1762 by John Johnson, a common mason, at a cost of only five hundred pounds—and the nine elliptical arches, each of a hundred and twenty feet span, forming the magnificent Waterloo Bridge, over the Thames at London. But no one of these great works rivals in respect of dimensions the arch constructed by Edwards.* The bridge over the Taff, we may add, rises to the height of thirty-five feet above the water, and is the segment of a circle of a hundred and seventy feet in diameter. Buttressed as it is at each extremity by lofty mountains, while the water flows in full tide beneath it, its aspect, as it is seen rising into the air, may well be conceived to be particularly striking and grand.

This bridge, which is looked upon as a wonder to this day, spread the fame of Edwards over all the country. He afterwards built many other bridges in South Wales, several of which consisted also of single arches of considerable width, although in no case approaching to that of the arch over the Taff. One which he erected over the Tawy near Swansea, had a span of eighty feet—another at Llandovery in Carmarthenshire was eighty-four feet wide—and a third, Wychbree Bridge, over the Tawy, was of the width of ninety-five feet. All the bridges which Edwards built after his first attempt have their arches formed of segments of much larger circles

* A bridge is, however, now being built at Chester, which is the largest single arch in the world, being 200 feet span. A bridge over the Severn, lately built at Gloucester, is 150 feet span; and the arches of the New London Bridge are larger than that of Pont y Pridd.

than he ventured to try in that case; and the roads over them are consequently much flatter, a convenience which amply compensates for their inferiority in point of imposing appearance. He found his way to this improvement entirely by his own experience and sagacity; as indeed he may be said to have done to all the knowledge he possessed in his art. Even his principles of common masonry, he used himself to declare, he had learned chiefly from his studies among the ruins of an old Gothic castle in his native parish. In bridge building the three objects which he always strove to attain in the highest possible degree were, first, durability; secondly, freedom for the passage of the water under the bridge; and lastly, ease of traffic over it.

In commencing architect Edwards did not abandon the business of his forefathers. He was likewise a farmer to the end of his life. Nay, such was his unwearied activity that, not satisfied with his week-day labours in these two capacities, he also officiated on Sundays as pastor to an Independent congregation, having been regularly ordained to that office when he was about thirty years of age, and holding it till his death. He accepted the usual salary from his congregation, considering it right that they should support their minister; but instead of putting the money into his own pocket, he returned it all, and often much more, in charity to the poor. He always preached in Welsh, although early in life he had also made himself acquainted with the English language, having embraced the opportunity of acquiring it under the tuition of a blind old schoolmaster in whose house he once lodged for a short time while doing some work at the county town of Cardiff. He is said to have shewn all his characteristic assiduity of application in this effort, and to have made a correspondingly rapid progress.

This ingenious and worthy man died in 1789, in the seventieth year of his age, leaving a family of six children, of whom his eldest son David became also an eminent architect and bridge-builder, although he had had no other instruction in his profession than what his father had given him. David's eldest son is also said to have inherited the genius of his father and his grandfather.

The mention of Edwards's clerical occupation leads us to conclude our chapter by a few words respecting the *Wonderful* ROBERT WALKER, as he is still called in the district of the country where he resided, who was curate of Seathwaite in Cumberland during the greater part of last century. The fullest account that has appeared of Mr. Walker is that given, in the notes to his series of sonnets entitled 'The River Duddon,' by Mr. Wordsworth, in whose poem of the Excursion the worthy clergyman is also noticed with the commendations due to his singular virtues. From this memoir it appears that Walker was born in the parish of Seathwaite in 1709; that, being of delicate constitution, it was determined by his parents, whose youngest child he was, to breed him a scholar; and that accordingly he was taught the elements of reading, writing, and arithmetic by the clergyman of the parish, who also officiated as schoolmaster. He afterwards contrived to acquire a knowledge of the classics; and, becoming in this manner qualified for taking holy orders, was ordained, and appointed to the curacy of his native parish, which was at this time (about the year 1735) of the value of five pounds per annum. On obtaining possession of this living Walker married, his wife bringing him what he calls himself, in one of his letters, a 'fortune' of forty pounds. We must refer to Mr. Wordsworth's pages, and the documents which will be found printed there, for a detail of all that the industry and economy of.

the curate and his wife contrived to accomplish upon these scanty resources. Suffice it to say that about twenty years after Walker's entrance upon his living we find its value, according to his own statement, increased only to the amount in all of seventeen pounds ten shillings. At a subsequent period it received a further augmentation, to what amount is not stated; but it was not considerable. Before this Mr. Walker had declined to accept the adjoining curacy of Ulpha, to be held, as proposed by the bishop, in conjunction with that of Seathwaite, considering, as he says himself, that the annexation "would be apt to cause a general discontent among the inhabitants of both places, by either thinking themselves slighted, being only served alternately, or neglected in the duty, or attributing it to covetousness in me; all which occasions of murmuring I would willingly avoid." Yet at this time he had a family of eight or nine children. One of his sons he afterwards maintained at the college of Dublin till he was ready for taking holy orders. He was, like his predecessors in the same cure, schoolmaster as well as clergyman of his parish; but "he made no charge," says his biographer, "for teaching school; such as could afford to pay gave him what they pleased." His hospitality to his parishioners every Sunday was literally without limitation; he kept a plentiful table for all who chose to come. Economical as he was, no act of his life was chargeable with anything in the least degree savouring of avarice; on the contrary, many parts of his conduct displayed what in any station would have been deemed extraordinary disinterestedness and generosity. Finally, at his death, in 1802, he actually left behind him no less a sum than two thousand pounds.

There is in all this, as Mr. Wordsworth remarks, something so extraordinary, as to make some expla-

natory details necessary. These we shall give in his own words. "And to begin," says he, "with his industry; eight hours in each day, during five days in the week, and half of Saturday, except when the labours of husbandry were urgent, he was occupied in teaching. His seat was within the rails of the altar; the communion table was his desk; and, like Shensstone's schoolmistress, the master employed himself at the spinning-wheel, while the children were repeating their lessons by his side. Every evening, after school hours, if not more profitably engaged, he continued the same kind of labour, exchanging, for the benefit of exercise, the small wheel, at which he had sate, for the large one on which wool is spun, the spinner stepping to and fro. Thus was the wheel constantly in readiness to prevent the waste of a moment's time. Nor was his industry with the pen, when occasion called for it, less eager. Entrusted with extensive management of public and private affairs, he acted in his rustic neighbourhood as scrivener, writing out petitions, deeds of conveyance, wills, covenants, &c., with pecuniary gain to himself, and to the great benefit of his employers. These labours, at all times considerable, at one period of the year, viz., between Christmas and Candlemas, when money transactions are settled in this part of the country, were often so intense, that he passed great part of the night, and sometimes whole nights, at his desk. His garden, also, was tilled by his own hand; he had a right of pasturage upon the mountains for a few sheep and a couple of cows, which required his attendance; with this pastoral occupation he joined the labours of husbandry upon a small scale, renting two or three acres in addition to his own, less than one acre of glebe; and the humblest drudgery which the cultivation of these fields required was performed by himself. He also

assisted his neighbours in haymaking and shearing their flocks, and in the performance of this latter service he was eminently dexterous. They, in their turn, complimented him with the present of a haystack, or a fleece; less as a recompense for this particular service than as a general acknowledgment. The Sabbath was in a strict sense kept holy; the Sunday evenings being devoted to reading the scripture and family prayer. The principal festivals appointed by the Church were also duly observed; but through every other day in the week, through every week in the year, he was incessantly occupied in works of hand or mind; not allowing a moment for recreation, except upon a Saturday afternoon, when he indulged himself with a newspaper, or sometimes with a magazine. The frugality and temperance established in his house were as admirable as the industry. Nothing to which the name of luxury could be given was there known; in the latter part of his life, indeed, when tea had been brought into almost general use, it was provided for visitors, and for such of his own family as returned occasionally to his roof, and had been accustomed to this refreshment elsewhere; but neither he nor his wife ever partook of it. The raiment worn by his family was comely and decent, but as simple as their diet; the homespun materials were made up into apparel by their own hands. At the time of the decease of this thrifty pair, their cottage contained a large store of webs of woollen and linen cloth, woven from thread of their own spinning. And it is remarkable that the pew in the chapel in which the family used to sit, remained a few years ago neatly lined with woollen cloth, spun by the pastor's own hands. It is the only pew in the chapel so distinguished; and I know of no other instance of his conformity to the delicate accommodations of modern times. The fuel of the house, like that of their

neighbours, consisted of peat, procured from the mosses by their own labour. The lights by which, in the winter evenings, their work was performed, were of their own manufacture, such as still continue to be used in these cottages; they are made of the pith of rushes dipped in fat. *White* candles, as tallow candles are here called, were reserved to honour the Christmas festivals, and were perhaps produced upon no other occasions. Once a month, during the proper season, a sheep was drawn from their small mountain flock, and killed for the use of the family; and a cow, towards the close of the year, was salted and dried, for winter provision; the hide was tanned to furnish them with shoes. By these various resources this venerable clergyman reared a numerous family; not only preserving them, as he affectingly says, "from wanting the necessaries of life," but affording them an unstinted education, and the means of raising themselves in society.

All this, if not a lesson in the pursuit of knowledge, is at least a striking example of what assiduity and perseverance will do in any pursuit, as well as highly instructive with regard to one of the most important subjects that can engage the attention of literary or scientific students, the art, namely, of husbanding time and employing it to the best advantage. But with all his industry of another description, Mr. Walker did not find it impossible to nourish and exercise also his mental powers. "It might have been concluded," his biographer proceeds, "that no one could thus, as it were, have converted his body into a machine of industry for the humblest uses, and kept his thoughts so frequently bent upon secular concerns, without grievous injury to the more precious parts of his nature. How could the powers of intellect thrive, or its graces be displayed, in the midst of circumstances apparently so unfavourable, and when, to the

direct cultivation of the mind, so small a portion of time was allotted? But, in this extraordinary man, things in their nature adverse were reconciled; his conversation was remarkable, not only for being chaste and pure, but for the degree in which it was fervent and eloquent; his written style was correct, simple, and animated. Nor did his *affections* suffer more than his intellect; he was tenderly alive to all the duties of his pastoral office; the poor and needy 'he never sent empty away;' the stranger was fed and refreshed in passing that unfrequented vale; the sick were visited; and the feelings of humanity found further exercise among the distresses and embarrassments in the worldly estate of his neighbours, with which his talents for business made him acquainted; and the disinterestedness, impartiality, and uprightness which he maintained in the management of all affairs confided to him, were virtues seldom separated in his own conscience from religious obligations. Nor could such conduct fail to remind those who witnessed it, of a spirit nobler than law or custom; they felt convictions which, but for such intercourse, could not have been afforded, that, as in the practice of their pastor, there was no guile, so in his faith there was nothing hollow; and we are warranted in believing that, upon these occasions, selfishness, obstinacy, and discord would often give way before the breathings of his good will and saintly integrity. It may be presumed also, while his humble congregation were listening to the moral precepts which he delivered from the pulpit, and to the Christian exhortations, that they should love their neighbour as themselves, and do as they would be done unto, that peculiar efficacy was given to the preacher's labours, by recollections in the minds of his congregation, that they were called upon to do no more than his own actions were daily setting before their eyes."

What may be deemed out of character, we may merely add, in some of the occupations in which this excellent clergyman was wont to employ himself, ought to be judged of with a reference both to the times in which he was born and grew up, and to the simple and sequestered population among whom it was his lot to pass his life. "Had he lived," says Mr. Wordsworth, justly, "at a later period, the principle of duty would have produced application as unremitting; the same energy of character would have been displayed, though in many instances with widely different effects."

CHAPTER XVI.

Pursuit of Knowledge by Travellers.—Lithgow; Walking Stewart; Athenian Stuart; Niebuhr; Ledyard; Belzoni.—Conclusion.

BOOKS, immense as their value really is, are over-rated when it is supposed that they may be made to teach us everything. Many of the items which constitute the mass of human knowledge have not yet found their way into books, but remain still loose and ungathered among the habits and daily transactions of society, or of some particular portion of it, from intercourse with which they are much more easily and perfectly learned than they could be from books, were they actually to be there recorded. But much of what meets us in our direct intercourse with the world, and supplies us with the richest sources of reflection and speculation, does not admit of being transferred to books at all. Indeed what should any one of us know of that country, or portion of society, with which we happen to be most familiar, if all our knowledge of it consisted merely either of what has been, or of what could be, set down about it in books? What mere description, even the most minute and faithful, ever placed before any man an exact representation even of a scene in the world of inanimate nature? The copy, it is true, simply by virtue of its being a copy, may have charms which the reality wants; but that is not the question. The one is something entirely *different* from the other, and produces a different impression upon the mind. Much more must this be the case when the subject of the description is something that, from the more various, complicated, and shifting nature of its re-

lations and lineaments, and from much of its character not shewing itself to the eye at all, still less admits of being thrown into the shape of a picture. The moral condition, indeed, of a country and its inhabitants is constituted by so multifarious a con-course of circumstances, that their number and diversity alone would preclude them from being adequately represented in their working and effect by any description. To be felt and understood in their real power and combined agency, they must be seen and experienced. A general judgment with regard to the matter may undoubtedly be formed from the reports of others; and from such reports also, filled up and coloured by the mind of the reader or hearer, a sufficiently vivid picture of something having a certain resemblance to the original may be drawn; but the real features of that original are nevertheless sure to be in a thousand respects misconceived. Hence with regard to certain subjects, and these neither the least interesting nor the least important to be known, travelling becomes a means of acquiring knowledge, for which in fact there is no substitute. Crowded, too, as is this path of enterprise with so many both of the hazards and the opportunities most alluring to a warm imagination, it is not to be wondered at that it should always have had a peculiar charm for active and adventurous spirits, and that in no other pursuit whatever should greater toils, privations, and dangers have been encountered and overcome.

In the small space that now remains to us we cannot attempt to enumerate many names from the long catalogue of celebrated travellers; but our work would be very incomplete without a reference to a few of the most distinguished of those examples which recent times have afforded of this species of devotion in the pursuit of knowledge. There is no other, as

we have just remarked, which has sustained men in the endurance of more severe and prolonged sufferings, or more frequently tempted them to peril everything, even life itself, in the effort to attain their object.

Some have performed journeys of wonderful extent and difficulty on foot. Of this class is WILLIAM LITHGOW, who was born in Scotland about the end of the sixteenth century. This person, in a history of his adventures, which he published in 1614, and which has been more than once reprinted, computes the extent of his pedestrian wanderings over various countries in Europe, Asia, and Africa, at no less than thirty-six thousand miles. He underwent many hardships in the course of his peregrinations; but the worst misfortune which befell him was what he suffered on his return home, when he was seized at Malaga, in Spain, by the Inquisition, and subjected both to the ordinary and the extraordinary torture. So dreadfully was he disabled by the injuries he received on this occasion, that after he reached England, and it was proposed that he should make his appearance at Court to present his book to James I., he had to be carried thither on a litter, his worn and emaciated form exciting the astonishment of all who looked on it. Lithgow, who afterwards recovered his health, died in 1640. The late Mr. JOHN STEWART, commonly called Walking Stewart, affords us another instance which deserves to be commemorated under this head. Mr. Stewart had only recently gone out to Madras as a writer in the service of the East India Company, when, in the year 1765, he formed the extraordinary resolution of leaving the Presidency, and setting out to travel on foot over the world. The first thing which he did, in pursuance of this determination, was to write a letter to the Directors, in which he told them that he "was born for higher pursuits than to be a copier of invoices and bills of

lading to a company of grocers, haberdashers, and cheesemongers." This heroic epistle, which doubtless not a little amused the persons to whom it was addressed, is said to be still preserved among the records of the Company. Its spirited author lost very little time, after despatching it, in proceeding to execute his project. He first directed his course to Delhi; and he subsequently visited in the same manner almost every other part of the Indian peninsula, and even extended his excursions to Persia, and, crossing the Red Sea, traversed a considerable portion of the opposite continent of Africa. Finally, he determined to make out the journey to Europe on foot, which he actually accomplished, arriving at length in safety at Marseilles, after surmounting a long succession of difficulties by the most unconquerable perseverance. He then made a tour through Spain, and afterwards walked across France to his native country. But he had not come home, even after all this exertion, to repose from his toils. He soon after set out on a pedestrian perambulation over England, Scotland, and Ireland; and, that finished, he proceeded to the New World, and walked over the greater part of the United States. Such performances will be acknowledged to have amply earned for their author the epithet by which he was distinguished.

Walking Stewart must not be confounded with Mr. JAMES STUART, commonly called Athenian Stuart, from his splendid work entitled "The Antiquities of Athens," who, it so happens, is also famous for his travels, a considerable part of which was performed on foot. Indeed, Stuart's life is altogether a fine instance of devotion to the pursuit of knowledge. He was born in London in 1713, and by the early death of his father was left, while yet a boy, to support his mother and her three younger children, by the exer-

cise of his almost uninstructed talents in the humble occupation of painting fans. While sustaining this heavy charge, he found time to study, almost without assistance, not only the higher departments of the art of drawing, but anatomy, geometry, and other branches of science, the knowledge of which he deemed essential to his professional progress as a draughtsman and painter. He even taught himself Latin, excited by a desire to understand the inscriptions in that language which he used to see under engravings; and he afterwards proceeded to the study of Greek. But the knowledge he found in books was insufficient to satisfy him; he could take no rest until he had seen with his own eyes those lands of Italy and Greece of which he had read so much. He therefore made preparations for travel; and let it be recorded to his honour that the first thing he did was to exert himself to obtain situations for his sister and his two younger brothers, which, although humble, might enable them to support themselves and their mother during his absence. An anecdote is also told of him which places in a striking point of view the resolute enthusiasm with which he set out on his enterprise. He had a dangerous wen on his face, which a surgeon whom he consulted advised him to endeavour to get removed before commencing his travels. As the least hazardous mode of treatment, it was at the same time proposed to submit it to a course of medical applications, which would occupy a considerable time. Stuart himself, however, immediately asked if an operation could not be attempted. On being informed, in reply, that it certainly might, but that it would be attended with some danger, he reflected a moment, and then placing himself on a chair, requested the surgeon to proceed immediately to apply the knife; "I," said he, "shall not stir." The operation, fortunately, was performed with per-

fect success. Stuart then set out on foot, and in this manner accomplished the journey to Rome. He had little or no money in his pocket; but he supported himself on his way by the paintings which he executed and sold. While at Rome he became acquainted with Mr. Revett, the architect, with whom he afterwards proceeded to Greece. It was during a residence of some years in that country, that he collected the materials for his great work, already mentioned, which was published in 1762, and immediately introduced its author both to fame and to abundant and lucrative employment in the new profession of an architect, which he had resolved to embrace. He was afterwards appointed surveyor of Greenwich Hospital, and became a Fellow of the Royal and of the Antiquarian Societies. Mr. Stuart died in 1788.

One of the greatest travellers of whom modern times have had to boast, is the celebrated CARSTEN NIEBUHR; and his early history is also interesting, as exhibiting a persevering pursuit of knowledge in the face of considerable difficulties, and with nothing to urge him forward except his own desire of intellectual improvement. But we must refer the reader for the interesting details of his career to the memoir of his life which has been lately published in the Library of Useful Knowledge. If our object were to enumerate the important accessions which have been made both to geography and the other sciences by persons who have devoted their lives to travelling, there are many other eminent names also which should not be omitted. But at present we must select our notices with reference, not so much to the positive discoveries which the traveller may have made, as to the spirit of enterprise he has displayed, and the extraordinary sacrifices to which he has submitted for the sake of his object. Estimated

by this criterion, there is perhaps no name that ought in this department of exertion to be placed before that of JOHN LEDYARD. Ledyard was born in the year 1751, in Connecticut, in North America. His father, who was the captain of a vessel employed in the West India trade, died at the early age of thirty-five, leaving his widow, with John and three younger children, almost destitute of any means of support. Some time after this, Mrs. Ledyard married again, on which the subject of our notice went to live with his grandfather, who took upon himself the charge of educating and providing for him. The strange and shifting history of his youth we can only sketch very rapidly. After having been kept for some time at a grammar-school in the town of Hartford, where he acquired some acquaintance with the classical tongues, he was sent to a lawyer's office. Here he remained only a few months, when, finding law not at all to his taste, he abandoned the study. He was now nineteen; and he seems to have passed a year or two more of his life in doing nothing. At last, in the beginning of the year 1772, he determined to enter himself a student at a college which had been recently established at Hanover, in New Hampshire, for the education of missionaries to be employed in converting the Indians. In entering upon this new pursuit, the principal part of his equipment consisted of a collection of dresses and scenery, which he took with him to the college for the purpose of indulging his taste for theatrical amusements, of which he had some time before become passionately fond. After persevering in his studies for four months, he one day, tired of the quiet life he had been leading, left the college, without leave or notice of his intention, and bent his steps to the woods, where he wandered about with the Indians for about three months and a half. He then returned

to college; but after a residence of three or four months longer, he again made his escape, this time embarking in a canoe which, with the assistance of some of his fellow-students, he had hollowed out of a large tree, with the intention of descending the Connecticut to Hartford. The distance was not less than a hundred and forty miles, and there were dangerous falls and rapids in many parts of the river; but the intrepid navigator accomplished his voyage without any accident, although, on one occasion, while he lay at his length in his bark, wrapped up in his bear-skin, and absorbed in the perusal, it is uncertain whether of his Greek Testament or his Ovid, the only two books he had taken with him, he very narrowly escaped being sucked down a formidable precipice. His missionary zeal having completely evaporated, his views were now turned to the regular ministry; but although he began the prescribed preliminary studies, his impatience to be actually engaged in preaching would not allow him to proceed in this course, and he exerted himself, with his characteristic spirit and energy, to carve out, if possible, a shorter road to his object. But we must refer the reader to the very interesting memoirs of his life and travels, published a few years ago by Mr. Sparks, for a detail of his various adventures in this pursuit. Suffice it to say that he could not prevail upon the reverend gentlemen, to whom he applied for immediate ordination, to accede to his request. This determined him to bid a final adieu to theology; and, in a few weeks after, he entered himself as a common sailor on board a trading vessel bound to the Mediterranean. He was now for the first time in a line of life suited to his restless and daring character of mind; but still, not quite satisfied, he took an opportunity, while the ship was lying at Gibraltar, of leaving it, and enlisting as a soldier. By the exertions, however, of the

captain, who was his friend, his release was obtained from this new engagement; and he returned to the vessel, and completed his voyage back to America. He had no intention, however, of remaining at home. In a letter which he wrote to one of his friends from Gibraltar he had said, "I allot to myself a seven years' ramble more, although the past has long since wasted the means I possessed;" and in conformity with this resolution, he next set out on a voyage to England, entering himself again as a common sailor on board a vessel bound for Plymouth. From Plymouth he begged his way to London, where he expected to find some relations; but being unsuccessful in a short search he made after them, he addressed himself to Captain Cook, who was then (in 1776) setting out on his third and last voyage, and was by him engaged to accompany the expedition in the capacity of a corporal of marines. He was now at last embarked in good earnest on such a *ramble* as he had long been desirous of, and had a chance of seeing something of the world.

In the course of his voyage Ledyard distinguished himself on various occasions by his activity, courage, and spirit of adventure. At the island of Onalaska on the north-west coast of America he was selected by Cook to go alone on an expedition into the interior in quest of a European settlement which there was reason to believe existed there; and this hazardous commission he executed with great ability and perfect success, having after a journey of two days arrived among a small colony of Russians, three of whom he brought back with him to the ship. At Owhyee his enterprising disposition prompted him, accompanied by other two persons belonging to the expedition, to attempt the ascent of the celebrated volcanic mountain called *Mouna Roa*, which has been computed to be about eighteen

thousand feet high. After persevering, however, for two days, the party found themselves obliged to return without having reached the summit. This mountain has since been ascended by Lord Byron and several of his officers, when he carried home the bodies of the king and queen of the Sandwich Islands in his majesty's ship *Blonde*, in 1824-5*. Ledyard also headed the party of marines who were with Captain Cook when he was killed at this island. He continued for two years longer in the navy after returning from his voyage round the world; and then having found himself, in December 1782, in a man of war stationed near New York, he considered it his duty to embrace the opportunity of leaving the service of a country with which his own was now engaged in hostilities. He made his escape, accordingly, from the ship, and returned for a short time to his native village, from which he afterwards transferred himself to Hartford. During four months which he spent here he employed himself in writing an account of his adventures while on board Cook's ship, which was published. Like everything that Ledyard wrote, this work, without much polish of diction, abounds in the traces of a vigorous mind, accustomed to suffer no opportunity to pass unimproved of storing itself with materials for reflection. After seeing his book through the press, his old desire of roaming, only made more restless and impatient by the partial gratification it had already enjoyed, roused him again to new schemes and new labours.

His first project was a trading voyage to the northwest coast of his native continent; and he expended much time and exertion in vain endeavours to induce some of his mercantile countrymen to entrust him with the conduct of such an enterprise. He

* See Voyage, pp. 169—191.

then resolved to repair to Europe in hopes of better success in that quarter; and taking ship accordingly, he arrived in Cadiz in August 1784. From hence he soon after sailed for Brest; and proceeded afterwards to L'Orient, where he intended to announce his plan. At first the parties to whom he had brought letters seemed to enter into his views as warmly as he could desire; and a negotiation was nearly concluded for securing his services to conduct the proposed adventure. After being amused, however, for nearly a year by the expectations thus excited, he was doomed to be again disappointed: some obstacles, of a nature not well ascertained, suddenly presented themselves, and the scheme was abandoned. On this Ledyard proceeded to Paris, where he made himself known to the American minister, Mr. Jefferson, who gave him a very encouraging reception, and exerted himself to promote his object. Here he also met with the celebrated Paul Jones; and that enterprising commander, on being informed by him of his scheme for an expedition to the north-west coast of America, at once agreed to join him in it, and to advance the funds necessary for undertaking it on a large scale. But after four or five months this plan also fell to the ground. Hitherto, however, Ledyard had been supported, according to stipulation, by the parties with whom he had successively entered into these fruitless negotiations; but now he was entirely without resources. In this condition he was reduced to the necessity of becoming a pensioner upon the bounty of various distinguished persons whose regard he had acquired; among whom Mr. Jefferson and the Marquis de la Fayette are particularly mentioned. Meanwhile he made still another attempt to induce a mercantile company to enter into his favourite project; but, after keeping him for several months in suspense, it failed like the others.

Hopeless as he had now become of succeeding in his original plan, he still clung to his determination to find his way, if possible, by some means or other, to the north-west part of the American continent, with the view of exploring that vast and as yet almost unknown region. He resolved, therefore, to attempt the attainment of his object in a new way; namely, by travelling overland to the north-eastern extremity of Asia through Russia and Siberia, and then crossing Behring's Strait to the quarter he was desirous of reaching. But while he was making preparations for setting out on this adventure, he was induced suddenly to start for London by a letter from a friend in that city offering him a free passage in a vessel which was about to sail for the Pacific Ocean, and which would set him on shore at any part of the American coast he might choose. On arriving in the English metropolis he was introduced to Sir Joseph Banks and other eminent scientific characters. His plan of operations was very soon arranged. He determined to land at Nootka Sound, and from thence, penetrating at once into the interior, to make his way across the wilderness to Virginia. But this daring design, like his former attempts, was destined to be frustrated long before he had encountered any of its dangers. The vessel in which he had embarked had sailed down the river and put out to sea, when, just as they were losing sight of land, she was seized and brought back by order of government, in consequence of some irregularity in clearing at the custom-house, and eventually adjudged to be forfeited. On this occasion Ledyard lost all the property he had in the world, which did not, however, amount to much, the principal part of it consisting of two great dogs, an Indian knife, and a hatchet, which he had purchased with some money given him by the gentleman (Sir James Hall) at whose invitation he had come to London.

On this disappointment he immediately turned his thoughts again to his plan of travelling across Europe and Asia by land; and accordingly, in December, 1786, he set out for Hamburgh, where he arrived with only ten guineas in his pocket, part of the produce of a subscription which had been made for him in London, the remainder of which appears to have been expended in providing himself a second time with a couple of great dogs, and the other articles which constituted his simple equipment for a journey across the American continent. Here he heard of a countryman of his own, a Major Langhorn, who was reported to him as having as great a passion for travelling as himself, and who was now at Copenhagen in the course of a perambulation he had been making over the North of Europe. Having reason to suspect that Langhorn was in want of money, the generous Ledyard immediately determined to render him all the succour his own scanty resources would permit. "I will fly to him," says he, in a letter to a friend, "with my little all, and some clothes, and lay them at his feet. At this moment I may be useful to him; he is my countryman, a gentleman, a traveller. He may go with me on my journey: if he does, I am blessed; if not, I shall merit his attention, and shall not be much out of my way to Petersburgh." Full of these visions he set out for Copenhagen, where on his arrival he found the person of whom he was in quest, in the predicament he had anticipated, and in so complete a state of destitution, indeed, that he could not leave his room for want of decent clothes. Ledyard's ten guineas, however, soon remedied this inconvenience; and even enabled the two to enjoy a very pleasant fortnight in each other's society. But when Ledyard at last proposed to his friend to accompany him to Petersburgh, Langhorn's reply was abundantly frank and decisive: "No," said he; "I

esteem you, but I can travel in the way I do with no man on earth."

Ledyard therefore, having contrived to recruit his finances by drawing a bill for a few pounds on the secretary to the American embassy in London, which he was fortunate enough to find a person willing to accept, proceeded on his journey alone. When he came to the usual place for crossing the Gulf of Bothnia, he found that his deviation from the direct line of his route in pursuit of Langhorn had lost him his only opportunity of passing over that season; for the winter had turned out what is called an open one, that is to say, the water had not, as it commonly does, frozen all over, so as to form a road for sledges, while at the same time the masses of floating ice with which it was impeded made sailing through it impracticable. This was a disappointment which for a moment disconcerted and struck down even Ledyard's courage; but it was only for a moment. To turn back was out of the question; to remain for several months where he was in inactivity as little suited his inclination; he therefore resolved to travel round by the northern extremity of the gulf, and so to reach its opposite coast by a journey of above twelve hundred miles through the most desolate regions of the inhabited globe. And all this labour was only to reach a point, to which the distance directly across the gulf was not more than fifty miles. He actually accomplished his formidable undertaking in an extraordinarily short space of time, considering the nature of the country through which he had to make his way, having reached Petersburgh within seven weeks after leaving Stockholm, which was travelling at the rate of about two hundred miles a week.

On arriving in Petersburgh his money, as might be supposed, was quite exhausted, and even his clothes

were torn to pieces. He was again fortunate enough, however, to obtain twenty guineas by drawing a bill on Sir Joseph Banks, for the payment of which the acceptor was willing to depend on that gentleman's generosity. Thus provided he set out for Siberia in company with a Dr. Brown, a Scotch physician, who was going thither on a commission from the government. The travellers proceeded together to Tobolsk, and from thence to Barnaoul, the capital of the province of Kolyvan, where they parted. "How I have come thus far," writes Ledyard from this place to Mr. Jefferson, on the 29th of July, "and how I am to go still farther, is an enigma that I must disclose to you on some happier occasion. My health is perfectly good; but, notwithstanding the vigour of my body, my mind keeps the start of me, and I anticipate my future fate with the most lively ardour. Pity it is, that in such a career one should be subjected, like a horse, to the beggarly impediments of sleep and hunger." After spending a week at Barnaoul, he set out for Irkutsk with the courier who had charge of the mail. Here he remained about ten days, during which time he visited the lake of Baikal and the other scenery in the neighbourhood. He then proceeded in a boat down the river Lena, and arrived at Yakutsk after a voyage of twenty-two days. This, however, was destined to be the termination of his journey. The Russian government, which at the solicitation of some of his friends in Paris had professed to grant him its protection, and had hitherto forwarded him on his way, is supposed to have been all along determined, nevertheless, that he should not reach the coast of America, where a fur-company had been recently established, the concerns of which the national jealousy was unwilling to expose to the inspection of the subject of another state. The commandant at Yakutsk, accordingly, contrived in the

first instance to persuade him to remain there during the winter, contrary to his own earnest wishes to proceed; and on representations which he afterwards found to be quite false. "What, alas, shall I do," he says in his journal, on finding himself all but detained by force, and not without reason to apprehend that even that might be employed, if necessary, to prevent him from pursuing his journey; "What shall I do, for I am miserably prepared for this unlooked-for delay. By remaining here through the winter, I cannot expect to resume my march until May, which will be eight months. My funds! I have but two long frozen stages more, and I shall be beyond the want or aid of money, until, emerging from the deep deserts, I gain the American Atlantic States; and then, thy glowing climates, Africa, explored, I will lay me down, and claim my little portion of the globe I have viewed; may it not be before." He goes on to lament his poverty, as forming, after all, the chief entanglement which had induced him to yield to the commandant's importunities. With regard to his proposed journey, which had been represented to him as impracticable, he says, in a letter to Colonel Smith, "I do not believe it is so, nor *hardly anything else.*" But he adds that he was somewhat reconciled to his detention by one consideration among others, namely, that he was *without clothes, and with only a guinea and one-fourth in his purse.* While at Yakutsk he employed himself diligently in studying the peculiarities of the country and its inhabitants, keeping all the while a regular journal of his observations. It was here that he wrote his celebrated eulogy on women, which has been so often quoted. But, after he had been a few months at Yakutsk, he was induced to embrace an opportunity which offered of returning up the river in a sledge over the ice to Irkutsk. This journey, of fif-

teen hundred miles, he accomplished in seventeen days. In four or five weeks after his arrival at Irkutsk he was seized by an order of the Russian government, and immediately despatched in custody to Moscow, from whence he was sent forward in the same condition to Poland, and there set at liberty, with an intimation that he might now go wherever he pleased, but that if he ever again set foot in the Russian dominions, he would certainly be hanged. We will leave him to tell the remainder of his story in his own words. "I had penetrated," says he, in his journal, "through Europe and Asia, almost to the Pacific Ocean, but, in the midst of my career, was arrested a prisoner to the Empress of Russia, by an express sent after me for that purpose. I passed under a guard part of last winter and spring; was banished the empire, and conveyed to the frontiers of Poland, six thousand versts from the place where I was arrested, and the journey was performed in six weeks. Cruelties and hardships are tales I leave untold. I was disappointed in the pursuit of an object, on which my future fortune entirely depended. I know not how I passed through the kingdoms of Poland and Prussia, or from thence to London, where I arrived in the beginning of May, disappointed, ragged, pennyless; and yet so accustomed am I to such things, that I declare my heart was whole." His health he acknowledges had suffered for the first time from his confinement, and the rapidity with which he had been hurried through Tartary and Russia; but a few days' rest, he adds, in Poland had re-established it, "and I am now," says he, "in as full bloom and vigour as thirty-seven years will afford any man."

When Ledyard found himself in London, one of the first persons on whom he called was his friend Sir Joseph Banks. This gentleman, after hearing

from him the story of his disasters, and learning that he had now no particular object in view, told him of the Association which had just been formed, and of which he was himself one of the leading members, for prosecuting discoveries in the interior of Africa. This was news which made Ledyard's heart leap with joy; and having received a letter of introduction from Sir Joseph, he went with it directly to Mr. Beaufoy, the secretary of the Association. "Before I had learned from the note the name and business of my visitor," says Mr. Beaufoy, "I was struck with the mauliness of his person, the breadth of his chest, the openness of his countenance, and the inquietude of his eye. I spread the map of Africa before him, and tracing a line from Cairo to Sennaar, and from thence westward in the latitude and supposed direction of the Niger, I told him, that was the route by which I was anxious that Africa might, if possible, be explored. He said he should think himself singularly fortunate to be trusted with the adventure. *I asked him when he would set out. 'To-morrow morning,' was his answer.*"

It was not possible to get his instructions and letters ready with all the expedition that would have satisfied the wishes of the eager and heroic adventurer. He at last left London. "Truly is it written," he exclaims in the exultation of his heart in a letter addressed immediately before his departure to his mother, "that the ways of God are past finding out, and his decrees unsearchable. Is the Lord thus great? So also is he good. I am an instance of it. I have trampled the world under my feet, laughed at fear, and derided danger. Through millions of fierce savages, over parching deserts, the freezing North, the everlasting ice, and stormy seas, have I passed without harm. How good is my God! What rich subjects have I for praise, love,

and adoration!" To Mr. Beaufoy, the last time they were together, on the morning of his departure, he said, with perhaps a somewhat sadder, but not a less resolute spirit, "I am accustomed to hardships. I have known both hunger and nakedness to the utmost extremity of human suffering. I have known what it is to have food given me as charity to a madman; and I have at times been obliged to shelter myself under the miseries of that character, to avoid a heavier calamity. My distresses have been greater than I have ever owned, or ever will own, to any man. Such evils are terrible to bear; but they never yet had power to turn me from my purpose. If I live, I will faithfully perform, in its utmost extent, my engagement to the society; and if I perish in the attempt, my honour will still be safe, for death cancels all bonds."

We have little more to relate of poor Ledyard. From London he proceeded to Paris, and from thence to Marseilles, where he took ship for Alexandria. From Alexandria he pursued his journey up the Nile to Cairo, where he arrived on the 19th of August. His intention was to set out at the proper season with the caravan from this city to Sennaar; and in the mean time he occupied himself in studying the character and manners of the people among whom he was, and gaining as much as he could of the information most likely to be useful to him in his future progress. He kept as usual a journal of his observations, copious extracts from which have been printed in the Proceedings of the Association. But towards the end of November, when the caravan which he intended to accompany was just on the point of setting out, he was attacked by a bilious complaint; and, after all his hopes, this long-looked-for opportunity of prosecuting his journey seemed on the point of being lost. In his extreme anxiety in

these circumstances to get rid of his indisposition as speedily as possible, he took so large a dose of the common remedy, vitriolic acid, as to produce the most violent pains, which the best medical skill in Cairo was exerted in vain to remove or alleviate; and he perished a victim to his zeal and precipitancy.

There never beat a heart animated by a warmer or more disinterested love of the path of public duty which it had chosen than that which death had now laid low. Mr. Sparks's memoir, to which we have been indebted for the materials of our rapid sketch, contains many other anecdotes of his generous self-devotion which our space does not permit us to notice. The following passage, however, from a letter addressed to his employers, one of the last he ever wrote, presents so fine a picture of a mind elevated by some of the noblest feelings of which our nature is susceptible that we quote it as a fit conclusion to the account we have given of the writer. "Money!" he exclaims, "it is a vile slave! I have at present an economy of a more exalted kind to observe, I have the eyes of some of the first men of the first kingdom on earth turned upon me. I am engaged by those very men in the most important object that any private individual can be engaged in. I have their approbation to acquire or to lose; and their esteem, also, which I prize above everything, except the independent idea of serving mankind. Should rashness or desperation carry me through, whatever fame the vain and injudicious might bestow, I should not accept of it; it is the good and great I look to; fame bestowed by them is altogether different, and is closely allied to a 'well done' from God; but rashness will not be likely to carry me through, any more than timid caution. To find the necessary medium of conduct, to vary and apply it to contingencies, is the economy I allude to; and if I succeed by such

means, men of sense in any succeeding epoch will not blush to follow me, and perfect those discoveries, which I have only abilities to trace out roughly, or a disposition to attempt. A Turkish sofa has no charms for me: if it had, I could soon obtain one here. Believe me, a single 'well done' from your Association has more worth in it to me, than all the trappings of the East; and what is still more precious, is, the pleasure I have in the justification of my own conduct at the tribunal of my own heart."

Ledyard, as is well known, was the first of too long a list of courageous adventurers who have one after another sacrificed their lives in the cause of African discovery; and did our limits permit, the names of Houghton, Hornemann, Park, Laing, Clapperton, and many others, might each furnish us with an example, not unworthy to be compared with his, of fearless resolution, and perseverance which only death could overcome. But we can attempt now only to sketch very briefly the career of one who, although he also perished in that enterprise, fatal to so many of his forerunners, the attempt to penetrate into central Africa, is and will continue to be chiefly remembered for his researches and discoveries in another quarter of that great continent; we mean the late lamented Belzoni. GIOVANNI BATTISTA BELZONI was born in 1778, at Padua, where his father was a barber. The family, however, had belonged originally to Rome; and it is related that Belzoni, when only thirteen years of age, betrayed his disposition for travelling by setting out one day along with his younger brother to make his way to that city, which he had long been haunted by a passionate desire to see from hearing his parents so often speak of it. The failing strength and courage of his brother, however, forced him to relinquish this

expedition, after they had proceeded as far as the Apennines; and he returned once more to assist his father in his shop, as he had already for some time been doing. But when he was three years older, nothing would detain him any longer in his native place; and he again took the road to Rome, which this time he actually reached. It is said that on his first arrival in this capital he applied himself to the acquirement of a knowledge of the art of constructing machines for the conveyance and raising of water, with the view probably of obtaining a livelihood by the exhibition of curious or amusing experiments in that department of physics. It is certain, however, that he eventually adopted the profession of a monk, as offering an easier or surer way of gaining his bread.

The arrival of Buonaparte in Italy in 1800 brought him the opportunity, which he embraced, of throwing off his monastic habit, being by this time heartily tired of the idleness and obscurity to which it consigned him. He then pursued for some time a wandering life, having in the first instance returned to his native town, and then proceeded in quest of employment to Holland, from whence, in about a year afterwards, he came back to Italy. By this time he had attained so uncommon a height, with strength proportioned to it, that he was an object of wonder wherever he was seen. It was probably with the expectation of being able to turn these personal advantages to account that he determined, in 1803, to come over to England. On arriving here, accordingly, he first attempted to get a maintenance by perambulating the country, exhibiting hydraulic experiments and feats of muscular strength; and, accompanied by his wife, an Englishwoman, whom he had married soon after his arrival, he visited with this object all the principal towns both of Great Britain and Ireland. He was afterwards engaged for some

time at Astley's amphitheatre; and altogether he continued for about nine years in England.

At last, finding probably that he had no farther chance of improving his circumstances in this country, in 1812 he sailed with his wife for Lisbon. Here he soon obtained an engagement from the director of the San Carlos theatre; at the expiration of which he proceeded to Madrid, where for a time he also attracted considerable attention by his performances. From Madrid he went to Malta; and here, it is supposed, the idea first suggested itself to him of passing over to Egypt, as others of his countrymen had already done, and offering his services to the Pacha, the active and enterprising Mahomet Ali. Accordingly, carrying with him a recommendation from a Maltese agent of the Pacha's, he proceeded, still accompanied by his wife, to Cairo. On presenting himself to Ali, he was immediately engaged, on the strength of his professed skill in hydraulics, to construct a machine for watering some pleasure gardens at Soubra, on the Nile. This undertaking, it is said, he accomplished to the Pacha's satisfaction; but an accident having occurred to one of the persons looking on, on the first trial of the machine, the Turkish superstition, under the notion that what had happened was a bad omen, would not suffer the use of it to be continued. This misfortune, at the same time, put an end to all Belzoni's hopes of further employment from the Pacha; and he was once more probably as much at a loss what to betake himself to as he had ever before been in his life.

The state of destitution, however, in which he found himself, led to his entering upon a new career, in which he was destined to acquire great distinction. The late Mr. Salt was at this time the English Consul in Egypt, and, embracing the opportunity which his situation afforded him, was actively em-

ployed in investigating and making collections of the precious remains of antiquity in which that country abounded. For this purpose he kept several agents in his pay, whose employment it was to make researches in all directions after interesting objects of this description. To Mr. Salt Belzoni now offered his services in this capacity; and he was immediately employed by that gentleman in an affair of considerable difficulty, namely, the removing and transporting to Alexandria of the colossal granite bust of Memnon, which lay buried in the sands near Thebes. The manner in which Belzoni accomplished this his first enterprize in his new line of pursuit at once established his character for energy and intelligence. Dressing himself as a Turk, he proceeded to the spot, and there half persuaded and half terrified the peasantry into giving him the requisite assistance in excavating and embarking the statue, till he had the satisfaction at last of seeing it stowed into the boat intended for its conveyance, without having received any injury, and fairly afloat on the Nile. Having arrived at Alexandria, it was afterwards sent to England, and is now in the British Museum.

Belzoni had now found his proper sphere, and henceforth his whole soul was engaged in the work of exploring the wonderful country in which he was, in search of the monuments of its ancient arts and greatness. In this occupation he was constantly employed, sometimes in the service of Mr. Salt, and sometimes on his own account. The next affair which Mr. Salt committed to him was the excavation of the Temple of Ipsamboul, in Upper Egypt, which was so enveloped in sand, that only its summit was visible. Belzoni, however, in despite of innumerable obstacles, partly of a physical nature, and partly created by the opposition of the natives, at last succeeded in penetrating into its interior. On returning from this expedition,

he next undertook a journey to the valley of Beban-el-Malouk, beyond Thebes, where, from a slight inspection on a former occasion of the rocky sides of the hills, he had been led to suspect that many tombs of the old inhabitants would be found concealed within them. For some time he searched in vain in all directions for any indication of what he had expected to find, till at last his attention was suddenly attracted by a small fissure in the rock, which presented to his experienced eye something like the traces of human labour. He put forward his hand to examine it, when the stones, on his touching them, came tumbling down, and discovered to him the entrance to a long passage, having its sides ornamented with sculpture and paintings. He at once entered the cavern—proceeded forward—and, after overleaping several obstacles which opposed his progress, found himself in a sepulchral chamber, in the centre of which stood an alabaster sarcophagus, covered with sculptures. He afterwards removed this sarcophagus, and with infinite labour took exact copies of the drawings, consisting of nearly a thousand figures, and the hieroglyphic inscriptions, amounting to more than five hundred, which he found on the walls of the tomb. It was from these copies that Belzoni formed the representation or model of this tomb, which he afterwards exhibited in London and Paris.

On returning to Cairo from this great discovery, he immediately engaged in a new investigation, which conducted him to another perhaps still more interesting. He determined to make an attempt to penetrate into one of the pyramids; and was at last fortunate enough to discover, in that called the pyramid of Cephrenes, the entrance to a passage, which led him into the centre of the structure. Here he found a sepulchral chamber, with a sarcophagus in the middle of it, containing the bones of a bull—a discovery

which has been considered as proving that these immense edifices were in reality erected by the superstition of the old Egyptians, for no other purpose than to serve each as a sepulchre for one of their brute divinities. After this, encouraged by the splendid success that had hitherto attended his efforts, which had now made him famous over Europe, Belzoni engaged in various other enterprises of a similar character, which we have not room to enumerate. He made also several journeys both to the remote parts of Egypt, and beyond the bounds of that country into the adjoining regions of Africa. At last he determined to revisit Europe, and accordingly he set sail for that purpose in September 1819.

The first place which he visited was his native city, from which he had now been absent nearly twenty years. When he left it last, he was an unknown wanderer, without employment or the means of existence, and ready almost to accept the humblest that might be anywhere offered him ; he returned to it now with a name familiar over the civilized world, and the glory of many discoveries which had long made him the pride of his fellow-citizens. He presented on this occasion to the town of Padua, two lion-headed granite statues, which were placed by the magistracy in a conspicuous situation in the Palace of Justice ; and a medal was at the same time struck in honour of the giver, on which were inscribed his name, and a recital of his exploits. A copy of this medal, in gold, was presented to Belzoni, accompanied with a letter expressive of the admiration felt by the Paduans for their distinguished townsman. From Italy Belzoni hastened to England, where the rumour of his discoveries had already excited a greater interest than in any other country. Here he met with the welcome due to one whose services had contributed to extend the scientific glory of the

nation ; and, both in the world of letters and in the world of fashion, the celebrated traveller became a chief object of attraction. He now employed himself in preparing an account of his travels and discoveries for the press ; and the work appeared about the end of the year 1820, in a quarto volume, accompanied with another volume of plates, in folio. It excited great interest, and soon passed through three editions ; while translations of it into French and Italian had also appeared at Paris and Milan. It was after the publication of his book that Belzoni prepared his representation of the tomb he had discovered at Beban-el-Malouk, which was exhibited in London and Paris.

Tired, however, of leading an inactive life, Belzoni soon began to project other schemes of foreign travel. He visited successively, France, Russia, Sweden, and Denmark ; after which, returning to England, he undertook, under the auspices of the government, to prosecute the perilous attempt of penetrating into central Africa. His plan was to endeavour, in the first instance, to reach Timbuctoo, thence to direct his course eastward towards Sennaar, and then to return through Nubia and Egypt. But even his experience, skill, and extraordinary personal strength and prowess did not save him from falling a victim in the cause in which so many gallant men had already perished. He left England towards the end of the year 1822 for Gibraltar, on reaching which he immediately embarked for Tangiers. From this he proceeded to Fez, where he was well received by the Emperor of Morocco, and obtained permission to join a caravan for Timbuctoo, which was to set out in a few days. Unexpected difficulties, however, arose when he was on the point of departure ; and after a residence at Fez of five months he was obliged to give up all hope of commencing his journey by the route

he had originally fixed upon. On this disappointment he sailed for Madeira, and from thence, in October 1823, he set out for the mouth of the river Benin on the west coast of Africa, with the intention of making his way to the interior from that point. He entered upon this journey accompanied by an English merchant who was to conduct him as far as the town of Benin, and to introduce him there to the king of the country ; but by the time he had arrived at this place a malady which had attacked him almost as soon as he had set his foot on shore, had reached such a height that he was unable to proceed any farther ; and he begged his companion to have him taken back to Gato. He arrived here on the 2nd of December in a dreadfully exhausted state, and being immediately attacked with delirium, expired on the following day. His remains were interred under a plane tree on the shore, while the English vessels on the station honoured his memory by discharges of their cannon during the ceremonial. An inscription in English was afterwards placed over his grave, recording his melancholy fate, and expressing a hope that every European who might visit the spot would, if necessary, cause the ground to be cleared, and the fence repaired, around the resting-place of the intrepid and enterprising traveller.

Many other names of persons of both sexes yet remain on the records of literature, science, art, and the other departments of intellectual exertion, which might be referred to as illustrating the Pursuit of

Knowledge under Difficulties. But the selection of examples we have made, regulated as it had been with a view to give as much diversity of interest as possible to the contents of the work, will probably be thought sufficiently extensive for our purpose. The lesson we would teach, as we have already frequently had occasion to remark, is, that in no situation of life, be it what it may, is the work of mental cultivation impossible to him who in good earnest sets about it. What is chiefly wanted to invigorate the mind to the encounter and conquest of the most formidable difficulties which any circumstances can oppose to it, is simply the conviction of this truth ; and of that conviction we can bring forward nothing likely to produce a more deep and abiding impression than some of the histories recorded in the preceding pages.

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