

SELF EDUCATION:

OR THE

PHILOSOPHY

OF

MENTAL IMPROVEMENT.

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BY WILLIAM HOSMER.  
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## P R E F A C E .

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Much has been written on education, and much that is of great value ; but in this, as in other departments of literature, there is yet room for improvement. No great improvement, however, can be expected while our views continue to be drawn from the school room rather than from the philosophy of the human mind. Modes of teaching may be better or worse without materially affecting the general question of intellectual capacity, or in any degree adjusting the matter of instruction to the actual wants of that capacity. For want of greater care in this particular, the course of education, at the present day, wears an aspect of obscurity truly painful to one who believes the mind of man to be still capable of excelling in original achievements. Excessive veneration for the past cuts off all hope for the future.

Though we have many works on education, it must not be understood that we have many on self-education. The subject has not been entirely overlooked, but it has seldom received the attention which it deserves. The schools have enjoyed a monopoly of public solicitude, and private education has laid neglected as a thing of no importance. What was within the reach of the unaided student few have enquired ; and he has been left to be something, or to be nothing, as chance might direct, for all agreed he could never be a scholar. Here, therefore, books are lamentably scarce. But little has been written on the subject, and that little not always in the manner best calculated to promote the ends in view. The best work, upon the whole, is that entitled "*The Pursuit of Knowledge under Difficulties*," and which was originally published in England by the "Society for the Diffusion of Useful Knowledge." The matter of these volumes is excellent enough, but it is mostly without arrangement, and without reference to those principles of mental philosophy which the examples adduced are so well adapted to illustrate. It is too near-

ly a collection of anecdotes to answer the purpose of a scientific treatise. Dr. Channing's little work on "*Self-Culture*," and the spirited review of it by Dr. Edwards, are both valuable as far as they go; the only possible objection which can be made to them is, that they are not larger. Since the last sheet of this work was printed, the author has met with a small volume on "*Self-Cultivation*," by Isaac Taylor, the well-known author of "*Natural History of Enthusiasm*." It bears marks of the writer's eminent talents, although for elegance of style and depth of thought it can hardly be compared with some of his later productions. Whatever may be the defects of these publications, it was from no wish to supersede any of them that the following work has been prepared; the principal motive was to supply a more comprehensive view of the subject.

This volume was nearly completed two years ago, but circumstances over which the Author had no control, prevented its appearance at that time. The opportunity thus afforded him to examine his positions more fully, has not been unimproved; and he now commits the work to the public with the hope that it may be found so far acceptable as not to induce a wish that its publication had been still longer delayed.

THE AUTHOR.

August, 1847.

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# SELF EDUCATION.

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## INTRODUCTION.

The primary object of this work is to offer some encouragement to those whose circumstances are such as to deprive them of the ordinary advantages for intellectual cultivation. Of this class are those young persons who have neither the time nor the money demanded by the usual course of education. It can not have escaped the observation of any one that our schools, however excellent, do not meet the wants of a large portion of society. These institutions can furnish only instruction; the means by which the student is to be supported come not within their purveyance. Now if education is to be had at school, and no where else, the persons to whom I allude can never be educated, because the necessary means are beyond their reach. It is useless to inform such individuals of advantages to be enjoyed under other circumstances; they are doomed to conflict with necessity, and it can only add to their mortification to be made the subjects of impertinent directions. That education is to be had at school, they very well know; that good books are to be preferred to poor ones, and that reading is to be conducted with dili-

gent attention, they are also aware; but all this has nothing to do with their case, as they can avail themselves neither of the one nor the other. It is of no use to give directions that can not be followed, and unless suggestions can be made which will remove the embarrassments connected with this class of youth, it is but justice to refrain from insulting their misfortunes by abortive advice. Youth of this description need and desire instruction; they feel the difficulties which press upon them and would gladly find relief. But few, however, are able to appreciate their situation or give them that assistance which the nature of their condition demands. Too often aspirations originating from such minds are discouraged as fruitless attempts against fate, and the daring individual is reminded of the seemingly impassable barriers in the way of his advancement; and then, finding himself overlooked by the popular system of instruction, he is but too apt to acquiesce in the fatal conviction that, with regard to him, education is impracticable. Believing that there is no necessity for yielding to difficulties of any kind, these pages will be devoted to the interests of unfriended youth, and will take up their hopes precisely where existing arrangements and mistaken advice would lay them down.

There is another class of persons equally large, and equally within the range of objects comprehended by this work; I mean those of maturer years, who are either settled in life, or engaged in business under such circumstances as measurably to exclude them from literary advantages. Most conditions of active life allow comparatively little time for literary and intellectual cultivation; and if a person commences business with limited attainments in literature, he is almost sure to end with less. Yet this melancholy result is not invariable. Some of the most distinguished names in the annals of science were men who ac-



quired their learning amid the uninterrupted toils of a laborious trade or profession. It is believed that what has thus been done in a few instances, ought not to be attributed solely to superior powers. Much is unquestionably to be ascribed to the transcendent abilities of these men, but they themselves could never be made to impute their success to this cause. What seemed to others a mystery was to them plain; they knew the steps by which their eminence had been gained, and believed that others had only to make the same attempt to become alike distinguished. Modesty may, perhaps, have contributed something to this opinion, as merit is not allowed to assert its own claims; but abating all that is requisite on the ground of undervaluation, still we are obliged to conclude that they owed at least as much to the character of their efforts as to the extent of their abilities. Knowing the efficiency of a judicious method, it is not surprising that they forgot the peculiar advantages with which, in their own case, it had been pursued. We can not hope that all men will so far extricate themselves from the entanglements of a business life as to profit by any suggestions of this kind; the desire for improvement too frequently diminishes with the same pace that opportunities decrease. There are those, however, who feel more keenly as they advance, and the desires which actuated them but feebly in youth have become irrepressible in riper years. With these, the full importance of the subject was never felt until experience had confirmed the truth of early convictions and a change of circumstances assured them that the most favorable period for education had already passed. The loss of a single hour is to be regretted, and every additional hindrance is, in some sense, an evil, but it will be seen that facts authorize no discouragement, and the indomitable spirit need not acknowledge any insurmountable obstacle.

Independent of these considerations there are a variety of reasons for discussing more fully the laws of mental improvement. Were it ascertained that education is exclusively the gift of the schools, we yet require to be better informed on what principles it is imparted. This is demanded not less by the philosophy of mind than by a desire for that continued advancement which is rendered necessary by the circumstances of active life. Youth can not learn at school all that is requisite for practical purposes. Much they may acquire, but the stock of theoretical knowledge with which they enter upon the world must receive additions and corrections. They must continue to learn, and as they cannot always remain at school, it is essential that they should know whether further improvement is practicable or not. If not fully convinced of the affirmative of this question, they will think their education is completed and rest where others have done to the great disgrace of learning. It will be the object of these pages to supply hints that may be useful even to those who enjoy all the advantages afforded by the schools.

One purpose which we have in view is to impart a self-sustaining influence to the mind. More miss their way at all periods of life, and in all the varied pursuits of human existence, by mistaking their own capacity for action than from all other causes combined. The competency of mind for great undertakings is not always to be known but upon actual trial; however, in general, the individual has a strong conviction of ultimate success. This conviction is one of the most considerable motives to perseverance, and indeed was principally influential in first directing the mind towards the object which it is seeking to accomplish. We have most reason to apprehend a failure in any effort from the decay of this species of confidence. It is a strong motive power indispensable to every enterprise. While it can be

kept in vigorous exercise, there is but little danger of defeat; under its inspiration the person becomes unconquerable. Early life is perhaps more favorable to this kind of inspiration; yet it properly belongs to every period, and is, if I mistake not, the natural and necessary result of observation; it is an intuitive conviction, impracticable perhaps to others, but entirely within the grasp of its possessor. Failures have a tendency to diminish it, and on the other hand it is always increased by success.

Again, there is a certain loftiness of design to which practical efficiency is much indebted. Where the aim is too low, where great things have not even been attempted, much success must be a matter of chance. For this reason it is peculiarly desirable to elevate, and keep elevated, the standard of endeavor. Meagre attempts are justly rewarded with corresponding poverty of effects. To keep the mind resolutely engaged in proportion to its capacity, is not always practicable, at least in every case; there will be occasionally a falling off in the most resolute natures, but vigilance re-awakens the slumbering energies and shakes off every inferior purpose. Man should not supinely sit down and revolve the gloomy conception of inability; he ought to be thankful that there are difficulties enough to put his strength to the test—that there is an opportunity for him to develop those fine qualities which, in other ages, have given celebrity to mankind.

The great cause of education is onward, and it is well for society that this affirmation can be made in truth. But with its advancement must come new aspects. Changes, many of them fundamental, have already occurred, and others are in a course of development. Others may be alarmed at exhibitions of this kind, but the writer is not; he views these different phases as inseparable from real progress. Were the advancement only imaginary, unifor-

mity might possibly be maintained. It is otherwise, however, when actual improvements take place; these must always be new to us, and attended with that sort of dislike which we bear to objects seemingly unnecessary. But this essay is not intended to subserve merely theoretical purposes; it has no interest in any system as such, nor will it aim at more than aiding somewhat the great object of the schools—mental improvement. This done, and the writer has nothing more to ask; but he can not believe that existing arrangements are such as to secure all that is practicable; they may avail under certain circumstances, but there are those, and many of them too, whose interests are untouched by the ordinary course of things. For these other arrangements ought to be made that the culture of mind may not be limited to classes of men who accidentally can command a given amount of money.

These observations render it unnecessary for me to say that this work is not designed as an attack upon the prevailing system of education. None can more sincerely recommend to youth an early and prolonged enjoyment of the advantages afforded by our schools than the writer; none can more truly wish that these advantages were universally available. But this it is well known, they are not and can not be. A great revolution must occur in society—a greater than has ever yet been known—before even the lowest grade of literary institutions can become accessible to all. Something more is demanded than free tuition; books, clothing, board, direction, and exemption from the restraints of parental authority, wherever that authority is averse to such pursuits, are equally requisite. Now if such difficulties are to be encountered in finding access to subordinate institutions, there are certainly much greater ones to be met when our attention is directed to institutions of a higher grade. Schools of this

class are not only less frequent and less economical, but they offer their assistance at so late a period that the youthful mind is in great danger of being pre-occupied. Before the pre-requisites of academical education can be secured, many are drawn into the vortex of active life, and lost to all the advantages of knowledge. We have then only to make the best of that necessity which hitherto has proved unavoidable, and give such directions to youth as their embarrassed condition requires, and the known ability of the human mind will justify.

In doing this the cause of self-education is incidentally brought into contrast with what is usually considered the regular method of improvement. Nothing could be farther from the object in view than to disparage the present approved system of instruction. Such a contrast is demanded merely as a test of relative efficiency. The two methods could not otherwise be compared, or more properly, the relative value of each could not otherwise be ascertained. Much less is it intended to enter upon a defense of self-education. It is its own defense. Not unfrequently the self-educated man has been frowned upon as though not entitled to rank among the learned; his attainments have been viewed with suspicion, and any trifling offense has subjected him to the condition of a literary outlaw. For this evil, cruel and foolish as it unquestionably is, the natural remedy lies in the character of those who suffer. If these aspersions can be shown to be unfounded, if the attainments thus contemptuously treated are such as ought to be respected, it is not in the power of the republic of letters—whatever we may understand by that famous, but rather attenuated government—to deprive him of his just honors. Self-educated men must claim nothing more than they can command. Prescription is against them, but this shall not impair their energies nor circumscribe their efforts.

Stopping then neither to oppose the prevalent system of education nor to defend that which accomplishes its purpose without the aid of the schools, I shall endeavor to pursue higher objects, such as are worthy of the mind of man, and relate less to his incipient training than to his native capacity. A regular course of instruction—understanding these terms in the popular sense—is wholly useless except as a pre-requisite to future action. It is this future scene of action that ought chiefly to be considered in every attempt at intellectual cultivation. That education must be best which renders the mind most efficient for the objects of its being. Scholastic attainments derive their consequence from a supposed subserviency to this purpose; they qualify the intellect for its subsequent career. Early education is only an introductory process, and its value is to be tested by the success which it confers in the more appropriate and more extended field of mental exertion. Here where knowledge is applied, where achievement reaches its acme, and where effort ceases only with life, it is chiefly important to be influenced by correct views. Our novitiate is too short to be decisive, and the burden of responsibility is thrown forward to future years. We are therefore not so much concerned with what the mind can do in a short period of its early career, as with the aggregate of its toils in the lengthened space of after life.

## CHAPTER I

### **Preliminary Observations on the Constitution of the Human Mind.**

Every system of education must depend for its success upon a strict conformity to the laws of mind. Peculiar circumstances might give temporary efficiency to a system wanting in philosophical adaptation, but the subsequent and general result would justly forfeit public confidence. From the limits, however, which must be assigned to this chapter, I shall aim rather to lay down principles than to discuss them. Questions relating to the essence of mind and to the classification of its faculties are omitted because they have no immediate connection with the object of this work. Such speculations belong inalienably to the province of the metaphysician, and from their great abstruseness are incapable of throwing much light upon the process of education. But there are features of the mental constitution, of a more practical character, and which are not only better understood, but acknowledged as the source of its competency. These constitute the reliable power of the mind in all its great undertakings, rendering it always confident and often irresistible.

1. The operations of the intellect are characterized by uniformity of manner. By this I mean that what the intellect does, it does in one way, although the result of its action is not always the same; it reasons, remembers, perceives, imagines, and performs every other act of which we know it to be capable, in the same inscrutable manner,

and apparently without any plurality of organic powers. In fact, all acts of the mind are only modifications of thought, and in affirming that these acts are characterized by a certain uniformity, we merely assert that, in this respect, the process of thinking is subject to no perceptible variation. This uniformity in the practical operations of the mind shows that its various faculties have been constituted with similar perfection; that its powers are equally endowments from the Creator, and independent of contingent circumstances. If only a part of our intellectual faculties had an inherent competency, we should be disqualified for our present existence; for there is not a day nor scarcely an hour of active life in which the perfect use of all these powers is not indispensable. Because they are thus equally necessary, they have been constituted equally perfect, and placed with the other instinctive powers of human nature, beyond the reach of any considerable organic improvement, and wholly independent of cultivation. The attributes of the mind, like the members of the body, derive their perfection simultaneously with their existence from the creating hand. From their conservative tendency they have been made constituent parts of our being; and so far from being dependent upon education are they, that education is wholly dependent upon them. The idiot is incapable of mental culture, and every degree of imperfection in the intellectual faculties is attended with its proportionate incapacity for education. The uniformity of manner which we ascribe to the functions of the intelligent principle has too often been overlooked by metaphysicians, and they have involved themselves in numberless errors by attempting what in its nature is impracticable—an exposition of the secret springs of mental action. Not satisfied with knowing that the mind is endowed by nature with a capacity for certain acts, they have aimed to detect and



bring to light its occult methods, and thereby strip its acquisitions of all mystery. Such subjects were once deemed legitimate objects for philosophical inquiry, and under the influence of this conviction the most eminent men freely entered the lists of fruitless speculation. Accordingly we find Locke maintaining that a part of our knowledge is by intuition, and a part by demonstration\*; yet consistency obliged him virtually to set aside this distinction by admitting that demonstration is the result of a series of intuitive perceptions. But we are indebted to his indignation against the scholastic logic for a still stronger statement in which he ranks reason as an intuitive faculty, and affirms that men have no need of rules to teach them an art with which they are already acquainted. "God has not been so sparing to men as to make them barely two-legged creatures, and left it to Aristotle to make them rational. He has given them a mind that can reason without being instructed in methods of syllogising: the understanding is not taught to reason by these rules; it has a native faculty to perceive the coherence of its ideas, and can range them right without any such perplexing repetitions."†— This passage sufficiently refutes that part of his theory which, by restricting intuition to a few incipient acts of the mind, makes ratiocination a mere mechanical process. That the mind is dependent upon reason or the discursive faculty, for much of its knowledge, is beyond dispute; this, however, does not alter the case, for the operations of reason are as clearly intuitive as those of simple perception. The intellect in advancing from the intuitions of sense to the processes of reason, does not lay aside its original mode of acquisition in favor of one more intelligible to us; it acts always in the same manner, whatever may be the re-

\* *Essay on the Understanding*, Book 4, Ch. xvii., Sec. 14.

† *Book 4, Ch. xvii., Sec. 4.*

sult of its action, like the eye which has only one method of seeing, though there is an infinite variety in the objects of vision. These observations acquire great force if we regard the human mind, not as a collection of independent faculties, but as a rational agent capable of diversified action. Mental phenomena are then traceable to a common cause, and must necessarily be alike incomprehensible.

2. The operations of the mind are intuitive. Intuition implies the spontaneous exercise of natural powers. We think as naturally, and I may add, as necessarily as we breathe, and the mind no more learns to think than the body learns to respire. Hence, whatever modification of thought may be put forth, whether it be memory or imagination, perception or reason, it is the effect of unoriginated capacity, and involved in the constitution of an intelligent nature. Some metaphysicians have very carelessly ranked intuition as a distinct faculty of the mind, whereas it is in no sense a faculty, but merely denotes the manner of all the faculties.\* Of this process we know nothing except its occasional dependence upon certain physical conditions, as, for instance, in perception, where the mind is mechanically assisted by the organs of vision. But as we can not perceive how the mind operates upon these instrumentalities, nor comprehend any of its essential powers, we are forced to admit that it acts by intuition—that is, in a way which we do not understand, but which requires neither previous time nor previous preparation.

3. It is further to be observed, that these acts of the mind are naturally perfect. In this respect the strictly intellectual faculties bear a striking analogy to the corporeal

\* “From feeling arise the activities of the mind in the following order: intuition, conception, recollection, imagination, memory, thought.”—Biblical Repository, Jan., 1845, (Stowe’s Teutonic Metaphysics.) This is given as Kant’s doctrine on the subject.

senses, and to the involuntary functions of the physical system generally, none of which become more perfect by the lapse of time or admit of essential improvement by means of cultivation. The eye is as perfect, the precision of instinct as great, and the self-regulated movements of animal mechanism as harmonious and efficient, in infancy as in manhood. And so far as the operations of intellect can be traced at that feeble period, they indicate the same measure of innate and constitutional perfection. "I am aware," says Dr. Brown, "that the application to an infant, of a process of reasoning, expressed in grave and formal philosophic nomenclature, has some chance of appearing ridiculous. But the reasoning itself is very different from the terms employed to express it, and is truly as simple and natural as the terms, which our language obliges us to employ in expressing it, are abstract and artificial. The infant, however, in his feeling of similarity of antecedents and consequents, and of the necessity, therefore, of a new antecedent, where the consequent is different, has the reasoning, but not the terms. He does not form the proposition as universal, and applicable to cases that have not yet existed: but he feels it in every particular case as it occurs. That he does truly reason, with at least as much subtlety as is involved in the process now supposed, can not be doubted by those who attend to the manifest results of his little inductions, in those acquisitions of knowledge which show themselves in his actions, and, I may say, almost in the very looks of the little reasoner,—at a period long before that to which his own remembrance is afterwards to extend, when, in the maturer progress of his intellectual powers, the darkness of eternity will meet his eye alike, whether he attempt to gaze on the past, or on the future; and the wish to know the events with which he is afterwards to be occupied and interested, will not be

more unavailing than the wish to retrace events that were the occupation and interest of the most important years of his existence." "Even then, many a process of ratiocination is going on which might have served as an example of *strict logic* to Aristotle himself, and which affords results far more valuable to the individual reasoner than all the contents of all the folios of the crowd of that great logician's scholastic commentators."\*

Not only are the faculties of the infant mind perfect, but they possess all the peculiarities which are to distinguish them in subsequent life. A remark to this effect occurs in one of Dr. Johnson's biographical pieces. "That the strength of Sydenham's understanding, the accuracy of his discernment, and ardor of his curiosity, might have been remarked from his infancy by a diligent observer, there is no reason to doubt. For there is no instance of any man whose history has been minutely related, that did not in every part of life discover the same proportion of intellectual vigor."† If we allow that the acts of the mind are intuitive, their perfection follows as a necessary consequence, because intuition places them beyond the reach of cultivation. They are the result of a process independent of human sagacity or control, and originate in this manner, that man might under all circumstances be competent to act the part of a rational creature. But for this precaution of nature, rationality would have been a contingent blessing, confined entirely to the precincts of education.

4. Mind acts necessarily, but is capable of voluntary direction. Locke observes that, "our knowledge, as in

\* *Philosophy of the Human Mind*, by Thomas Brown, M. D., Vol. 1. Lec. 23. The process here alluded to is that by which an infant acquires its first knowledge of tangible qualities.

† *Life of Sydenham*.

other things, so in this, has a great conformity with our sight, that it is neither wholly necessary, nor wholly voluntary."\* Action appears to be as natural and as indispensable to the intellectual as to the material part of the human system. Whether the intelligent principle ever intermits its activity, is another question, and one, which, however it may be decided, can not determine the mode of its operation in our conscious moments. The eye sees in all ordinary cases, by constitutional necessity, and yet its action may be suspended either by sleep or the will of the individual. It is not optional then, with the intellect, whether it thinks or not, nor is it altogether able to determine the objects about which its constant activities shall be employed. That it has the power of self-direction, to some extent, is certain, although its course is liable to a thousand interruptions. It is however to this capacity for voluntary direction that the mind is chiefly indebted for its scientific acquisitions. Still its method is unchanged, and the knowledge which is acquired by voluntary application is gained in the same manner as that which is forced upon us by nature. All the facts which are requisite for man to know do not naturally present themselves to his observation, and he has the power therefore of bringing art and industry to increase the stock of his knowledge. But as the eye has only one method of vision for all objects, whether natural or artificial, so the intellect scans the creations of its own industry and the spontaneous productions of providence, with the same intuitive glance. Some things we must know, others we may know, but contingency neither precludes intuition nor enables us to dispense with it. The various sciences are so many instances of truth elaborated by a voluntary application of

\* Book 4. Chap. 13. Sec. 1.

intuitive powers. Human nature is therefore invested with faculties which, if they do not admit of material improvement, are nevertheless capable of useful direction.

5. Our intellectual faculties are so constituted that the improvement of which they are susceptible, consists chiefly in the acquisition of knowledge, and not in the increase of organic power. The common impression on this subject seems to be that the mental faculties exist only in an incipient state, or as bare susceptibilities. We are accustomed therefore to look upon these powers as germs which must be expanded in order to form an intellectual character. It is considered the appropriate work of education to bring them to maturity by actual expansion. The following remarks of Dr. Reid contain a fair expression of the popular view of this subject. "Of the various powers and faculties we possess, there are some which nature seems both to have planted and reared, so as to have left nothing to human industry. Such are the powers which we have in common with the brutes, and which are necessary to the preservation of the individual, or the continuance of the kind. There are other powers, of which nature hath only planted the seeds in our minds, but hath left the rearing of them to human culture. It is by the proper culture of these that we are capable of all those improvements in intellectuals, in taste, and in morals, which exalt and dignify human nature; while on the other hand, the neglect or perversion of them makes its degeneracy and corruption."\* I am well persuaded that the sentiment here exhibited is erroneous, and that the human intellect is capable of no such advancement as it supposes. People have seen that the mind is capable of improvement, and have carelessly imputed to an acquired perfection of its

\* *Inquiry into the Human Mind*, Chap. 1, Sec. 2.

faculties, what can only be properly ascribed to a judicious use of those faculties. Improvement is something very different from an augmentation of constitutional ability; the former may be effected by industry, the latter must be the result of creative energy; the one requires only the proper use of our powers as they now are,—the other demands their re-construction on a larger scale. But in no department of nature is organic development entrusted to human supervision. Providence has made arrangements for the complete endowment of its creatures without the need of their concurrence. The seeds have not been planted to await the culturing hand of man; whatever exists in our nature in a rudimental state is attended by influences that ensure its spontaneous development and maturity in due time for every practical purpose. It is however from facts connected with the history of the mind that this notion derives its effectual refutation. Education has never been known to add any thing to the intrinsic ability of the human intellect. In every age of the world uneducated mind has proved itself equal to the highest efforts of genius; and when brought into comparison with the most approved specimens of cultured intellect, the latter is found to have acquired nothing essential by the process through which it has passed. In this respect knowledge is like wealth—it adds nothing to the talents of its possessor; a man may amass property, but his physical and intellectual faculties will remain the same as before. Were it the case that our minds could be thus expanded, the results of education would be greatly modified, and every weak understanding would find a sovereign remedy in the invigorating power of science. Such a pleasing consequence of industry might be gratifying, but has never yet occurred, and never can, until the laws of nature are changed. Man now brings to the study

of truth, powers which gain nothing by his researches, or at least nothing more than the eye gains by seeing, or the body by exercise. Their first and their last exhibitions are equal. No great character that has appeared in any department of human enterprise, has ever been less acute or less efficient in his first than in his subsequent efforts. Sir Isaac Newton made his two most important discoveries, Fluxions and Gravitation, before his twenty-fifth year. A long life, with all the advantages of constant study, did not enable him to display greater skill in scientific researches. Had his faculties been capable of such an expansion as is commonly supposed, the latter period of his life must have been marked by a corresponding brilliancy over the earlier part of his intellectual career. Another objection to this view of the subject is, that an increase of organic power is wholly unnecessary. We do not need a development of new powers, but simply an application of those which we already possess. The mind has unemployed strength sufficient for all its wants. It is now competent to know every useful truth, and any addition to its ability would be as superfluous as it is impracticable.

Now although the idea of eliciting the powers of the mind, and thereby giving them a perfection not otherwise attainable, and which they did not previously possess, is obviously unphilosophical, as well as contradictory of facts, yet it remains an established truth that intellectual improvement is both practicable and necessary. While the acquisition of knowledge has no organic effect, it still subserves all the important uses for which it was intended. Knowledge is a species of treasure accumulated to be applied as the wants of life require. It is a power which the mind has learned to employ for its own advantage. Mechanical powers add nothing to the strength of man, and yet by their means he is able to accomplish undertak-



ings inconceivably beyond his unaided capacity. In like manner art and science contribute nothing to the mind, though through their instrumentality it can effect the most gigantic achievements. We behold Archimedes baffling the power of armies, Columbus terrifying the inhabitants of the West India Islands into submission, and La Place quieting the fears of mankind as to the "wreck of matter and the crush of worlds" from orbicular derangement; but in neither instance did these great men rely upon their unaided faculties, or wield any other power than that which science supplies to every diligent student. By nearly all that civilization exceeds a savage state, are we indebted to the transforming influence of science—an influence not restricted to superior abilities, but as universally available as any thing can be which depends upon the industrious application of common-sense. The savage has powers abundantly sufficient if he would apply them; the attributes of his mind need only a proper direction to make him the peer of civilized man. His faculties need no improvement but that which is derived from the possession of knowledge, nor does his condition require any but that which arises from the use of his faculties.

It is said that the Indians, when they first saw letters used to convey information, supposed that the paper spoke; and a similar want of philosophical observation has led to the very general opinion that the mind is itself literally expanded by the acquisition of knowledge—that it is cultivated, in short, much as we would cultivate a plant, and undergoes a similar enlargement. From its increased power, it is supposed that this must be the effect. But this kind of analogy is inadmissible when applied to things so very different in their natures. I do not mean their essences, for in that respect we know nothing of either, but simply the laws which govern them as organized, or, at

least, as independent existences. And if it be true that the mind acquires its growth by degrees like the body, it would even then develop itself spontaneously in the same manner as the physical system now does. We have seen, however, that human nature is endowed with certain instincts and involuntary movements as perfect at first as they ever can be in the present state of being, and it is to this category that the intelligent principle belongs. The attempt, therefore, to cultivate in the sense of organic expansion would be as absurd as to aim at promoting the growth of the body after it had arrived at maturity. Besides, such analogies overlook the character of knowledge; its immense power is thrown into the shade by this fancied modification of mind. Education imparts a knowledge of facts which enable their possessor to do what to the uninitiated seems entirely superhuman. Hence very naturally arose the story that the first printer was a magician. A mind thus furnished with knowledge, by means of which it can apply itself with such extensive and surprising effect, may be considered improved in the only sense in which that term is applicable to its nature.

This subject appears not to have attracted the notice of metaphysicians; and the only authority which I am able to adduce from any source in support of the position here assumed, is the following. "Self-knowledge, indeed, does not enlarge or increase our natural capacities, but it guides and regulates them; leads us to the right use and application of them, and removes a great many things which obstruct their due exercise; as pride, prejudice, and passion, &c., which oftentimes so miserably pervert the rational powers."\*

\* Mason on Self-knowledge, Part 2, Chap. 6. Although this is affirmed of only one kind of knowledge, the author evidently designed it as a general proposition.

6 The acquisitions of the mind depend upon its own exertions. It has been shown that talents cannot be originated; that the intellectual powers do not derive their capacity for improvement from a process of cultivation; that external means only facilitate acquisition by enabling the student to employ his powers to greater advantage; and, that mental cultivation involves no other responsibility or benefit than simply furnishing materials which the mind may employ in its future operations. It has also been shown that the mind admits of voluntary application over and above all its necessary acts. The object now is to show that knowledge is the result of exercise. I shall not inquire how the first idea makes its way into the mind, nor whether such idea is innate or not; such an inquiry appears to me both useless and absurd. We might as well inquire when the first sound fell upon the ear, or the first pulsation dilated the heart. Mind began to think when it began to exist, and its thoughts, which we term ideas, can be traced to no origin but the instinctive activity of its own nature. Man thinks because he is made a rational creature, and he will continue to think while this attribute of his constitution remains, however assisted by the suggestions of sense, or embarrassed by the want of innate ability. Rejecting speculations of this kind as too intricate to be successful, and too profitless to deserve attention, we fix upon the far more important question which relates to its subsequent advancement. It is not necessary to remark here by what modification of thought, knowledge is most likely to be gained, as that subject must necessarily come up in an other part of this work. Aside from that knowledge which is inseparable from a rational being, there are vast collections of scientific truth to which the mind has only a contingent relation; they are not among its necessary, but its possible attainments. That the contin-

gency involved in these acquisitions is nothing but mental exercise, is a proposition almost too plain for argument, and yet it has been overlooked in practice and in theory, until many imagine that knowledge is acquired by some mysterious and unassignable process over which industry has no control. The difference in the attainments of different individuals may, in part, be ascribed to a diversity of intellectual endowments, and, in some degree, likewise, to the character of their opportunities; but the prevailing circumstance by which the knowledge of each is determined will be found to consist in the extent and judiciousness of personal application. Genius and facilities ensure an easier performance; and in this case the labor of acquisition is abridged but without the least variation of manner. What one accomplishes may be wholly beyond the reach of another, although he pursues the same course of intellectual accumulation, and would have arrived, under other circumstances, at equal knowledge in equal time. But genius and mediocrity are thus reduced to a common level; they are equally thrown upon industry for success, and made to rely, like the ancient *athletæ*, upon the vigorous use of their own powers. The history of the human mind is remarkably uniform in this particular. We have not a single instance where science has not demanded labor of those who attained it, however strong may have been their predispositions, or brilliant their endowments. In this respect there is no difference between the mind and the body, the law of acquisition being the same to both, and neither having any clandestine methods of effecting its object. No position will make us rich, independent of economy and industry, nor can the mind acquire truth aside from that constant and careful toil so invariably requisite to the successful pursuit of wealth.

Forgetful of these obvious facts, and impatient of the

slow process by which we are conscious our own improvement has been made, we are led to impute the extraordinary attainments of genius to chance, or to some mysterious and unknown law of mental acquisition. Rather than admit its accelerated progress over the same ground, we choose to conceive of it as having arrived at its position in some other way and by some supernatural means. This is to imagine a miracle where nothing was wanting but industry. Such as have been able to retrace their steps from the highest eminences of science, and describe to us the method of their ascent, have uniformly said with Newton, that if they had accomplished any thing peculiar it must be ascribed solely to diligence.

7. The acts of the mind are uniform in manner and perfect in nature, but greatly diversified in the character of their objects. From this variety of direction, there naturally arise the various descriptions of mental character to which we give the name of genius, and which are generally supposed to imply some constitutional superiority. Intellectual parity finds few advocates, though there are sufficient reasons for believing that all minds are endowed by nature with about the same degree of strength. This conclusion is justified by the actual attainments of every rational individual. Here I must again refer to Dr. Brown, who never, in his searching analysis, loses sight of man's original capacities. "If all human science were to be divided, as Rousseau says, into two portions, the one comprehending what is common to all mankind, and the other only that stock of truths which is peculiar to the wise and learned, he can scarcely be regarded as delivering a very extravagant paradox, in asserting that this latter portion, which is the subject of so much pride, would seem very trifling in comparison of the other. But of this greater portion, we do not think, as he truly says, partly

because the knowledge which it comprehends is acquired so very early, that we scarcely remember the acquisition of it, and still more, perhaps, because since knowledge becomes remarkable only by its differences, the elements that are common in all, like the common quantities in algebraic equations, are counted as nothing.

If we know nothing more of the mind of man, than its capacity of becoming acquainted with the powers of so vast and so complicated an instrument as that of speech, and of acquiring this knowledge in circumstances the most unfavorable to the acquisition, without any of the aids which lessen so greatly our labor in acquiring any other language far less perfectly in after life; and amid the continual distractions of pains and pleasures, that seem to render any fixed effort absolutely impossible. We might, indeed, find cause to wonder at a capacity so admirable. But when we think of all the other knowledge which is acquired at the same time, even by this mind, which we have selected as one of the humblest,—what observations of phenomena, what inductions, what reasonings downward, from the results of general observation to particular cases that are analagous, must have occurred, and been formed, almost unconsciously, into a system of physics, of which the reasoner himself perhaps, does not think as a system, but on which he founds his practical conclusions, exactly in the same way as the philosopher applies his general principles to the complicated contrivances of mechanics, or the different arts. When we think of all this, and know that all this, or at least a great part of all this, must have been done, before it could be safe for the little reasoner to be trusted, for a single moment, at the slightest distance from the parental eye, how astonishing does the whole process appear; and if we had not opportunities of observation, and in some measure, too, the con-

sciousness of our own memory, in our later acquisitions to tell us how all this has been done, what a variety of means must we conceive nature to have employed, for producing so rapidly and so efficaciously, this astonishing result!"\*

The acquisitions which are thus unconsciously made by every ordinary understanding, are no less remarkable for their character than for their extent, as they comprehend facts of every order, from the highest to the lowest that can be addressed to the human mind. No greater intellectual power is requisite than has already been exercised by every individual, for there are no harder tasks than have already been performed. But, notwithstanding, while under the tuition of nature, all minds seem to possess equal ability, we find when left to themselves a marked disparity—or what appears to many as a disparity. Genius is regarded as indicating superiority of mind, rather than peculiarity of direction. It would be idle to deny that some minds have a peculiar aptitude for particular acquisitions, but it is no less absurd to suppose that such minds are correspondingly great in all other departments of intellectual effort. This aptitude is by no means the result of any uncommon endowment; for the fact that every mind has sufficient capacity while its education is directed solely by nature, shows that the difference in question can not be ascribed to a want of constitutional ability. Even the weakest mind actually learns enough to demonstrate its capacity for the highest attainments. For this reason some have denied the existence of genius, and affirmed it to be a relic of heathen superstition. True, we are indebted to paganism for the term, but like many others which we have borrowed from the same source, it no longer retains its original meaning. If genius once signified a good or

\* *Philosophy of the Human Mind*, Vol. 2, p. 170.

evil spirit set over each person to direct his life, it now signifies only "that aptitude which a man naturally possesses to perform well and easily that which others can do but indifferently, and with a great deal of pain." Taken in this sense, the word is as well authorized as any which can be applied to the mind. The difference thus seen and acknowledged, may be accounted for without the aid of organic inferiority or fabulous genii. It is a difference amounting only to variety—or, in other words, the difference is not one of proportion, but of kind. Equal powers are directed to various-objects. This is obvious not only from the well-known fact that every person has a genius for something, but also from the still more irresistible truth that men of genius have no universal ability. It is in but one or a few things that they excel others; in every thing else they sink to the common level. How this diversity of direction occurs, we are not able, in every instance to say, nor is it necessary. Every reader must see that numerous causes combine their influence here, and it will often be difficult to determine how far individual habits, or hereditary predispositions, or casual circumstances, may have contributed to these peculiarities. This view of genius is sanctioned by Dr. Johnson, in a passage which occurs in his life of Cowley; only it must be remarked that he makes these determining causes consist wholly of accidental occurrences, whereas we think they are much more extensive, including constitutional and hereditary peculiarities, not less than external circumstances. "In the window of his mother's apartment lay Spenser's Fairy Queen, in which he very early took delight to read, till, by feeling the charms of verse, he became, as he relates, irrecoverably a poet. Such are the accidents which, sometimes remembered, and perhaps sometimes forgotten, produce that particular designation of mind, and propensity for some



certain science or employment, which is commonly called genius. The true genius is a mind of large general powers, accidentally determined to some particular direction. Sir Joshua Reynolds, the great painter of the present age, had the first fondness for his art excited by the perusal of Richardson's Treatise."

Some authors, among whom is Dr. Good, have made genius a distinct faculty of the mind. "Genius is that faculty which calls forth and combines ideas with great rapidity and vivacity, and with an intuitive perception of their congruity or incongruity."\* But this distinction is unnecessary, and partakes too much of the antiquated notion of a tutelary divinity. We have seen that all persons, while under the tuition of nature, learn with equal rapidity, and hence, notwithstanding the differences discoverable in adult life, we conclude that all possess about the same amount of intellectual power, but variously modified. Taking this view of the subject we can not regard genius as a separate faculty, because it denotes only an increased activity of all the faculties whenever directed to some particular object. Genius, then, implies no peculiar or extraordinary powers, nor any distinct faculty of the mind, but simply some peculiarity of direction by which the intellect is enabled to exert itself more successfully in a given pursuit.

\* Book of Nature, 3 Series, Lec. 15.

## CHAPTER II.

### Education.

The supremacy of human nature is one of mind. Man with no more knowledge than a brute would be as powerless. His constitution as a rational being, gives him an inevitable superiority over the lower orders of animal existence; but he is also capable of diversified and extensive attainments which can only result from a voluntary application of his faculties. This application and its results we are accustomed to denominate education. The term is derived from a Latin word *educō*, which signifies "to nourish," "to bring up," "to draw out," "to teach or instruct." These definitions obviously include the twofold idea of organic development and scientific acquisition. But it is one thing to determine the etymological import of a word, and another to fix precisely the character of the facts of which it is made the representative; for it is well known that words are not always used with strict regard to their original meaning, nor applied alone to things which are clearly understood. In the present instance there can be no dispute as to the different meanings which the original word will bear, but it may well be questioned whether these are all equally applicable to the subject of mental improvement. Education is generally understood to aim no less at invigorating the intellectual faculties, than at imparting useful knowledge; both objects are considered legitimate, if not necessary results of the process. But if these faculties neither need nor admit of any direct

cultivation, as I have stated in the previous chapter, it follows that the prevalent opinion is unfounded and ought to give place to a more philosophical estimate of the human intellect. The notion of organic improvement carries with it a discouraging tendency inasmuch as it represents the mind to be nothing, or next to nothing, until it has been expanded and strengthened by education—an idea more absurd than would be the supposition that we had no eyes until they were elicited and brought to maturity by the action of light and the process of vision. In the latter case our eyes would still be provided for by an arrangement of nature, though somewhat delayed; but in the former case, mind, overlooked by providence, becomes solely the creature of education—that is to say the noblest attribute of man is not original, but acquired. It is remarkable that the prevailing system of education affords no countenance to this absurdity. Every science taught in our schools, has been introduced for the ostensible reason that it relates to useful facts. No object is formally pursued but the acquisition of science. Accordingly the progress of the student is usually facilitated regardless of the effect which his attainments may have upon his mind; he studies to know things, and knowing them, nothing more either is or ought to be required. Some sciences, it is true, have been thought to exert a more powerful influence than others in disciplining the mind; but this discipline is never formally attempted because the practical philosophy of mankind repels their speculative errors. The difference of effect is owing to the nature of the several truths themselves, or to the method in which they are acquired, and not to any organic power which they are able to impart to the mind. Perhaps no class of men ever studied more profoundly than the ancient schoolmen; and yet the trifling character of their inquiries rendered

them powerless in their own and ridiculous in every succeeding age. Had their minds been wisely directed, had the facts about which they employed such endless industry, possessed any real importance, the Reformation might have dated back three centuries, and names now little less than infamous have shown resplendent in the annals of science. Truth is powerful because it enables the mind to do what ignorance had made impossible. What we impute to discipline belongs only to knowledge; it is the same intellect acting with greater advantages—the same agent employed under more favorable circumstances. The mode of studying some sciences—a mode rendered necessary by their abstract nature, doubtless requires greater attention as well as more careful observation, and thus by employing the mind more fully, adds corresponding advantage, without any increase of essential power.

I am obliged, therefore, to conclude that knowledge is the principal object of education. Science is to be cultivated, and not the mind. In the invention and acquisition of science, there is an ample field for the best abilities of human nature, and a field where each is competent to act without the aid of previous preparation. He who is furnished with knowledge acquired by his own industry, is to be considered as educated, and his education is valuable or worthless just in proportion to the character of the facts which he has learned. Mere assistance does not vary the case; science may be improved and the labor of acquisition abridged; but the nature of the practical effort, and of its attendant effects, is unchanged. The manner, as well as the matter of our scientific pursuits must be estimated solely by its tendency to enrich the mind with useful knowledge.

Education includes the means no less than the end—the application of the mind no less than the knowledge by

which it is sure to be rewarded. As in all other instances, so in this, we find a constant connection between cause and effect. The common theory which ascribes our attainments, in part, to an increased constitutional ability, does indeed assign a cause, but one that is wholly imaginary. In the true spirit of conjectural philosophy, it overlooks the real and simple cause to fix upon one more imposing in a fiction of its own creation. Mental activity is an invariable condition of knowledge. Mind must think in order to know, and probably must know whenever it thinks. Thus a process of thought becomes an indispensable part of education, and the mind by a voluntary observation of truth, is seen to collect those treasures of science so essential to its dignity and usefulness. Diligence here often displays itself in favor of mediocrity of talents, while genius, regardless of the law of improvement, and unconscious of its relative superiority, or vainly relying upon its powers, falls behind through idleness. We must not, however, suppose that education is intended to teach the mind how to think. Such assistance must be superfluous, as nature furnished the requisite skill for every intellectual process, when it formed the mind a cogitative being. Then the power of thought was placed beyond the reach of contingency, and to education was assigned the humbler office of directing, in some measure, the application of our faculties.

From these observations it is evident that education begins with the first and ends only with the last attempt to learn. But we usually employ the term to express those acquisitions of knowledge which are the result of a more special application of the intellectual powers. Such efforts are made at school, and hence we properly speak of acquiring education at places of this kind; not that we can acquire it no where else, for that would be to suppose

either that we had no minds except at school, or that they were useless in every other place. An attempt to confine the use of the word to such acquisitions as are made at school, can only have the effect to destroy its meaning. With many education has now become altogether an ambiguous term in consequence of its being so frequently misapplied. According to present usage the dunce who passes a few years in some literary institution is considered educated; while the talented and faithful, but secluded student, may spend his whole life in intellectual pursuits, and yet die uneducated. Judged by this rule, such men as Franklin, Bunyan, Baxter and Shakspeare, had no education; they are believed to have been persons of great mind and great industry, but cannot be allowed a place among educated men. And the sapient critic, as he points to some defect in the character of these mighty dead, does not fail to suggest as an extenuating circumstance, their peculiar disadvantages in never having received an adequate education. Such distinctions, if not invidious, are extremely puerile; they offend no less against common sense than against common courtesy. This studied perversion will correct itself, as it can have no other effect than to dismiss the word altogether from among the important terms of our language, and leave it as the representative of those inferior considerations to which carelessness or caprice would evidently consign it.

From the same source and with only a trifling abatement of illiberality comes the use of the epithets, regular and irregular, as applied to education. How education can be otherwise than regular is incumbent upon them to show who persist in such a mode of speaking. Mental application may be unsteady, and the knowledge obtained may be deficient or worthless; but both the application and the knowledge—the labor and its proceeds, so far as

they extend, are inevitably as regular in this instance as in any other. There is an obvious impropriety in all such expressions because they assume that the ordinary course of education is the standard; thus making the sanction of the schools essential to knowledge, and destroying at once the independence and competence of our faculties. We are not disposed to call in question the excellence of the present system; it is only its exclusiveness that we oppose. The fact that science may be learned at school does by no means prove that it can not be learned elsewhere, and learned too with equal advantage.

If these remarks are true, the popular system of education, however excellent, must be in a great measure incidental; and such we have reason to believe it is considered to be by those who are best acquainted with it. It is but one among many possible systems of equal and perhaps superior excellence, though based upon the same practical principles. The acquisition of knowledge is the great object, and whatever conduces to this, whether it is literature or the want of literature, the presence or absence of any assignable advantage or disadvantage, is a means of education, and valuable just in proportion to its efficiency in accomplishing the desired result. All that the prevalent system of instruction can claim, is that it aids to some extent in this work; it pretends to no sovereign efficiency, nor can it boast of any triumph over constitutional impediments. Its aim is to be a servant of mind, and aid it in gathering the treasures of science by means of those faculties, which without some foreign assistance, are too apt to lie concealed even from their possessor and useless both to him and the world.

## CHAPTER III.

### Self Education.

We have shown in what education consists; but that particular form of it now under consideration, as the subject of this volume, requires still further notice. The common opinion seems to be that self-education is distinguished by nothing but the manner of its acquisition. It is thought to denote simply acquirements made without a teacher, or at all events without oral instruction—advantages always comprehended in the ordinary course of education. But this merely negative circumstance, however important, falls far short of giving a full view of the subject; it is only one of several particulars equally characteristic of self-education as contrasted with the popular system. Besides the absence of many, or of all the usual facilities for learning, there are at least three things peculiar to this enterprise, namely: the longer time required, the wider range of studies, and the higher character of its objects.

Our schools claim only a few years; they graduate students after a comparatively limited time, and never again exact lessons from them. It is not so with the Alma Mater of the self-educated; she claims life as the term of study and gives instruction to the last.

The course of study in our best literary institutions is far from including all that might profit the student. Reference is always had to the brevity of the period to which his acquisitions must be confined; and as a consequence



many branches of science, which under other circumstances would have had a place in the list of studies, are necessarily excluded. Self-education, by bringing into requisition the whole of our available time, provides for an enlargement of the course of study. Its plan is commensurate with human ability, and exceeds the popular standard by all that the mind is capable of acquiring beyond the tasks imposed upon it at school.

In the schools, as at present constituted, all acquisitions are confined to pre-established science. No effort is made to enlarge the boundaries of knowledge, nor is there any ambition to do more than fairly understand what others have written. This is an unavoidable trait of such institutions; it is impossible to infuse into them a spirit of invention and discovery without weakening too much that reverence for authority, on which their dignity depends. Schools are organized solely for the diffusion of knowledge, not for its improvement. Their highest object is to tread undeviatingly in the beaten path of science, without once entertaining those perplexing questions which address themselves to such as are engaged in original enquiries. But the limits of self-education are far from being thus restricted. In addition to cultivating an acquaintance with the attainments of former scholars, the student is expected to extend his researches to new departments of knowledge. The known and the unknown are equally legitimate objects of pursuit; they are both embraced in the same comprehensive design, and thus united constitute a task worthy of the intellectual faculties.

Now although all these co-ordinate points of distinction are necessary to a complete survey of this subject, yet we do not wish to be understood that the question is not one of much consequence, even when considered as involving nothing but the mode of attainment. Let the schools be

taken as the standard, and it becomes desirable to know whether the knowledge which they dispense can be obtained by other means. If it can not, then we are obliged to admit as a principal in mental philosophy, that the powers of the mind are measurably dependent upon these institutions. This being the case, those who are shut out from such advantages must of necessity acquiesce in an inferior scholarship. Considered in this light alone the question is one of more than ordinary interest. It is however only by advancing to the other peculiarities which have been mentioned, that we can perceive the true dignity of self-education. Its means, its plans, its objects, to be fully appreciated, must be compared with the more circumscribed scheme of popular education. Regarded in this connection it no longer appears doubtful and imperfect—a questionable substitute for scholastic facilities; but it assumes an elevation which the artificial system can at best but feebly approximate. It becomes the great method—the exclusive method of improving science; and it opens to the mind the only field sufficiently extensive for the exertion of its abilities. Certainly in this view, the correctness of which can not be disputed, we may justly say with a late writer, that “The subject is one of immense importance. If language contains one word that should be familiar—one subject we should wish to understand—one end on which we should be bent—one blessing we should resolve to make our own—that word, that subject, that end, that blessing should be in the broadest sense of the expression, *self-improvement*. This is alike the instinct of nature, the dictate of reason, the demand of religion. It is inwoven with all to which it is possible, either to aspire or to rise. It appeals to us as men—calls us to the highest and noblest end of man—reminding us that God’s image is upon us, and that as men we may be great in every possible position

of life. It tells us that the grandeur of our nature, if we will but improve it, turns to insignificance all outward distinctions; that our powers of knowing and feeling and loving—of perceiving the beautiful, the true, the right, the good—of knowing God, of acting on ourselves and on external nature, and on our fellow beings—that these are glorious prerogatives, and that in them all there is no assignable limit to our progress.”\* Such is self-education.

\* Rev. Tryon Edwards, American Bib. Repos., Jan. 1841.

## CHAPTER IV.

### **Practicability of Self Education.**

That self-education is practicable, must appear from various sources. So evident indeed is this fact, that the purpose of this chapter is illustration rather than argument. According to the view just exhibited, it assumes the character of a self-evident truth, and as such demands investigation but not proof. The following are the principal sources relied upon for supporting the position here taken.

1. The nature of education. Education is the effect of mental industry directed to the acquisition of science. Now we must admit that self-education is practicable, or deny that the mind is capable of thinking without the aid of a teacher.

2. Faculties of the mind. These are natural endowments, brought to perfection, like our physical powers, without the aid of human culture, and operating intuitively with unimprovable exactness. Such faculties place education within the reach of all, and make the customary facilities for learning, matters of mere convenience, which may safely be dispensed with whenever circumstances require. Powers of this instinctive and pre-existent character cannot consist with mental vassalage except upon the condition of voluntary acquiescence on the part of their possessor.

3. Condition under which all original scientific pursuits

are prosecuted. I speak not now of acquisitions made at school, for in these institutions neither students nor teachers often aim at originality. But there are other if not higher intellectual researches constantly developed upon the mind under circumstances which do not admit of the aids of supervision. Not to mention that we are ushered into a world where much of our success even in common affairs depends upon our own unaided powers of observation, it is obvious that every scientific improvement must be the effect of self-directed energy. That which is not known can not be taught; therefore if we have any thing new in science, it will be the result of original and independent efforts. Could all be satisfied with things as they now are, and yield themselves to one unvarying course of instruction, then the mind might always be guided by authority, and the schools would become the chief dispensers of knowledge. But this can not be. Science must advance beyond its present position, and every step of its progress will be the triumph of individual genius over the didactic art. Our schools do not originate science, and the different branches taught in them are contributions from the intellectual wealth of the solitary student. Instruction is confined to principles already established, and pupilage ceases where invention begins. Hence it follows that self-education is as practicable as the search of truth, and every science is a monument of its success.

4. Incompetency of schools to furnish the requisite knowledge. That literary and scientific institutions can teach what they profess to teach, we have no doubt; that much of what they teach is profound and useful, it would be folly to deny. Still there are departments of knowledge in which they are obviously unable to afford instruction, because the attainments of those who would be pupils are far in advance of these who must be teachers. What

college or university could have instructed Copernicus in astronomy, Galileo in optics, Columbus in navigation, Shakspeare in poetry, Locke in metaphysics, or Newton in mathematics? We are aware that some of these men had been educated at college, but the exalted acquirements which have handed their names down to posterity were not the fruits of college life. In every thing peculiar to them, or in any way affecting their greatness, Locke or Newton were as really self-educated as Columbus and Shakspeare. These men aspired to what was unknown in their times; their researches extended beyond the supposed boundaries of science. No institution could either aid their inquiries or determine the propriety of their course. From this it is evident that the highest and most successful efforts of the mind are necessarily independent of tuition. And if the noblest achievements of which the intellect is capable, can be accomplished without a teacher, may not every inferior task be easily performed in the same manner? In a word, if able to originate science, may not the mind readily acquire that which others have originated?

5. Incidental character of the assistance afforded by schools. The diligent student, although pursuing his studies at school, will in fact be self-educated, for his teachers have nothing to do but hear him recite. He repeats in their hearing what he had learned alone, and as much alone, as if such an institution had never existed. It is not, therefore, too much to assert that a thorough student is necessarily his own instructor. His industry renders assistance superfluous,\* and pushes him forward

\* An early tutor of Sir Walter Scott notes this particular in the education of that extraordinary man. "Though, like the rest of the children, placed under my tuition, the conducting of his education comparatively cost me but little trouble, being, by the quickness of his intellect, tenacity of memory, and diligent application to

faster than the current of instruction could carry him, or than will allow him to profit by its favoring tendencies.

But even the dullest and most dependent scholar receives only an incidental and unimportant advantage from the office of instruction. His time, his attention, his memory and his judgment must be in constant requisition in order to gain the knowledge which he is supposed passively to imbibe. And yet these requisites comprise every thing essential to self-education. They have given us all the sciences which we now possess, and must give us all that we are hereafter to possess. The dependence which is created by leaning upon a teacher, seems to include nothing more than the difference in facility of comprehension between written and oral directions. That is, the advantage of the one is as much greater than that of the other, as a man can teach better than a book; it is the simple difference between writing and speaking. This, to be sure, is conceding the fact that every book is a teacher, and that those who have access to books are never without a competent instructor; yet the use of books has become so common that they have ceased to be looked upon in this light, and are regarded merely as pre-requisites to instruction. Hence they are employed in schools as much as in private, and the sphere of the living teacher is reduced to bearing recitations, or, in more general terms, to securing on the part of the student a thorough acquaintance with such standard works as are embraced in his course. If an

author can be understood without additional assistance, studies, generally equal, of himself, to the acquisition of those tasks I or others prescribed to him. So that Master Walter might be regarded not so much as a pupil of mine, but as a friend and a companion, and I may add, as an assistant also." Lockhart's Life of Sir Walter Scott, Vol. 1, p. 86.

then the labors of an other teacher are not necessary, and may be dispensed with whenever convenience requires. Of the possibility of dispensing even with books, we shall speak in an other place.

6. History of literature. Education has never flourished in proportion to the multiplicity of schools. Its foundation lies deeper in human character than can be reached by such a cause. Literature and science are rarely pursued because they can be; a higher motive is requisite; a motive, the inspiration of which will render assistance useless, and set difficulties at defiance. The origin of literature is buried in the deep shades of antiquity, and we shall forever remain ignorant of the exact circumstances under which it arose; but this is the less to be regretted since its progress, with which we are familiar, must involve the very same principles which originally gave existence to the art of writing. Under certain circumstances individuals and nations have always devoted themselves assiduously to the cultivation of letters. This event has occurred either when superior talents have discovered the need of learning, or when popular energy has by degrees mellowed communities from barbarism into refinement. Literature is one of the results of activity—of that general activity on which all improvement depends. It is remarked by Mr. Keightley, that many of the best works have been produced in times of great excitement. “Though we can not conclude that literary genius is the creation of political circumstances, yet we may observe that it usually appears synchronously with great political events. It was during the Persian and Peloponnesian wars, that the everlasting monuments of the Grecian muse were produced; and it was while the fierce wars excited by religion agitated modern Europe, that the most noble works of poetic genius appeared in Italy, Spain and England. So also the



first band of Roman poets were co-existent with the Punic wars, and the second and more glorious, though perhaps less vigorous display of Italian genius, rose amid the calamities of the civil wars."\* Arabic literature flourished during the Saracenic conquests, but has ever since declined; and Chinese literature, together with that of most Eastern nations, is evidently a legacy handed down from more enterprising times—its present possessors not being able to make any improvements, nor even to maintain the original trust unimpaired.

Learning is a commodity which the ignorant and the idle do not want, and whatever may be the facilities for its attainment, such persons can not be successfully persuaded to seek it; they have other and more congenial pursuits, requiring less of the mind, and answering better the purposes of immediate gratification. Schools have rendered literature more accessible, but they have added nothing to the force of those convictions on which enterprise depends, and hence are to be reckoned only as an arrangement of secondary character—as a dictate of invincible purpose. It is from this purpose which can always command the means for its own accomplishment, that literature emanates, and not from our halls of learning. A cause which thus produces at once both science and its facilities, is surely equal to self-education.

7. Successful examples of self-educated men. Had it been ever so impossible in theory to trace the cause of education to any other source than that of scholastic institutions, still the numberless examples of self-education would have effectually contradicted such a conclusion. Both in ancient and modern times a very large proportion of distinguished names are found to have risen to eminence

\* Keightley's History of the Roman Empire, Part 1, Chap. 1.

by their own unaided exertions, and often in spite of yet greater disadvantages from positive opposition. It can not be expected that from a list so extensive, we should select more than a few instances on the present occasion, and these will be taken from the moderns, as their history is best known.

Shakspeare, who stands confessedly at the head of dramatic literature, and who is one of the boldest, most profound, and most correct writers of any age, was altogether his own instructor. It is true that the events of his early life are not well known, but enough is known to render it certain that the elevated conceptions and inimitable style which have immortalized his writings, were not the gift of academic shades, nor of pedagogic toil.

Pope ranks high in the first class of original poets, and is justly acknowledged to be first among the translators of poetry. But he assumed from choice, not necessity, the responsibility of educating himself—a task well executed if enduring fame may be taken as the measure of success. Dr. Johnson thus alludes to the subject: “Pope, finding little advantage from external help, resolved thenceforward to direct himself, and at twelve formed a plan of study which he completed with little other incitement than the desire of excellence.”\*

Thomas Simpson, one of the ablest mathematicians that Europe has produced, and the author of several valuable treatises, was entirely self-taught.

Defoe, whose name is familiar to most readers by his unrivalled tale of *Robinson Crusoe*, was an extensive and elegant writer, but independent of scholastic training.

Sir William Herschel contributed more than any other modern astronomer to that department of science,

\* Life of Pope.

although he was from first to last his own teacher, and the maker of all his telescopes.

Sir Humphrey Davy not only mastered the science of chemistry without assistance, but extended his researches until important additions were made to that department of knowledge.

Dr. Franklin's eminence as a statesman and a philosopher is as little questionable as the fact of his being entirely self-educated.

Dr. John Mason Good was a scholar of the highest order in almost every department of science; in medicine, in natural science, in classical and in oriental literature.

An other of similar acquirements, except, perhaps, in medicine, and the last to which I shall now refer, was the late Dr. Adam Clarke. This eminent man was no less distinguished for oriental than for classical literature. His proficiency in almost every science was too well known to leave a doubt of his being one of the maturest scholars of the age. But these, like the rest of the individuals here mentioned, received no assistance from colleges or universities. These examples are quite sufficient to show that education is within the reach of determined industry, whatever may be the paucity of external advantages.

There is however another class of learned men who properly belong to this category; I mean these who for various reasons left the University without finishing their studies, or who were eminent before entering there. Among the former are Lord Bacon, Gibbon the historian, and Sir Walter Scott; the first two having left the University through disgust, and the last, that he might apply himself more particularly to his legal studies. That this designation does no injustice to Sir Walter, we have the very decided testimony of Mr. Lockhart. "As may be said, I believe, with perfect truth of every really great man,

Scott was self-educated in every branch of knowledge which he ever turned to account in the works of his genius."\* Among the latter are Grotius, Johnson, Murray, and Gifford. One of the works of Grotius, written prior to his entering the University, is said to be equal to any which he afterwards published. Dr. Johnson gives us the following statement of his early attainments. "It is a sad reflection, but a true one, that I knew almost as much at eighteen as I do now. My judgment, to be sure, was not so good; but I had all the facts."† Dr. Alexander Murray and William Gifford, both gained for themselves places, the one in a Scotch, and the other in an English University, solely by the merit of their unquestionable and unaided scholarship.

8. The nature of science. We have shown that the faculties of the mind have a peculiar competency for the reception of truth—an aptitude which neither admits material improvement, nor needs it. This fact naturally teaches us to look for a corresponding adaptation of science to these faculties, and the slightest observation is sufficient to show that the character of this relation is reciprocal. Knowledge is the food which satiates our intellectual appetency and gives strength to the mind—not indeed organic capacity, but supplies the means by which organic capacity becomes efficient. Hence the pleasures of science, or the attractive influences of truth, have ever been considered one of the principal inducements to study. Milton's elegant description of these delights is familiar to all. "We shall conduct you to a hill side, laborious, indeed, at the first ascent; but else so smooth, so green,

\* Life of Scott, Vol. 1, p. 104.

† Boswell's Life of Johnson, Vol. 2, p. 44. Johnson entered at Oxford in his nineteenth year.

so full of goodly prospects, and melodious sounds on every side, that the harp of Orpheus was not more charming."\*

It is further to be remarked that the truths of science are level to all observers. Education gives no new faculties, nor does it essentially invigorate those which nature has given us. The elements of knowledge, the facts which make up every science, are intuitively obvious to the diligent mind. All may perceive them who will take the pains, as labor alone is the price of their acquaintance. They are like a favorite view which can be had only from the summit of some lofty mountain, but which is equally within the reach of all whose industry surmounts the rugged ascent. Capacity for such acquisitions is manifestly co-extensive with common sense. There is no fact in science either above the comprehension or beyond the reach of an ordinary intellect. Religion presents us with truths more profound and more important than human research has ever gleaned from the study of nature; and yet the mind of man—of man through all the grades of intellectual character, down to where responsibility is lost in mental weakness—is competent not only to understand, but to carry into successful practice the highest principles of revelation. This shows us that things are not difficult of apprehension in proportion to their importance. It requires no more strength of mind to understand the highest than the lowest truth; we comprehend truths without reference to their intrinsic character. The idea that great truths can only be known to great minds, would forever exclude the knowledge of God from all but a fraction of our race. Such a conclusion is no less subversive of philosophy than revolting to religion. There is therefore, nothing impracticable in the nature of science;

\* Tractate on Education.

it can neither be monopolized by the learned, nor lost for want of pre-requisites on the part of the student. Did truth disclose itself only to minds previously developed according to the popular notion, then education would be the formation of capacities, and industry could avail nothing for want of constitutional power. But, except as one fact may help to know an other, the learned have no pre-eminence above what nature has conferred. The natural equality of human understandings is not disturbed by the acquisitions of diligence, and hence we very frequently see those who have little of what is called learning, making important discoveries, while the more learned waste their time in fruitless speculations. This could not be if science was accessible only in one direction, or if the usual preliminaries were of more than incidental importance.

9. Analogy. In every other pursuit mankind are necessarily self-directed; and it is singular indeed if the acquisition of knowledge violates the analogy which every where else obtains in active life. Is man less able to direct his mental than his physical energies? or, rather, is he less able to direct the energies of his mind when applied to the acquisition of science, than when applied to the acquisition of physical objects? We must either suppose that some fatality attends the use of his faculties in the one instance from which they are free in the other, or admit that he is equally competent whether the objects of his action are physical or intellectual. The only school for great achievements is the common theatre of human enterprise, where every man is a master, and all are learners. The agriculturist, the mechanic, the statesman, and the warrior are thrown upon their own resources, and compelled to act, not only without direction, but frequently in opposition to the maturest counsel. In the highest department of science—that of invention, the same necessity prevails. Nothing

can be done until the mind acts for itself independent of all authority. Even where much less than this is aimed at, science obliges all her votaries to an independent course. If they would throw themselves forward to future ages, it can only be by attaining such indisputable excellence as will suffer no depreciation from the lapse of time—by exceeding the standard of their own to meet the anticipated progress of future generations—by successful competition with the past, the present, and the future. That is, instead of following authorities, one must himself become an authority in order to secure a lasting reputation. Such exertions as are required by an enterprise like this, can not be the subject of tuition. They demand an energy and a knowledge as incommunicable as genius itself. Thus we have seen that in all physical pursuits, and in those intellectual operations, which from their greatness are removed from the sphere of scholastic supervision, the mind is quite equal to the task of self-direction, and can not by any possibility, be subjected to pupilage. Under these circumstances, can we conceive it to be impracticable for any ordinary intellect to direct its own efforts successfully in the pursuit of knowledge, and especially that kind of knowledge which is usually taught in our schools?

In concluding this chapter, I have only to say that if these remarks have the appearance of claiming too much for self-education, the result was unavoidable. Facts admit of no compromise. If the human mind is incompetent to this task, it is capable of no other.

## CHAPTER V.

### The Means of Self Education.

#### SECTION I. *Literature.*

Language is the vehicle of thought. It is more: it is the repository of the knowledge of a people, as well as a means of intellectual conveyance. An accurate acquaintance, therefore, with the structure of language, and especially with the specific import of its various terms, is an important part of education. The meaning of words is, to some extent, the key of knowledge, and thus far taken as a separate study, it is more profitable, if not more interesting, than any other pursued. A written language is but a collection of artificial signs, the arrangement of which, according to certain prescribed forms, amounts to nothing, if their true signification be not understood.

Literary education has its numerous gradations; beginning with a single alphabet, it knows no limit but the capacity of man. But those who think, because it is possible to spend a whole life in making acquisitions of this sort, that it is, therefore, necessary to eminence, have manifestly mistaken the process of preparation for the splendor of action. Language is, indeed, subservient to the formation of thought, as well as to its clear expression; it is a system of signs by which we both receive and transmit opinions; and it is true, in a certain sense, that the more language we have, the more we have of truth,



and if it were as easy to determine the nature of things by means of language, as it is to obtain a knowledge of their existence, the value of letters would be inconceivably enhanced. This, however, is not the case, for we read what is false as well as what is true; nor will reading alone, like the reiterated use of mathematical terms, infallibly secure the necessary correction. Words are the representatives of ideas, and if the ideas are wrong, their signs can never be right, that is, the words in this connection become the visible exhibitions of falsehood. Written language has often been compared to algebraical characters, but the comparison is without foundation; for the signs in the one case are expressive of the unchangeable relations of quantity or number, while in the other they represent thought, which is not only changeable, but often imperfect and contradictory. The remark of Coudillac,\* that "the art of reasoning is nothing more than a language well arranged," must be received with great limitation, if indeed, it be true in any respect. Sound arguments may undoubtedly be expressed in verbal language, but no argument can be stronger than the mind which forms it, nor any language better arranged than to convey the ideas of the speaker. Reason depends upon language for nothing but the means of expression, and expression arises not from the nature of terms, but from the use we make of them—the meaning which they are employed to convey.

As literature is only of conditional and limited importance to the reasoning process, we may justly infer that the other acts of the mind are equally independent of its advantages. What has been considered the standard of desirable attainments in one age, has been regarded in the next as the merest illiteracy. But the practical and

\* Quoted by Stewart, *Elem. Phil.* Vol. 1., p. 36.

beneficial results of this species of learning bear no proportion to its extent or to the facilities for its attainment. The greatest advantages have not unfrequently effected nothing but a life of fruitless speculation, or it may be, fabricated a succession of puerile fictions, which, aiming to be more true to nature than nature is to herself, have, of course, accomplished nothing but distortion, while necessity has awakened the slumbering energies of the poor and the unfortunate to achievements to which more refined inducements have seldom been equal. The facts which confirm these remarks may be found in the copious literary remains of antiquity, as well as among the teeming productions of our own age. Anciently the means of acquiring literature were so universally imperfect, compared with what is now deemed essential to such pursuits, that nearly every writer of eminence ranks as a prodigy; nor is there any method of bringing their talents to a level with the moderns, but by observations like those which we have now made. Let us turn for a moment to particular instances. What were the qualifications of David for the poetic office? An intimate acquaintance with the best models of the poetic art; a knowledge of foreign languages, together with a very critical mastery of his vernacular tongue, and a large amount of general science, would seem to be indispensable to the man whose business it was to clothe the noblest sentiments in the finest dress. But had the bard of Israel gone through with this regular training? What ancient poet did he study, or what foreign language could he write? In what school did he study even his own language? No one who has a knowledge of the bearings of the subject will suggest that David was inspired, and therefore wrote with eloquence and correctness. He would have written with the same sublimity and purity, had he been only a pious

man. I speak now of the style of his composition, and not of the character of its sentiments. He was simply a shepherd boy, until he exchanged his rural occupation for the court and the camp, places by no means favorable to literary researches. Indeed there is little probability that his attainments embraced more than a tolerable acquaintance with a single language. The epithet of illiterate would sound very harsh if applied to him; and yet if the notions of modern literati are just, he was a mere sciolist. His pretensions to the harp were the height of impertinent dabling, and a disgrace to men of education. He should have repressed the vehement fires of poetic thought until his genius had become improved by scholastic lore. Others are chargeable with a like folly. Moses and Miriam, and Deborah, Job and Solomon, and above all, Isaiah, have left specimens of their taste and ability for compositions of this sort.

The next example of course must be Homer, at once the oldest and the greatest of heathen poets. Of his personal history we have no certain information; but this fact only adds to our astonishment, as it shows us that his immortal works must have been written while literature was yet too imperfectly diffused, or too miserably deficient to preserve even the humblest record of so distinguished a genius.\* From whom then could Homer have learned

\* Some have maintained that his works were composed before the art of writing was invented. "It has been doubted whether Homer could write or read; and the arguments adduced for the negative, in Mr. Wood's Essay on the Original Genius of Homer, seem scarcely controvertible." Mitford's History of Greece, Vol. 1, p. 126. In every thing but his poems, Homer is as much a mythological personage as any of the heroes whom he celebrates. Herodotus, the oldest of the Greek historians, gives us nothing but conjecture; he says (Book 2, chap. 53.) "Homer, I believe, lived four hundred years, and not more, before myself." His works

the art of poetry, and what beyond the simplest knowledge of his own language could have been his attainments? What literary institution had any share in his education? What classic author contributed to purify his taste, to direct his judgment, or to control his imagination? And yet without any aid from any source, he advanced his art to such perfection as succeeding ages, with all their accumulated improvements, have rarely equalled, and never surpassed. Still the author of the Iliad and the Odyssey belongs not to the class of educated men. If the popular jargon be correct, he holds a very illegal authority in the learned world. Many others of the heathen poets flourished under circumstances equally forbidding; some of them are so bare of historical incident that their authors seem scarcely to have been acquainted with social life. Yet with their productions the world is eminently pleased. Even Christian sages of the greatest erudition have extolled them as priceless.

It is sufficient for our present purpose that the public has given its sanction to the general excellence of these works. In doing this it has tacitly said the ancients were competent, be their literature as it might. It is not, it is surely not without some reason that the refined scholars of this age so universally admire such writings. But what is the circumstance that gives them all their value, if it be not that they are true to nature? Nature is the standard and the greatest originality is but faithfully copying from her. A glowing theme naturally seeks a corresponding expression; and if the language we use is not adequate to our wants, nature has a convenient resource in the use of figures. The admiration which these works have gained,

prove that he existed, but this uncertainty shows that it was before the age of authentic history.

is derived from the splendor of genius and the force of truth; not from peculiarity of dialect or felicity of grammatical construction. Such writings are valuable as conservators of ancient wisdom, and not as models of polished composition.

Both Grecian and Roman literature, which have so largely, if not disproportionately occupied the attention of mankind, were cultivated under the same disadvantages as the Hebrew. The writers of these nations lacked, in general, schools and libraries, and, what was worse than all, science itself. But possessing minds accustomed to powerful thought, and using language only as a means of communication, they were quite equal to what they aspired—a clear and elegant expression of truth. It may be thought their knowledge of grammar, rhetoric, and other sciences relating to the composition of language must have been considerable, and acquired by studying authors of great eminence on these subjects. But this I am persuaded is a mistake. “The grammatical forms which constitute the organization of a language, are not the work of civilization, but of nature. It is not writers, nor arbitrary conventions, that give laws to language: the forms of grammar, the power of combinations, the possibility of inversions, spring from within us, and are a consequence of our own organization.”\* Grammar may be styled the fashion of truth. Established usage makes almost any form of expression grammatical, for whatsoever is established, is also understood, which is what is principally intended by grammar. There are various anomalies in every language, that can be explained on no other principle. In Greek a plural verb frequently has a singular nominative, and double negatives only make the

\* Bancroft's History of American colonization, Vol. 3, p. 269

negation stronger, while in our own language they are used as an affirmative. Our awkward substitution of the plural pronoun *you*, for *thee* and *thou*, may show how easily the most palpable violation of analogy becomes grammatical when once it has the sanction of common usage. Where there is precision of thought there will not often be a want of grammar or rhetoric, and if there is a violation of existing rules, the usual redress of the science is to add a new rule that shall legalize the infraction. Thus rhetorical canons become the sport of genius, and the ever-varying construction of a living language sets at defiance the power of criticism.

But there is a more formidable objection to over-refinement of style than even its want of utility. By attempting to give laws to genius, it reverses the order of nature, and blights what it meant to improve. No writer who allows himself to be trammelled either in language or sentiment, by the thoughts of other men, can ever rise above mediocrity. The mind which is entrusted with an important truth, will feel the consequence of that truth too much to ask for any thing more than the means of explicit communication. It has been said that "In no polished nation, after criticism has been much studied, and the rules of writing established, has any very extraordinary book ever appeared."\* Although this observation is not strictly correct, yet it is sufficiently so to evince the absurdity of relying upon an adherence to the rules of criticism for the advancement of knowledge. If such rules are not an effectual barrier to eminence, it is at least certain that the want of them has never impeded the progress of truth.

\* Quoted by Dr. Johnson from "An Essay on the Writings and Genius of Pope." He says, "The remark deserves great attention."

Genius is a law unto itself, and its inimitable productions are never dependent upon the state of the arts and sciences. Therefore whenever a language requires too much obsequiousness, it must be left to those who are conscious of no higher calling, and minds of loftier purpose will provide a medium of expression that shall offer no restraint to the peculiarity of their powers.

On the utility of studying the ancient classics, different views have prevailed, and for very justifiable reasons. By many a knowledge of the dead languages has been considered indispensable to education; while others have regarded such attainments as of doubtful importance.

This is a complicated subject, and one which, in the present state of literature, deserves even more attention than it has yet received. To the mere philologist these languages must ever be of great consequence; but to the man of science, whether poet or philosopher, they are valuable only for the knowledge which they contain. When Greek and Latin were employed for the transaction of business, or the composition of books, they had all the claims which it is possible for language to possess. But they are now employed for neither of these purposes, and as the most valuable deposits which they contain have either been transferred to our language or rendered unnecessary by original acquisitions,\* their claims are so

\* "All that remains of Greece and Rome, which is really worthy of being known, has been published either in English or French. There is no storehouse there to be unlocked."—Dr. A. Clarke. (*Life*, Vol. 2, p. 225.)

Should the correctness of this opinion be called in question, we have only to say that a necessity for further translations cannot devolve upon community at large an obligation to learn those ancient languages. We might with the same propriety require every man who needs a watch, to learn the art of watch-making merely

reduced as to make them a matter of little importance to any but the literary antiquary or the professional student who is unfortunate enough to be more concerned with words than with facts. The strongest argument which can be adduced in favor of cultivating these languages, is the fact that they still furnish the best means of intercourse with those ancient nations; yet this argument is far from being conclusive, since to converse with the ancients is not the great business of human life. Education is designed to make us what they were, and not barely to make us acquainted with their greatness. They were great without us; we may be great without them. Translations, though acknowledged to fall below the originals, will answer all the ends of emulation; they will give us truth, and we need no more.

It has been urged that the study of the classics exerts a beneficial influence by way of disciplining the mind. This advantage is altogether imaginary. Mind needs no such discipline. Still the difficult task of acquiring a dead language is not without advantages. Such studies, before the purpose of making his own time piece. That modern authors have, in a great degree, superseded the necessity of ancient literature, is well known.

"The great productions of Athenian and Roman genius are indeed still what they were. But though their positive value is unchanged, their relative value, when compared with the whole mass of mental wealth possessed by mankind, has been constantly falling. They were the intellectual all of our ancestors. They are but a part of our treasures."—Macaulay. (Review of Bacon's Works.)

"With respect to the sum of knowledge which the works of antiquity convey, as compared with that which is conveyed by modern literature, the disproportion is great in the extreme. To say that the modern is a hundred times greater than the ancient, is to keep far from the language of exaggeration."—Dymond's Essays, p. 192.



sides awakening the mind to a knowledge of its own capacities, and enlarging its acquaintance with the philosophy of language, never fail to introduce new ideas of things, and to excite an interest in the subject of intellectual improvement. This however only proves that these acquisitions are not useless; other evidence, and such as can not be had, is wanting to prove that they are essential to modern education. If these languages were needed as depositories of science, or as means of intellectual commerce, we might insist upon their cultivation. But why cultivate languages that are not to be used? With their use, their necessity ceases. As relics of the past, they may be curious and instructive; but not, serving as languages, at least in their original capacity, they are of no importance to practical life, and should be remitted to the cabinet of antiquities. The knowledge which they have preserved can be transferred to living languages, and will not be the less valuable for its new depository. Shall we worship the casket for the sake of the gem which it once contained? Facts will still be facts in spite of a modern alphabet, and those ancient tongues, disburdened of the treasure which they were expected to convey to later generations, may be allowed to perish with the nations that used them. I need not remark that these principles are applicable to the study of all foreign languages; they can be useful only when demanded for actual intercourse, or for opening sources of information not otherwise accessible.

Language is not sentiment, nor literature the sum of knowledge. And abstractly considered, skill in these compares with the system of knowledge about as does the doctrine of colors with the whole compass of physical science. Indeed their intrinsic importance is so small that they seem to have no positive existence. The language of a community is a *fac simile* of its intelligence. An igno-

rant and barbarous people never write or speak a refined and elegant language, nor has it ever been known that an elegant and refined people used a rude and barbarous dialect. A system which thus exists only as a consequence of knowledge, can not be considered of much intrinsic value. In accordance with this were the views of Milton, "Language is but the instrument conveying to us things useful to be known. And though a linguist should pride himself to have all the tongues that Babel cleft the world into, yet if he have not studied the solid things in them as well as the words and lexicons, he were nothing so much to be esteemed a learned man, as any yeoman or tradesman competently wise in his mother dialect only."\* It is therefore to the relative importance of literature that we must ascribe the necessity for its cultivation. In this respect it is not unlike the mariner's compass which is of small consequence in itself, but when applied to navigation, becomes of inconceivable advantage. Literature considered merely as an ornament of social life, or as a branch of natural philosophy, will perhaps pay the expense of cultivation, but it is chiefly valuable as the medium of mental communication, and the undecaying record of science. Its utility in these respects is so well expressed by Dr. Good, that I shall close this section with his remarks. After detailing in a variety of interesting observations, the origin of writing, or at least its origin so far as we have any authentic information on the subject, he proceeds: "Such is a brief history of the noblest art that has ever been invented by the unassisted efforts of human understanding; an art that gives stability to thought, forms a cabinet for our ideas, and presents, in

\* Tractate on Education. (Prose works, London, 1839, p. 98.)

imperishable colors, a speaking portraiture of the soul. Without this, hard indeed would be the separation of friends; and the traveller would become an exile from his native home—vainly languishing for the consolatory information that his wife, his children, his kinsmen, his country, were in a state of health and prosperity, and himself still embalmed in their affections. Without this, what to us would be the wisdom of past ages, or the history of former states? The chain of nature would be broken through all its links, and every generation become an isolated and individual world, equally cut off, as by an irremediable abyss, from its ancestors and from its posterity. While the language of the lips is fleetly as the breath itself, and confined to a single spot as well as a single moment, the language of the pen enjoys, in many instances, an adamantine existence, and will only perish amid the ruins of the globe. Before its mighty touch time and space become annihilated; it joins epoch to epoch, and pole to pole; it gives unity to the works of creation and Providence, and enables us to trace from the beginning of things to the end. It is the great sun of the moral world, that warms, and stimulates, and vivifies, and irradiates, and develops, and matures the best virtues of the heart, and the best faculties of the intellect. But for this, every thing would be doubt, and darkness, and death-shade; all knowledge would be traditionary, and all experience local; civilized life would relapse into barbarism, and man would have to run through his little, and comparatively insignificant round of existence, the perpetual sport of ignorance and error, uninstructed by science, unregulated by laws, and unconsolated by revelation.”\*

\* Book of Nature, Lect. 10., second series.

SECTION II. *Science.*

It is for the sake of science that literature exists. But for science the art of writing would be as useless as the power of speech where nothing was to be spoken. It would be as a house which was to have no inhabitant, or a conveyance in which nothing could be conveyed. Science and literature are not identical, as one stands to the other in the relation of means to an end. Science is the end, and literature is, in part, our way to that end.

Knowledge is to the mind what light is to the eye, an indispensable pre-requisite to the performance of its functions. Light may exist without vision, and knowledge without understanding, because in both cases it is abstractly possible not to employ the faculties on which these acts depend; but in neither instance can the faculty accomplish any thing apart from its constitutional medium or element. Lord Bacon therefore deserves great credit for having called the attention of mankind to the fact that, "Knowledge and human power are synonymous."\* A truth which, however much neglected, probably never was quite forgotten. Knowledge is power, because mind is not available without knowledge. Hence a great part of human knowledge is necessary, and does not at all depend upon a voluntary application of the mental faculties. The mind that does not know is as useless as a mirror which fails to reflect the objects placed before it. In conformity to this idea, the same author has elsewhere said "A man is but what he knoweth:"†—that is, knowledge is the

\* Nov. Org. Aph. 3, Book 1.

† Praise of Knowledge.

condition of intellectual activity and efficiency. But knowledge not only displays the capacity of the human mind by bringing its powers into exercise: it also predominates over them so fully that Bacon does not hesitate to affirm that, "The mind itself is but an accident to knowledge."\* This is indeed to reach the extreme of speculative boldness; but he has repeated his views on this subject and in a passage which I shall quote from the *Advancement of Learning*, they are expressed more at length and in much less exceptionable phraseology. "But the commandment of knowledge is yet higher than the commandment over the will, for it is a commandment over the reason, belief, and understanding of man, which is the highest part of the mind, and giveth law to the will itself; for there is no power on earth which setteth up a throne or chair of state in the spirits or souls of men, and in their cogitations, imaginations, opinions and beliefs, but knowledge and learning."† That science lies at the foundation of human enterprise, is a truth which, however little known two centuries ago, now needs neither amplification nor defence. While Europe was in its transition state, passing by slow degrees from barbarism into refinement, the utterance of such a sentiment was in advance of the age, and justly entitled the author to a high reputation. Then science was mistaken for chance, and art for magic; ignorance was considered the mother of devotion, and knowledge the enemy of religion. Those who could read and write, following the practice of a still darker age, too generally wasted their time and talents upon merely verbal distinctions that only tended to "darken counsel by words without knowledge," while before them lay the

\* Praise of Knowledge.

† Book 1.

whole domain of science as a barren wilderness. To announce at such a time that knowledge is power, and to treat with merited contempt the metaphysical subtleties then universally in vogue, was no ordinary achievement. But those times are gone, and with them—happily for mankind—has gone the scholastic logic. The course of education is changed. Literature is no longer employed as an instrument of investigation, but merely as a means of expression, and knowledge is admitted to be the legitimate object of the student. Bacon's celebrated observation is now a truism. Even the humblest individual knows as well as did the Lord Chancellor of Great Britain in the days of James the first, that knowledge is equivalent to power.

It does not fall within the plan of this work to discuss minutely the advantages arising from the study of any particular branch of science; but as some sciences appear to have been neglected, and others to have been cultivated, from mistaken views of their essential importance, it is necessary to take up the subject so far as these errors lie in the way of mental improvement. In reality all knowledge is valuable only in proportion to its subserviency to human wants, and the object is to determine what a particular class of truths can contribute to this purpose. As no satisfactory division of the sciences has ever been made, we cannot be expected to follow any established order, nor to do more than notice such particulars as have forced themselves upon public observation.

Natural Philosophy was for a long time undervalued, and perhaps even at the present time does not hold its proper place in our higher institutions of learning. It is taught there, we admit, and there is no cause to complain that the instruction is deficient; but it seems to be tolerated from necessity rather than welcomed from choice. Institutions

of a merely literary character can not exist, and therefore physical science has to be included in the college course. The exclusion of such studies has the sanction of many very eminent scholars, among whom is Dr. Johnson. This great man, whose passion for literature led him to neglect, if not to despise other kinds of knowledge, has given his opinion at length in combatting what he thought to be an error of Milton. "The purpose of Milton, as it seems, was to teach something more solid than the common literature of the schools, by reading those authors that treat of physical subjects, such as the Georgic and astronomical treatises of the ancients. This was a scheme of improvement which seems to have busied many literature projectors of that age. Cowley, who had more means than Milton of knowing what was wanting to the embellishments of life, formed the same plan of education in his imaginary college. But the truth is, that the knowledge of external nature and the sciences which that knowledge requires or includes, are not the great or the frequent business of the human mind. Whether we provide for action or conversation, whether we wish to be useful or pleasing, the first requisite is the religious and moral knowledge of right and wrong; the next is an acquaintance with the history of mankind, and with those examples which may be said to embody truth, and prove by events the reasonableness of opinions. Prudence and justice are virtues and excellencies of all times and of all places; we are perpetually moralists, but we are geometricians only by chance. Our intercourse with intellectual nature is necessary; our speculations upon matter are voluntary, and at leisure. Physiological learning is of such rare emergence, that one may know another half his life, without being able to estimate his skill in hydrostatics or astronomy; but his moral and prudential character immediately appears.

Those authors, therefore, are to be read at schools that supply most axioms of prudence, most principles of moral truth, and most materials for conversation; and these purposes are best served by poets, orators, and historians.”\*

Here the argument is very properly made to turn upon utility; and natural science, including mathematics, is rejected because less frequently demanded by the affairs of life. But is it true that the demand for this kind of knowledge is of rare occurrence? Nothing could be farther from the truth. Natural Philosophy, taken in the comprehensive sense that his argument implies, enters into all the movements of civilized society, and without it, such society could not exist. Architecture, manufactures, and commerce are entirely dependant upon this science; and but for these, man would be a wild, unlettered savage. Man is, to some extent, a material being, and he must have material relations. Our speculations upon matter, therefore, can neither be voluntary nor at leisure; they must at least be as necessary as any part of human knowledge. It is true that mere idlers, and even men concerned only with literary and ethical pursuits, might often meet together without having any occasion to test each other's acquaintance with physiological science; but this can be affirmed of such, and of such only, as every person engaged in more active employments must constantly evince a knowledge of the laws of nature. The navigator, the mechanic, and the farmer; the artist, the inventor, and the philosopher are wholly unable to prosecute their respective vocations, unless aided by that learning which is pronounced to be of such rare emergence that one may know another half his life without being able to estimate

\* Life of Milton.



his skill in it; and while these pursuits are maintained, men can never be said to be naturalists and geometricians by chance. Poets, orators and historians have their uses, but they can not teach the mariner how to guide his ship over the waves, nor the mechanic how to construct his engines; they cannot help the astronomer to calculate the distances of the heavenly bodies, nor the chemist to determine the constitution of the elements. It was not to these that Newton, Herschel, and Davy were indebted for their fame; their greatness was achieved by the study of nature, and the obligation to remember them with gratitude, is an obligation imposed by natural philosophy. The attainments which he recommends are certainly of high consequence, and the only error consists in attempting to make them exclusive; morality is essential, but it is not the only thing essential.\*

Mathematical science occupies a position in the educational arrangements of the day equal, and perhaps not more than equal, to its importance. It is so indispensable to many of the investigations of natural philosophy that the two departments of knowledge must ever be cultivated in connection with each other. It is to this—its utility in the calculations and measurements of matter, space, and

\* Bacon's opinion of Natural Philosophy is well known, and would lead to a conclusion very different from that of Dr. Johnson. He calls it the "great mother of the sciences," and says that the other sciences must necessarily be superficial while separated from this their root. (Nov. Org. B. 1, Aph. 80.) Of the moral and religious tendency of this science Bacon's estimate was no less favorable. "Any one who properly considers the subject, will find natural philosophy to be, after the Word of God, the surest remedy against superstition, and the most approved support of faith. She is therefore rightly bestowed upon religion as a most faithful attendant, for the one exhibits the will, and the other the power of God," Ibid. Aph. 89.

time—that mathematical science owes its value. We have been told, however, by nearly every modern writer on education, that it is of great use in strengthening the mind.\* But often as this assertion has been made, it does not appear to be supported by facts; for a mathematician can reason no better in any thing but mathematics, than one who never studied the science. He can learn language no faster, his judgment on moral subjects is no better, his penetration into the processes of nature is no keener. Hence it is evident that his mind is not invigorated, and that organic development can not be one of the advantages of mathematics. That the study is attended with some benefit by making the individual acquainted with his capacity for minute investigations and with the necessity of care in all his intellectual researches, I have no doubt. If he can think better than he could before, it is because he knows better the strength of his powers and

\* Bacon at first took this view of the subject, but subsequently abandoned it. “When, in 1605, he wrote the two books on the ‘Advancement of Learning,’ he dwelt on the advantages which mankind derived from mixed mathematics; but he at the same time admitted, that the beneficial effect produced by mathematical study on the intellect, though a collateral advantage, was ‘no less worthy than that which was principal and intended.’ But it is evident that his views underwent a change. When, nearly twenty years later, he published the *De Augmentis*, which is the treatise on the ‘Advancement of Learning,’ greatly expanded and carefully corrected, he made important alterations in the part which related to mathematics. He condemned with severity the high pretensions of the mathematicians, ‘*delicias et fastum mathematicorum.*’ Assuming the well-being of the human race to be the end of knowledge, he pronounced that mathematical science could claim no higher rank than that of an appendage, or an auxiliary to the other sciences. Mathematical science, he says, is the handmaid of natural philosophy; she ought to demean herself as such; and he declares that he can not conceive by what ill chance it

how to apply them more skillfully. Mathematics and language are merely instruments of acquiring knowledge; they should never be cultivated for what they are in themselves, nor for the influence that they exert upon the mind. They are to the operations of the mind what the tools of the mechanic are to his labors, and equally destitute of independent value or of ability to increase the organic power of their employer.

Another branch of science, and the only one to which I shall at present refer, is Logic. Truth is the very substance of education. And whatever puts us in possession of this with the greatest certainty, is the best means of mental improvement. As the only purpose of logic is to ascertain truth, and that too in relation to the most difficult subjects of inquiry, it is not surprising that a science of such high pretensions should have attracted uncommon interest. Well would that interest have been requited if the system which called it forth had not proved fallacious

has happened that she presumes to claim precedence over her mistress. Of that collateral advantage, the value of which, twenty years before, he rated so highly, he says not one word. This omission can not have been the effect of mere inadvertence. His own treatise was before him. From that treatise he deliberately expunged whatever was favorable to pure mathematics, and inserted several keen reflections on the ardent votaries of that study." Macaulay. Review of Bacon's Works.

The opposition of Bacon was founded upon the inutility of pure mathematics. But there are reasons for believing that the effect of this science is, in some respects, even worse than useless. "In the course of my own experience," says Dugald Stewart, "I have never met with a *mere mathematician* who was not credulous to a fault; credulous not only with respect to human testimony, but credulous also in matters of opinion: and prone, on all subjects which he had not carefully studied, to repose too much faith in illustrious and consecrated names." *Philosophy of the Human Mind*, Vol. 3, p. 182.

The science has undergone some modifications, and several parts of it have fallen into disuse. Among these may be reckoned the syllogistic theory of Aristotle. Every metaphysician of eminence, since the days of Locke, abounds with observations on the inutility of this part of logic. Yet its inventor deemed it complete, and so did the bulk of those who participated in the endless logomachy which followed for two thousand years. But the fate of syllogisms is that which is reserved for all similar theories of investigation; for they are based upon the principal that words, and not things, are required in the search of truth. The art of reasoning does not consist in arranging words according to certain rules, but in a comparison of things themselves by means of the intellectual faculties. Words can only indicate the result to which the mind arrives in its processes of thought.

Modern writers, having observed that the scholastic logic was attended with very little advantage to science, seem to have contracted a prejudice against the discursive faculty as an instrument of acquiring knowledge. This is to blame the agent for what belongs only to the instrument, and we might as well reject the use of our eyes because they can not see perfectly through defective glasses. "The ancients," says Dr. Reid, "seem to have had too high notions, both of the reasoning power in man, and of the art of syllogism as its guide. Mere reasoning can carry us but a very little way in most subjects. By observation, and experiments properly conducted, the stock of human knowledge may be enlarged without end; but the power of reasoning alone, applied with vigor through a long life, would carry a man round, like a horse in a mill, who labors hard, but makes no progress."\* There can be no doubt but the ancients mistook the nature of language and employed it for purposes to which it never was, and

never can be adequate ; it is not so clear, however, that they committed the same mistake in relation to the powers of the mind. Had the means which they used been better, had the understanding been subjected to the severe rules of a more rational logic, their achievements would have compared favorably with any thing that modern science can boast. They had not learned that reason instead of relying upon words, must rely solely upon facts, or the syllogistic art would never have been countenanced as an engine of science.

It is true that the reasoning faculty admits of no intrinsic improvement. Man, as a rational being, possesses power to make a just inference from premises which he understands ; and the highest conclusion of inductive philosophy, the mightiest effort of the human understanding, is nothing more. Now although this faculty is thus perfect in its nature and needs no cultivation, yet it is limited in its means, and can only perform its functions according to the opportunities afforded. And if ancient or modern sophists have met with no success in their reasonings, it is because they have deserved none ; reason was given to mankind for other uses than wrangling and speculation, and it must be employed upon more substantial objects than those arbitrary characters which are designed merely as the symbols of thought. If men use their reason as the Author of reason intended it should be used, they will have no occasion either "to strive about words," or to complain of the abortive character of their efforts. The rapid advancement of science for a few centuries past, is chiefly owing, as I conceive, to an improved state of logic, and not at all to the fact that men have learned to place less dependence upon their reason. Our philosophers have laid aside, not their intellects, but an impotent and

\* Brief Account of Aristotle's Logic, Chap. 4, Sec. 5.

irrational system of rules which only retarded the progress of knowledge, and in its place they have adopted a new logic which reason can apply to better advantage. This system has nothing to do with syllogisms, nor indeed with any thing but facts; having thrown off the restraints of authority, it becomes a law unto itself, and guided solely by truth, compares what is unknown with what is known, until the induction is perfect and an addition is made to the sum of human knowledge.

Just rules of reasoning can not increase the power of reason, but still they may enable it to do what it otherwise could not. For this reason logic ought to be studied with the greatest care, and as an integral branch of mental philosophy. It should not be despatched as a system of dry and abstract forms, possessing little interest and less utility. Such treatment the *jejune dialectics* of a former age deserved, but it must not be awarded to the staid induction of the present day. Thus far by way of correcting the misapprehensions to which reference was made.

The foregoing observations are not intended to give prominence to any particular science to the exclusion of any other, for the province of self-education is all knowledge. Personal predilections or some contingent circumstance may exert a limited control over the mind, and restrict for a time its application to narrower bounds, but, if faithful to itself, it will soon rise above restraint, and hold communion with every science. Nothing less than the whole empire of practicable knowledge can afford sufficient scope for the activity or the ambition of intellectual nature. And yet it must not be imagined that in most of these extensive acquisitions, any thing more is gained than first principles. Those who think to amass the details of every science, attempt what is both useless and impossible. Ordinarily we have no occasion for those *infinitesimal*

subdivisions of which knowledge is susceptible, and convenience requires that the greater part of what we know, like the greater part of our money, should be, not of the lowest, but of the highest denomination. Especially is this true where intellectual treasure is of much extent; those who have but little—not more than is demanded by the exigences of every hour, or of a single profession, must have it in form to be dispensed as the ramifications of want require. As this subject is of great consequence to the progress and character of knowledge, I shall consider it somewhat more at large.

The difference between what are termed fundamental laws of belief, and the first principles of a particular science is, that the former are theoretically and practically admitted by all, even by Berkeley and Hume, who affected to deny them, while the latter are not necessarily admitted either in theory or practice. These are constituent parts of ratioination itself, while those are essential only to a single class of facts. A science is no more than a collection of facts legitimately derived from one or more common principles; hence, if these are false, the whole science must be false; for error, although it may be the occasion, can never be the cause of truth. As these primary truths potentially and virtually contain all that can be deduced from them, it follows that a knowledge of them is, in a very important sense, a knowledge of the whole science. For this reason Mr. Locke, long since, recommended the study of first principles as a means of intellectual improvement. “There are,” he says, “fundamental truths that lie at the bottom, the basis upon which a great many others rest, and in which they have their consistency. These are teeming truths, rich in store, with which they furnish the mind, and, like the lights of heaven, are not only beautiful and entertaining in themselves, but give light and evidence

to other things, that without them could not be seen or known. Such is that admirable discovery of Mr. Newton, that all bodies gravitate to one another, which may be counted as the basis of natural philosophy; which of what use it is to the understanding of the great frame of our solar system, he has to the astonishment of the learned world shown; and how much farther it would guide us in other things if rightly pursued, is not yet known. Our Savior's great rule, that 'we should love our neighbor as ourselves,' is such a fundamental truth for the regulating human society, that, I think, by that alone, one might without difficulty determine all the cases and doubts in social morality. These and such as these are the truths we should endeavor to find out, and store our minds with."\* There are numberless truths that never can be known, and if they could, such knowledge would be of no use. It is, therefore, a matter of necessity that those who wish to excel in one science, should restrict their inquiries on other subjects to first principles alone; or, if the aim be higher and universal scholarship the object of endeavor, it will not much vary the case, as the field is still too extensive for minute research. The sciences are like so many inverted pyramids; beginning with a single principle they branch out to infinity. Not even the memory could retain, if it were possible for the other faculties to explore, the multitudinous deductions which have been made from the elements of a single division of truth. Indeed, a comprehensive mind instinctively shrinks from the retention of isolated facts, and seizes upon the general principle as alone worthy of preservation.

On the relation of first principles to the present state of science, a difference of opinion has been entertained.

\* Conduct of Unders. Sec. 42.



Some have maintained that the principles of science are now settled, and all that remains is to build upon the foundation which has been laid. But the correctness of this view may well be doubted. The principles of a science are not otherwise than provisionally settled so long as there is any chance for new discoveries to abridge the importance of the facts already known. It is the nature of a first principle not to be contradicted nor overthrown by any subsequent speculation, but to blend itself inseparably with every phasis of the science. How far the leading facts in several branches of science are both incontestably true and essentially primary, appears from the competition of opposing theories. We do not mean that there can be no diversity of opinion with respect to secondary facts where the general principles are established. This has been, and will continue to be, a necessary condition of hypothetical knowledge. Man is so addicted to a premature generalization, that after he has acquired the rudiments of science, if he relaxes his inductive habits, he immediately slides into false conclusions; but these erroneous conclusions, however, do not subvert the rudiments which were before acquired; they only retard improvement according as they are more or less divergent from sound philosophy. The greatest philosophers have not always been able to do more than detect errors; these errors are generally fundamental and must be removed before an approximation can be made to truth. Such was the state of physics among the ancients, and with some exceptions in favor of an analytical method of investigation, it is the condition of metaphysics at the present day. Medicine, ethics, and politics are nearly in the same state. It may be, that the principles which will ultimately unite the suffrages of mankind in their favor, are now developed; but we can not regard them as settled while their claims

continue to be disputed by any considerable portion of the learned world.

Whether we have right views of things and become truly learned, depends not so much on the length of time we study as on the place where we begin. Great discoveries have generally taken their rise from attempts to investigate first principles. The law of gravitation was known, to some extent, before the days of Newton, but it was reserved for him to regard this law as a general principle, and by just deductions from a single fact, to explain the motion of the celestial bodies. Most of the improvements in mechanics, which are justly the admiration and the glory of the age, are no more than the application of an old principle to a new purpose; for instance, the expansive power of water and the consequent force of steam have always been known, but their use in propelling boats and carriages is the result of modern observation. In like manner the use of cast iron for ploughs was simply the conversion of a well-known substance to a new purpose. These remarks will serve to illustrate the origin of the various moral improvements and benevolent enterprises that have sprung up within a few years. Sunday schools are no more than the application of the common school principle to exclusively religious matters. Temperance societies, and the whole brotherhood of voluntary associations, are modifications of the social principle. And the reason why men are better to day than they were yesterday, is because the moral principle has been extended to more of the practices of life.

There is a corrective tendency in first principles which renders the frequent examination of them indispensable to the purity of knowledge. In several of our elementary works they have been totally overlooked, so that if the practical operations had not involved them they would not

have been contained in the books. What writer of grammar has noticed the principle of construction or mechanism that pervades language, and which is the real basis of those analogical rules by which grammarians are governed? What author of rhetoric has suggested that writing is only a mechanical expression of thought, or furnished us with the requisite positive, practical rules for its attainment? The most of them teach the art of writing as Lord Chesterfield did good manners, by negatives. Some of the most essential elements of arithmetic are but partly stated, and others are wholly omitted. The reason of referring to these deficiencies in existing publications is this:—By teaching sciences, the cardinal principles of which are either not stated or not explained, we make them rest upon the authority of the author, and not, as they should, on immutable truth. When this is done we have opened the door for the admission of every error that may seek for entrance. The axiom and the inference should be exhibited in connection, then the verisimilitude of the latter can be seen, and the discrepancies which are ever insinuating themselves, more particularly into the moral sciences, will be avoided. Most of the moral phenomena which we deplore in society appear to originate from illogical consequences deduced from true premises. This seems the more probable as we usually find those guilty of voluntary and confirmed errors, right in the abstract, but wrong in particulars. In the temperance cause, the aim was not to prove drunkenness a sin, for this was not disputed, but to trace the criminality up to individuals, or show the weakness of the subterfuge which had led the public so generally into crime. In this way, also, the most palpable heresies in religion have commonly been connected with many of the vital elements of christianity. Our only hope of improvement either in science or morals,

seems to be identified with the prevalence and ascendancy of first principles. When these are forgotten, error will be rife in every department, and all attempts at reformation fruitless, if not mischievous. Luther, by returning to the doctrines of the Bible, laid the foundation of the Reformation; and the logic of Bacon—the far-famed inductive system—in its very spirit, is nothing but a renunciation of speculative error and a sober return to the principles of common sense, in which it is sustained by the reason of mankind.

These remarks render it sufficiently evident that our views, nay, our very characters, are decided by the scope and the justness of this class of truths. Revelation is remarkable for the great number of its general precepts, and the seeming want of minute exposition often discernable, indicates that proficiency in the most profound inquiries is very little dependent on inferential facts. Their influence on literary character is not less obvious. Probably the inexorableness of the superficial critic arises from his not comprehending like the bland and penetrating scholar, the great variety of forms in which things may lawfully appear, provided only that there be some general excellence. The skillful physician derives his superiority to the empyric, not from his better knowledge of pharmacy or therapeutics, but from those general physiological principles on which the science of medicine is founded. Every one has observed with what facility men of education write at great length or speak fluently on subjects that had but recently engaged their attention. This apparent profundity of thought finds an easy solution in the prolific nature of first principles, and relieves us of the unnatural as well as incorrect idea of their mental superiority. Where these “fundamental verities,” as they are termed by Mr. Locke, are wanting, there seems in reality to be

little or nothing of intellectual or moral character. Many people spend their whole lives without forming any opinions of their own, or rather they take the popular drift, unconscious that their inability for consecutive thinking obliges them to accept of whatever sentiment the public may manufacture. Sophistry is ever shaping materials of this kind into those abominable caricatures of the intelligent principle which are so obsequious to all the mandates of fashionable vice.

From the above it follows that education consists chiefly in an actual, clear, and comprehensive perception of primary maxims; and that these are to be ever present and exercise a sovereign control over all conclusions throughout the whole empire of knowledge. If not permitted to mingle with the more favored competitors for the laurels of truth, unassisted youth may remember that every thing of importance is still within their reach. Short of tamely conning the wearisome details of antecedent authors, their course—the one which genius has always taken—lies in the road of revision,—of improvements built on an inspection of primordial elements.

Let those who are aiming at self-education aspire to a knowledge of underived truths. The soul had no origin but God, and its first contemplations should be upon those truths which have no origin but God and nature. Systems of human science are purely derivative, and one man can build them as well as another. Every man, therefore, is not only the artificer of his own fortune, but of his own sentiments; and unless he thinks for himself he will have none except what he borrows from others, and these may be infinitely worse than none. I shall only add, that He who has made it thus necessary to think, has not subjected the power and competency of thought to any contingency but the will of man.

SECTION III. *Collateral Aids.*

There are several sources of mental improvement not noticed in the preceding sections, nor included in the ordinary course of education, but which can not consistently be omitted in a work of this kind. Knowledge—the great object of education—results from the use of our faculties; it follows therefore that whatever gives employment to these faculties, performs for us the work of education, whether we so regard it or not. For want of due attention to this it has often been supposed that improvement must cease merely because a certain class of means were not at command, or, in other words, that he who had not the usual scholastic advantages, had nothing. Such a mistake, of course, could prevail only among those who failed to observe the effect things have upon the mind; all others must know that where there is effort there must be knowledge. The aids to which we now refer have at least one advantage—they are not contingent; and the student has the satisfaction of perceiving that, however other advantages have escaped him, he is still a being of relations and of business, possessed of various skill and of various knowledge.

1. *Social position.* The position of every individual in society is full of instruction—and such instruction as must necessarily be speculative to all who have not occupied the same relation. Little as this kind of knowledge may have been esteemed for educational purposes, it is not without its very decided effect in the formation of character. There is an education in circumstances. Many great names have derived their nourishment, if not like Romulus from a wolf, yet from circumstances scarcely less to be dreaded. Stern lessons, however, are not the only ones

that we gather from this source ; there are other and milder influences arising from our associations. Great truths belong to no one department of life, and hence there is no position in society but what has its share of interesting facts as well as of coercive stimulants. That mind which is awake to its condition, can not but take notice of the things by which it is surrounded, and this notice is the substance of all knowledge. Science itself can carry us no farther in most particulars, than simple observation ; here our philosophy begins, and here it ends, in regard to every thing essential to human wisdom. The pencil of Hogarth gave immortality to his name when he sketched the humble scenes with which he was familiar, but failed when he attempted higher subjects. Burns owes much of his celebrity to a literary blemish—the use of an Anglo-Scottish dialect—it was, however, natural to him, and his genius made it interesting to others. Avoidance of earlier or later associations is not the way to eminence ; there must be truth and philosophy in every thing, and it is the work of mind to search them out both for its own and the public good. In this search some will find more, and others less, but whatever is found, like particles of gold dust, will have its specific value.

2. Business. The various branches of business not only require a certain amount of knowledge in order to their successful prosecution, but return to us a much greater amount of knowledge as the result of our labors. Acquisitions of this nature are not simply the fruits of experience ; they are an evolvment from the activities of life ; they spring from that rapid succession of opportunities for observation always attendant upon enterprise. The comparative value of such knowledge is the point now under consideration. If it can not elevate the mind, and if it can not exert the same happy influence that other

knowledge exerts, then its use as a means of education may be questioned. Whence have sprung the numerous improvements in the arts, in agriculture, and in commerce? No one will pretend that they have chiefly originated in the schools. These improvements are mostly the work of practical men—of men whose business is their teacher, and whose knowledge is the knowledge of their business. There was a period when the mechanic arts, and most other business-avocations, were considered beneath the character of a gentleman; but labor has ennobled itself, and these pursuits, once so contemptible, are now capable of conferring dignity upon the highest ranks in society. Bankers, merchants, mechanics and farmers now give laws to the world. This great power which they exert is no usurpation—no infringement upon the literati, nor upon the patent nobility that formerly bore sway. Labor is but controlling its own creations. The world is not what it was when it was ruled by prescription, nor what it will be if ever the practical again gives place to the speculative in knowledge. Should any doubt, after all, whether these attainments may properly be termed education, they have only to compare their effects with what is produced by the learning of the schools, and they will no longer be deceived by a name. Fulton and Arkwright are names of which their respective countries and the world may be proud. Few even among scholars can challenge more respect or have conferred greater advantages upon mankind.

3. The Arts. That the arts are justly regarded as contributing to education, is obvious from this, that writing, which forms so considerable a part of scholastic instruction, is only an art. Music, sculpture, and painting, together with the remaining branches of the arts, are less productive of knowledge than writing, but they require equa



talents, and are prolific of truths important to society. Skill in any of these is equivalent to skill in composition, and shows a mind capable of excelling in literature, had its efforts been directed to that department of knowledge.

4. General Knowledge. To perceive the value of general knowledge, we have only to consider how imbecile the man of literature and science appears, till this is added to his other attainments. This arises from the fact that much of what he has learned, has no relation to common affairs; his time has been spent in learned abstractions, as difficult to acquire as they are easy to forget, and so foreign to ordinary pursuits, that to exhibit them subjects him to the charge of pedantry. Life is miscellaneous, and the knowledge which it requires is of a corresponding character; Those concatenations of truth which we call science, are like the fountain, deep and abundant, but circumscribed; whereas general knowledge is like the rain which falls less abundantly and less constantly, but falls every where. Bacon has remarked that the sciences resemble the branches of a tree, all having one common trunk from which they diverge, and in which they are blended together before assuming a separate character. The elements of all our sciences are comprehended in the mass of popular knowledge; and indeed a careful analysis would disclose, in this unsorted and unlabored accumulation, many things that have never yet been investigated. Science is only an enlargement of that knowledge of which no one is entirely destitute. Common occurrences will give us rudiments, and these can be expanded at pleasure.

It is not pretended that these helps are equal in importance to literature and science, but that they are legitimate and efficient sources of education can not be doubted.

SECTION IV. *Practical Principles.*

The practical method which this enterprise involves, forms no small part of its available means. Among the attributes of a successful literary and scientific career, perhaps the following are the most important.

1. An elevated and independent purpose. If those who aim sufficiently high, and who pursue their object by a right method, never fail to find embarrassments enough, what hopes can we have of those who are so grovelling in their pursuits as not even to aspire to excellence? False notions have prevailed respecting the sources of knowledge, and the mis-direction of the public mind has followed as a necessary consequence. The same thing has happened to art. It was formerly thought that no one could paint successfully unless he had seen the works of Raphael and Michael Angelo; a trip to Italy was as indispensable as genius itself. Living artists were to be praised only as their works conformed to this artificial standard of taste and perfection. By degrees, however, the spell was broken, and the fact dawned upon the public mind that these Italian paintings were but the works of men, and might therefore be equalled by men who had never seen them. This lucky admission of human dignity, so creditable to the present age, has reduced the stream of pilgrimage to the shrine of the ancient artists; though the sober use of such opportunities is still justly valued. A similar revolution has yet to take place in science, and particularly in literature. Before we can acknowledge the claims of any one to learning, we must know in what school he studied, and what authors he has read. If he claims to be a poet, Homer, Shakspeare, and Milton are referred to with all the composure imaginable, as the true standard of poetic

excellence. The light of this brilliant triad is converged to a focus, in which the unfortunate candidate places his work for inspection, and if his solitary merits appear to disadvantage under these circumstances, the critics gravely tell us the man is deficient in genius. Our directions to scholars of prospect are very simple and few. They are told to study the great masters, and to draw rules from the embodied wisdom of the fathers.\* How many millions have read Homer, and yet were no poets! How many have poured incessantly over the volumes of original authors without imbibing the spirit and genius they so much admired! We forget that variety is the order of nature, and that her productions though perfect in kind, can not be reduced to any exact resemblance, nor to any uniform standard of equality. No course that could be devised, even if we hit upon nature's own plan of instruction, would raise every person to celebrity in the same pursuit; yet we can easily avoid the stupid process of adoption, and by pursuing a more congenial method, arrive at whatever distinction Providence may have designed. Great authors, like great painters, are of some use to the young by way of example; they show them what can be done without precedent, and in circumstances such as every youth finds to be his own; but of all who need such assistance, the talented and ingenious student is the last. He is sensible of the merits of each distinguished writer, but his style and sentiments are borrowed from none—they are his own—they are the man,

\* "The best way to learn Rhetoric would be to imbibe it at the fountain-head, I mean, from Aristotle, Dionysius Halicarnassus, Longinus, Cicero, and Quintilian."—Rollin's *Belles Lettres*, Vol. I, p. 340, Longinus gives about the same direction, (*Sublime*, Sec. 14,) but in a manner which shows that he would not have a writer resign all pretensions to independent judgment.

and his hopes are from himself, not from others. It is not at all improbable that his feelings often accord with the sentiment of Byron :

“Great things have been, and are, and greater still!  
Want of mere mortals little but their will.”

But for this feeling the author of “English Bards and Scotch Reviewers” would never have been the author of “Childe Harold.” Unless we are animated by principles of this kind, we become the blind admirers of ancient and foreign greatness ; we put it forever out of our power to be any thing but inferiors on the theatre of life. Some have maintained that the beauties of the ancient poets are shut up in the languages in which they wrote ; that they must be lost to the world unless those languages are studied, as, in their opinion, they can never be translated. Leaving the correctness of this assertion to be settled by those who are interested, I shall only observe that if the loss is irreparable, it is by no means unmeasured. Our own language has furnished poetry not inferior to the most exalted of Homer’s. If the subtlety of their idioms should deprive us both of their diction and sentiments, we certainly have of our own a style as grand, and thoughts as good. But why do we thus follow—no, for this obsequious imitation is but the reverse of those deeds which we wish to emulate. Our models were daring and untrammelled, but we, with vanity sufficient to affect their greatness, have not wisdom enough to maintain their independence. The necessity for aiming at least as high as others have done and for acting with a similar freedom from all restraint is a principle which every where pervades the inductive philosophy. Bacon’s precepts are no less remarkable for their boldness than for their success ; take for example the thirty-first aphorism of the *Novum*

Organum. "It is in vain to expect any great progress in the sciences by the superinducing or engrafting new matters upon old. An instauration must be made from the very foundations, if we do not wish to revolve forever in a circle, making only some slight and contemptible progress." Independence, or what Dr. Reid calls a manly state of mind, is one of the first endowments of a well-regulated intellect. The mind is naturally and properly biassed in favor of its own conclusions; but when difficulties occur, there is a propensity to yield to authority and precedent. Nor may we censure, without restriction, such acquiescence. Yet the mind must feel itself competent to decide on the soundness of its own conclusions. Precedent is almost the only rule of action among a certain description of minds; their timidity is less shocked at the prospect of annihilation, than fearful of singularity. These, however burdened their memories may be with the thoughts of other men, have nothing that can be called education. Cringing to precedent is ominous alike of mental weakness and moral corruption; it suffers atrocities and falsehoods to pass unquestioned as virtues and truths, because others have so esteemed them. No vagrant principle like this can consist with mental improvement. The supremacy of reason over all authority, and the sufficiency of reason to establish new precedents for itself, are facts, the knowledge of which is antecedent to any extensive or enlightened researches. Mind can no more improve without resolving facts into their original principles than vegetation can subsist without acting upon the affinities of matter." So accustomed are well-informed and vigorous minds to this digestion or resolution of truth, as scarcely to have a consciousness of the process. This process is what Mr. Locke terms, "bottoming," and however useful it may be for children to find, in authority and precedent, a bottom for many of their ideas,

it is neither wise nor safe for us to be influenced by a provision designed solely for our intellectual minority.

2. The next particular is a right direction of studies. Many have failed in attempting an education, more from the want of a settled and judicious plan than from any other cause. The object to be obtained is definite, and the aim should be proportionally accurate. By education is to be understood a knowledge of the sciences, more or less extensive, but always comprehending a thorough acquaintance with their general principles. It is obvious, therefore, that to secure this, a course of general reading must be very inadequate. General reading is indispensable in its place, but it can not be substituted for a course of elementary studies. This regular training in the principles of established science is the object before us; and though in itself it is but the preparation for action, yet as a preparation it is of the highest consequence. Writers of the last century were in the habit of calling this early initiation, the foundation of the fabric of knowledge; but the expression is quite too strong, as these studies relate less to knowledge as a whole, than to the particular systems of science now in vogue. In some instances the acquisition will only be as the philosophy of Aristotle was to Bacon, and the theory of Ptolemy to Copernicus—a means of disgust, and the occasion of new and unrivalled discoveries. Reflections of this kind abate nothing from the necessity in question; for in several of the sciences the general principles are fully demonstrated, and therefore not injurious, though it should happen that still greater advances be made. Euclid's Elements have lost nothing of their value by the improvements that have since taken place in mathematics. Besides it is not easy to judge of the truth or falsity of a system with which we are not acquainted. If the attention is not steadily directed to rudiments at

first, the science, even if it should afterward be acquired, will cost much more labor than if pursued in the usual order. It is not, however, intended by these observations to convey the idea that the present arrangements of science are not wholly conventional. But it is of little consequence who or what may have given form to the materials of knowledge, for method is only designed to promote convenience; and a very imperfect arrangement must be much better than absolute confusion. The danger to be guarded against is nothing less than the dissipation of force by ill-directed efforts. Power exerted without order wastes itself to no purpose; the limited and miscellaneous acquisitions by which it is followed are a poor consideration for the time employed, and none at all for the opportunity suffered to pass without improvement.

3. Application. It is an undoubted truth that without persevering application scholastic attainments are impossible. All have admitted this, but the consequences of such an admission appear not to have been duly considered. Could all the advantages in the world be combined, they would not of themselves make a scholar; neither can their absence blast the hopes of determined application. The power of application has been questioned, whereas it is irresistible, and with only a right direction can surmount every thing. But we often fail to perceive the practical aspect of things, the theoretic principles of which readily obtained our assent. No one will question the necessity of study, yet few seem to be satisfied that study makes scholars. The sight of eminence prompts us instantly to enquire for the helps, the extra opportunities which have led to proficiency, as though industry could not here claim its appropriate reward. Learned men have not only toiled diligently, but carried to their task a delighted imagination. Hopes of usefulness or of fame have animated their

hearts to a devotion worthy of the objects to which they aspired. Under circumstances of this kind the subject is stripped of all those little mysteries which confuse the remote observer; and the connection of cause and effect is as visible in the profound attainments of the sage; as in the alphabetic knowledge of the child which can only repeat its letters as they are pointed out by the teacher. Scholars and men of genius are the last who affect to learn without trouble, their very efforts being not less remarkable than the success by which they are followed.

4. Original Observation. The philosophy of study shows at once the power of observation. We can not take the first step in learning any science without confining the attention to the principles before us. In this respect—the first and the last steps are alike, and to one who had no previous knowledge of the subject, equally easy. He who observes the character of what he reads will not fail to retain what he learns, nor to place a just estimate upon its value. It is not enough that we understand an author; the perceptive and reflective faculties must be employed upon the nature and execution of his work. By thus observing the various excellencies and defects of standard writers, others have been able to carry forward their labors to much greater perfection. Unless the learned had painfully perceived the true character of those works which engaged their attention at school, the rude and imperfect manuals of former centuries would still have encumbered our seminaries; and what is of far more consequence, science of every kind could at best but have continued stationary. It was observation that broke the spell which the Stagirite cast upon the nations, and that shivered the arm of Roman superstition. It is observation that must resuscitate the mind. Without it intellectual character is but a name—the scintillation of genius is exchanged for the



meteor's glare. These, it may be said, are the higher walks of observation, the things to be done after knowledge is acquired. But of this we are far from certain. An excellent writer has said, "The man who first discovered that cold freezes water, and that heat turns it into vapor, proceeded on the same general principles, and in the same method, by which Newton discovered the law of gravitation, and the properties of light. His *regulæ philosophandi* are maxims of common sense, and are practiced every day in common life; and he who philosophizes by other rules, either concerning the material system, or concerning the mind, mistakes his aim."\* Observation is simply detecting what others had missed, finding what others had lost, or discovering what only awaited a glance of the eye. It is not a power which must be cultivated before it can act—not an act produced by preconcerted measures. All that is essential is that the person should have discernment enough to know the nature of what passes before him; his observations thenceforward are the basis of his knowledge. There can be no mistake in the perception of coincidences where the primary facts are well ascertained, for we instinctively judge in accordance with the premises. Here then the student has always wrought with the entire strength of his mind; and his assiduity in tracing the steps of previous inquiries springs from no excessive veneration for their perfections, but from an assurance that emulation can in no other way be so well promoted.

As an encouragement to this work, let it be remembered that truth, which is the object of study, does not flow merely from facts of a certain order.† Every fact has the

\* Inquiry into the Human Mind, Chap. 1, Sec. 1.

† The truth is, they be not the highest instances that give the securest information, as may be well expressed in the tale so com-

same expression. All truth is in harmony with itself and leads infallibly to the same conclusion, though not always with the same directness. Science is the interpretation of nature. Whoever can seize upon the principle of arrangement displayed in the works before him, has all that science proposes to teach. In confirmation of this, might be cited the history of almost every invention or discovery. The identity of lightning and the electric fluid was established on both sides of the Atlantic at the same time, with considerable variation in the train of previous reflection, as also in the practical experiment. Seldom is the honor of a discovery due to one man, and the historian finds it difficult to adjust the claims of rival pretensions. Nor indeed is it easier to tell in what age, or in what country an art was invented. Not in a few instances has the discovery or invention been the effect of accident; in others it has been the effect of premeditated design; and in all, the wonder has been, that so palpable a truth should have remained so long a secret. Persons may therefore hope, let their pursuits be as they will, to make observations that will be useful. Nor is it certain to what science such observations

mon of the philosopher, that while he gazed upwards to the stars, fell into the water; for if he had looked down he might have seen the stars in the water, but looking aloft he could not see the water in the stars. So it cometh often to pass, that mean and small things discover great, better than great can discover the small: and therefore Aristotle noteth well, 'that the nature of every thing is best seen in its smallest portions.' And for that cause he inquireth the nature of a commonwealth, first in a family, and the simple conjugations of man and wife, parent and child, master and servant, which are in every cottage. Even so likewise the nature of this great city of the world, and the policy thereof, must be first sought in mean concordances and small portions. So we see how that secret of nature, of the turring of iron touched with the load stone towards the north, was found out in needles of iron, not in bars of iron."—*Advancement of Learning*, B. 2,

will most contribute. Buchan, whose work bids fair to outlive the professional reproach with which it was hailed, says, that most of the improvements in medical science have been suggested by persons who were not of the profession. The best confirmation of this remark is the sovereign authority of common sense as acknowledged in the most popular and valuable works of the day. From these the dogmatism of former times is excluded under a conviction that the rational principle is the only test of philosophic inquiry.

5. Analytical reasoning. Nearly allied to observation is that intellectual analysis always employed in the investigation of truth. It often happens to the ambitious youth that opportunities for cultivation are beyond his reach. Acquiescence is impossible. Let the difficulties be ever so great, the indomitable spirit knows its own strength, and will not yield. Every mind is susceptible of emotions, and the very pain inspired by a sense of destitution, furnishes materials for abundant reflection. The soul will investigate the causes of its own misery, and pry into the nature of things until it discovers those great principles on which improvement and happiness rest—principles which constitute the goal where the student, whether rich or poor, stops from desire as well as necessity. Little difference does it make, whence we derive the fact subjected to this analysis. Truth, as before remarked, is alike in every fact, and in its essence inhabits whatever can possibly engage our notice. It is therefore not necessary that all aspirants should move in the same sphere. All the essential elements of truth surround each human being at every step in life; still more, they inhere in his very nature, and are inseparable from his constitution as a rational creature. But the man of genius pours over his subject with an intense anxiety to enlarge the boundaries of knowledge; he is not content to stop where others have done; he must

have other if not better reasons, and in short he is impelled by a sense of duty to be original, deep and independent in his conclusions. It is only by subjecting the stereotyped lessons of science to this process, that we can develop those latent truths on which the progress of knowledge depends. That propositions or principles now received as elementary are susceptible of further analysis to an indefinite extent, is a fact no less certain in its character than extensive in its application. "The stage at which one inquirer stops, is not the limit of analysis, in reference to the object, but the limit of the analytic power of the individual. Inquirer after inquirer discovers truths, which were involved in truths formerly admitted by us, without our being able to perceive what was comprehended in our admission. It is not absolutely absurd to suppose that whole sciences may be contained in propositions that now seem to us so simple as scarcely to be susceptible of further analysis, but which hereafter when developed by some more penetrating genius, may, without any change in external nature, present to man a new field of wonder and of power."\*

6. Expansion of sentiment. If the mind can not go abroad to gather from various sources, it takes hold upon whatever may be within reach, and out of just the material on hand a stately fabric is sure to rise. A single thought must serve instead of libraries. Having one principle in possession the student feels himself connected with the immensity of truth, and it is soon perceived that the applications of which each truth is susceptible are more extensive than the best powers can accomplish. This idea is illustrated practically by all writers of fiction. They assume, in general, some leading fact, and on that alone build their subsequent speculations. The fact that such works are

\* Brown's Lectures on the Philosophy of the Human Mind. Vol. 1, page 490.

commonly worse than useless, is to be imputed to the sentiments introduced, and not to the manner in which they are written. A good author never wearies the reader by prolixity; however much he may expand the thought, his sentences are not wanting in substance. Let the reader take up the most attenuated essay of Johnson or Goldsmith, and he will find them rich in matter, as well as beautiful in manner. True genius is prolific of thought; it has the ability to dwell upon a theme without degenerating into fiction, or being disgusted with the necessary uncertainties of all intellectual labor. Some of the best works extant have been produced in this way; their authors began them with no intention of writing so extensively, but were induced to change their design by finding that the subject admitted of greater amplification. Speaking of his *Essay on the Human Understanding*, Mr. Locke says, "when I first put pen to paper, I thought all I should have to say on this matter, would have been contained in one sheet of paper, but the farther I went, the larger prospect I had; new discoveries led me still on, and so it grew insensibly to the bulk it now appears in."\* Another scarcely less celebrated work—the *Saints' Rest*—grew up in the same manner. "The second book which I wrote," says Mr. Baxter, "and the first which I began, was that called *The Saints' Everlasting Rest*. I began to write on the subject, intending but a quantity of a sermon or two, but being continued long in my weakness, where I had no books, and no better employment, I pursued it, till it was enlarged to the bulk in which it is published."

7. *Universality of thought.* Although it may often be necessary to spend much time in tracing the various relations of a single thought, yet there are too many who confine their researches to one or a few branches of inquiry.

\* Epistle to the reader.

Not that it is possible even for genius to excel in every department; this is not to be expected or desired. But when important conclusions are to be established, it is essential that the mind should comprehend the several relations of the facts to which it has arrived. When conclusions rest upon a narrow base, it is with great difficulty that the mind can be brought to feel their force, and to many, they will always appear no better than consequences deduced from hypothesis. The mind can judge of things only according to what it knows, and where its knowledge is insufficient if it presumes to act at all, there must necessarily be an exhibition of folly. Such persons are not more ready to receive a mystery, nor more easily persuaded than others, but they are capricious, believing where they should not, and refusing to believe where there are sufficient grounds of faith. And this error must always exist where the intellect is not accustomed to survey the entire system of things.

By extending his observations to other departments of knowledge, the solitary inquirer has it in his power to determine the value of all existing science, for every known fact must be understood in conformity with the whole. If facts shall yet be discovered which clash with any of our principles, we must immediately modify our previous views to meet the demands of truth. The arts and sciences are constantly changing from this very cause. New discoveries are renovating and enlarging former systems, and the prospect of improvement increases with every accession of facts. Now these discoveries are most frequently made by men who, for some reason, have avoided the common path. And in estimating their merits, praise seems due to the course they took, rather than to the vigor of their powers. A popular writer has indeed cautioned us against relying upon thought for the acquisition of any part of our knowl-

edge. "By thinking," says he, "we can arrange what we do know, so that we can more readily use it, and we make room for other knowledge; but we can not think ourselves into an acquaintance with even the simplest thing that we do not know by some other means. It is the belief that we can; that thought can do what thought never did, can do, or was intended to do, which lies as a stumbling block in our path, and hinders us from knowing a great many things that would be very useful as well as very pleasant to us."\* If this singular view of the intellectual economy were to be regarded, we should soon cease to think, and the facts furnished by observation would remain undigested in the mind; there would be neither inference nor application in reference to any thing we know. But in fact there can be no such thing, for the observation which he recommends, is but a mode of thinking. It is to be sure a mode of thought not altogether so prolonged as the mind often has occasion to employ, but at the same time it is as really thinking as any other exercise of the intellect.†

8. Combination of practice and theory. Merely theoretical education has been subversive of the best interests of learning. The student removed too much from those associations which in practical life so powerfully assist the mind, usually retains but a small part of his acquisitions, and these from the circumstances under which they were acquired are very imperfectly available. It has been con-

\* Mudie, Popular Guide to the Observation of Nature, p. 32.

† Locke calls "Perception the first simple idea of reflection."—He adds: "Perception as it is the first faculty of the mind, exercised about our ideas; so it is the first and simplest idea we have from reflection, and is by some called thinking in general." (Book 2. chap 2. sec. 1.) If perception may be considered as an act of the mind, much more may observation which clearly conveys the idea of thinking, or of intellectual exertion.

jectured, and not without probability, that only about one in every thousand of those who now study Latin ever acquire a tolerable knowledge of that language. Formerly it must have been very different, as scholars generally were able to read and write that language with facility, and many of them could speak it with fluency. Now we can not account for this difference except on the ground that the mode of instruction has deteriorated. To study Latin was once almost as easy to the English, and much more common, than to study their vernacular tongue; then the language was employed for practical purposes, and to the study of abstract rules and definitions was joined the force of habit—habit, without which such acquisitions can neither be perfect nor permanent. If scholars do not succeed so well as they then did, it is because their attempts are not sustained by practice; because it is nearly impossible to learn a language which we do not use.\*

\* This view of the subject is not presented as new. While Latin was yet used for composition, the futility of attempting to learn it exclusively from books was felt and acknowledged. Mr. Locke who wrote extensively in this language, has suggested the better course, and the only one that can render the study of Latin, or of any other language, reasonably successful.

“ But how necessary soever Latin may be to some, and is thought to be to others, to whom it is of no manner of use or service, yet the ordinary way of learning it in a grammar-school, is that, which having had thoughts about, I can not be forward to encourage.—The reasons against it are so evident and cogent, that they have prevailed with some intelligent persons to quit the ordinary road, not without success, though the method made use of was not exactly that which I imagine the easiest, and in short is this: to trouble the child with no grammar at all, but to have Latin as English has been, without the perplexity of rules, talked into him; for, if you will consider it, Latin is no more unknown to a child when he comes into the world, than English; and yet he learns English without master, rule, or grammar; and so might he Latin



We are not unfrequently embarrassed by the repugnance of Scholars to the sheer didactics of the school-room. They are anxious for instruction, but the initiatory process to most sciences is so painful and repulsive, that their patience is exhausted before they are enough advanced to feel the inherent impulses of truth. In this way discouragement is dealt out to thousands in the incipient stages of instruction, and they are left to deplore some fancied idiocracy, or luckless conjunction of the stars, as the potent cause of their misfortune. But the real cause consists in the dismemberment of nature's plan. We have detached

too, as Tully did, if he had somebody always to talk to him in this language. And when we so often see a French woman teach an English girl to speak and read French perfectly, in a year or two, without any rule of grammar, or any thing else, but prattling to her; I can not but wonder, how gentlemen have been overseen this way for their sons, and thought them more dull or incapable than their daughters. If therefore a man could be got, who himself speaking good Latin, could always be about your son, talk constantly to him, and suffer him to speak or read nothing else, this will be the true and genuine way, and that which I would propose." Locke on Education, Sec. 165.

The ease with which children learn a language has often been remarked, and some have accounted for it by supposing them possessed of a peculiar faculty, which, decaying in after life, leaves the adult less capable of such acquisitions.

"The readiness with which a child acquires a language may well be called a rational instinct: for during the time that his knowledge is built up, and that he learns to handle the implements of thought, he knows no more of what passes within himself, than he does of the structure of the eye, or of the properties of light, while he attends to the impressions on his visual sense, and gives to each impression its appropriate name. As the memory becomes stored with words and the mind accustomed to their application, this readiness of verbal acquisition gradually decays, and at length, with some persons, almost disappears. That this is true, I need only appeal to the experience of those, who after being disused to

parts, to dissever which, if it be not death, is at least an end of utility. That a child will walk and talk and reason is too evident to be disputed; and yet all these things are learned in some way. The truth is, they are self-learned, that is, practically, or according to nature. Nor is there any thing undesirable to the juvenal mind in the process of these acquisitions. Under the tuition of nature they learn almost unconsciously, and each step of the progress is attended with delight and an irrepressible anxiety to proceed. A perfect system of instruction would be attend-

such studies, have attempted to learn a language. They will tell you of their feelings of mental drudgery and intolerable fatigue during their slow, laborious progress, in acquiring what a child gains without knowing how, and a young person learns cheerfully and without a sense of toil." Discourse on Classical Science, &c., by Adam Sedgwick, M. A., F. R. S., Trin. Coll., Cam., Eng.

But facts afford no countenance to this hypothesis. A child would learn no faster than an older person, if doomed to labor under the same disadvantages; indeed we can scarcely suppose it capable of learning a language at all by such means, and it is only by the most invincible efforts that persons of maturer years ever make any tolerable progress. Proceeding, however, on better principles, the old, as well as the young, can always acquire languages—and acquire them too with facility. Of the thousands of foreigners who come to this country, very few fail to learn our language in a short time. This is done mostly without books, or formal instruction of any kind, and in the same manner that a child learns its native dialect. Latin and Greek might be gained with equal rapidity if pursued under similar advantages, and without such advantages the study of them must necessarily be abortive.

Milton, who wrote at a still earlier period, appears to have been of the same opinion with Locke. He thus speaks of the common course: "We do amiss to spend seven or eight years merely in scraping together so much miserable Latin and Greek, as might be learned otherwise easily and delightfully in one year." Tractate on Education.

ed with similar effects when applied to any of the sciences. The great peculiarity of nature's method of teaching, consists in a series of imitations, or incessant practical attempts; on these hinge the whole of this extraordinary success. Nature evidently pays but little regard to theories. She sets her pupils immediately to copying. And if authority like this may be allowed to suggest the most efficient mode of instruction, we must fix upon that which employs immediately in practical operations the powers of the learner. The astonishing success which so frequently attends efforts at self-education is mainly attributable to this very circumstance. Compelled through a want of most of the ordinary means of instruction, they who thus distinguish themselves enter at once upon a course of original observations, guided by such hints as they have gleaned from common sources of information; and the result is, that instead of treasuring up the ideas of others, and leaving their own minds destitute of original knowledge, they soon acquire those habits of close thinking and deep research so essential to eminence. Sir William Herschel and David Rittenhouse, two of the brightest lights in modern astronomy, began their successful experiments and observations almost coeval with their first acquaintance with the science. And this is the course universally pursued out of the schools in communicating the arts and sciences. Society left to itself instinctively proceeds in the only natural method of teaching. Many who are eminent mechanics never had any instruction, and nearly all mechanics acquire their knowledge of their respective trades with very little written or oral instruction. Indeed no reliance could be placed upon merely verbal tuition. It might lead to a knowledge of the theory, but could never impart an actual possession of the art. This being settled with regard to the mode of studying the arts, it becomes a,

question how far the same principle is applicable to the study of literature and the sciences of the schools. Art, literature, and science, are parts of the same thing; there is no generic difference between them, and, consequently what holds true of one, must with proper restrictions, hold true of all the rest. It follows therefore that the study of abstract rules unaccompanied by a practical application of them, can never make a scholar, or at least will not be more efficient for that purpose than the contemplation of a work of art in producing an artist. "It ought never to be forgotten," says Dr. Dick, "that the habit of accurate composition depends more on practice, and the study of good writers, than on a multitude of rules; and I appeal to every one who is in the habit of composing, whether, in the moment of committing his thoughts to writing, he ever thinks of the rules of syntax, except, perhaps, some of those now specified."\* He had just cited three or four of the principles of syntactical arrangement as sufficient, in his opinion, for the early information of students. I would only remark, that what is true of the rules of syntax, as a help to writing, is equally applicable to rhetoric, and most of the other prerequisites of authorship. Hence it appears that nature may succeed without art, but art without nature never can. Genius has ever shown itself independent of formal rules, and its most valuable productions have originated in the absence of those advantages, which, by superficial observers, are considered essential to greatness. So purely original is the mind in its achievements, that it seems to lay aside all direction and trust entirely to its own powers. For this, if for no other reason, the acquisition of abstract rules should be regarded of inferior importance to intellectual cultivation. The immediate effects of education conducted upon this principle

\* Mental Illumination, &c., p. 130.

would be various and eminently happy. Such useless abstractions and antiquated lumber as have been indiscriminately forced upon the attention of youth—things which can never be reduced to practice, would give place to elements of instruction, precisely adapted to their wants.—Years of time now thrown away, because spent upon studies of no practical use, would be saved for the nobler purposes of life. Instead of transmitting to posterity the exact lessons that were taught a hundred years ago, the march of improvement would be facilitated, and new discoveries and principles equal if not superior to any now known, would be added to those of former times. Franklin, Watt, and Jenner, with their thousand compeers would seem to live again; and the vantage ground of knowledge would no longer be contingent to them, to whom nature had not denied a capacity for learning.

I only intend to say that the points to which reference has been made are characteristics; not that they are the outlines of a perfect system. Perhaps it is impossible accurately to define the elements of a successful practice. When contrasted with its opposite, the difference will always be obvious, yet the distinction is too subtle to be embodied in words. Original principles can not be defined—we can only name them, and enumerate some of their manifestations. We can never tell precisely in what form the love of science will display itself; nor is this to be regretted since the result is always the same. Knowledge is a species of property and the cumulative process substantially the same as that by which money is acquired.—Whatever would be rational as a practical rule in other affairs, may easily be transferred for the government of literary pursuits. Does business require to be closely and extensively pursued to render it profitable? The same is true of study, which is only another department of labor,

and attended with equal certainty of success. Science is truth elaborated by thinking, whether recorded on the leaves of a book, or retained by the memory alone.

My observations on this subject have been dictated by a belief that ultimate success in self-education depends upon invincible firmness, founded on a conscious capacity for intellectual pursuits. And, abstract as these remarks may seem, it is hoped they will furnish some idea of the inceptive workings of mind anterior to its bursting from obscurity with powers which command the admiration of the world. We have omitted those rules of study which, although seldom written, are practically enjoined in all good seminaries; they are such as the good sense of a person would naturally suggest for his own benefit, or rather, such as literary occupation enforces upon the attention of those engaged in it, and consist essentially in nothing more than discreetly using the faculties we possess. The real advantages of literary institutions are often overlooked by those who are debarred from attending them, and an anxiety to enjoy advantages wholly imaginary, prevents their retrieving, by suitable efforts, the real misfortunes of their condition. In view of this it would be very useful to them, to spend some time at such an institution by which they would become acquainted with scholastic habits, and also learn, that even at school, knowledge can not be gained without close application to study—the only condition of self-education.

SECTION V. *Mechanical Facilities.*

1. Books. The nature of many things is lost in their antiquity. What was at first solely an effect, from having been subsequently productive of many effects, is mistaken for an original cause. In a former chapter it was observed that colleges were an effect of classical education, and not originally its cause; but the same may, with equal truth, be affirmed of books and of all the advantages to be derived from them. The literature of the present day is, with a few exceptions, not very ancient. Our books did not produce the sciences of which they treat, but on the contrary, the invention and maturity of the sciences produced the books. Some sciences had been invented and taught orally for many years before any written record of them was made for the public. Such as would excuse themselves from the prosecution of truth for no other reason than the want of a book, must, therefore, be rebuked by all the splendid triumphs of genius for the last three hundred years. Prior to that period, or before the art of printing was invented, books could scarcely be reckoned among the facilities for acquiring knowledge—they were too dear to be generally available, and too few to afford sufficient variety. Under such circumstances the works of authors were left to accumulate in public libraries or in the hands of the rich, while those distant from these depositories, and especially the poorer class of people, were necessarily deprived of those advantages which the typographic art has now made almost universal.

A book is but a mere record of what the mind has done, and though very useful as a guide to inquirers and

nearly indispensable as a reference to those already learned, it can be regarded only as a convenience; like other conveniences it is far from being essential. Intellectual fabrics of this kind may sometimes reproduce themselves, but they are more commonly spontaneous productions on which the mind is as little dependent as any other cause is on its effects. Books are a never-failing consequence of intelligence; they have been manufactured by all nations and by all persons whenever they have found any ideas worth writing. When letters are employed as the shrine of knowledge, books must follow as a matter of course, for it is only by collection and arrangement in some form that letters can be made to answer this purpose; hence, however useful books may be, they are to be considered the effect, and not the cause, of mental improvement.

That books afford great assistance is undeniable, but it must be remembered that they assist us to acquire only what others have known. Our march over the beaten path of science may be greatly accelerated by them, but they can not guide us in the unknown regions of intellectual discovery. Here the mind is compelled to act for itself, and the independence which thus ultimately proves to be unavoidable might safely have been adopted at the very commencement of its inquiries.

2. Reading. Reading is a facility, noble and almost unbounded; it introduces us to all the recorded wisdom of the past, and, if thinking were not the soul of improvement, would probably constitute the utmost limit of our inquiries. The natural sources of information, except reflection, are necessarily circumscribed, and it is only by means of a mechanical arrangement of arbitrary characters that this deficiency can be supplied. Even reflection or thought, which knows no bounds and needs no external aid, however vast its achievements, must depend upon let-



ters to give permanency to its acquisitions. But reading is chiefly valuable because it gives a sensible manifestation of things beyond the narrow sphere of personal knowledge, thus as it were making words, pronounced in distant countries and in remote ages, and which naturally could have been heard only by the few then and there present, fall upon our ears with the same force as if we had formed part of the original auditory. An art which can overcome the evils of distance and time, thereby virtually constituting us pupils of the greatest masters and possessors of the aggregated treasures of history, is undoubtedly, as a means of education, next in importance to that act of the mind by which it elicits truth and fabricates systems for itself. In order to be profitable, reading should be extensive. A student should read not only what is convenient, but whatever comes in his way that is worth reading. No good book should escape him. Mr. Todd, in his Student's Manual, has particularly cautioned against devoting too much time to reading; a caution, by the way, as unphilosophical as it is unnecessary. The hackneyed lessons of the text book are not the whole of what should pass through the mind of a student. If it should be thought advisable to delay this universal research into books till the period of academical studies is past, there are objections against this also, to which there appears no satisfactory answer. Those who were readers before they began these studies will find it hard to resist their habits; while such as were not, and do not become extensive readers during this period—or upon the occurrence of the first opportunity—may be set down with that class who, to use the words of Byron, “ought to have learned to make the paper they waste.” Miscellaneous reading should not infringe on the regular lessons; nor will it have any such tendency where there is much self-government. It is in

the morning of life that the general intelligence supplied by books is most needed; when the character is to be formed, when plans for life are to be laid, then, if ever, the mind requires the aid of extensive research. But commonly at this period the attention is confined to elements as a preparation for the future, and it is only after that future has been gained by the individual, that other information is considered necessary or practicable. It may be objected that a whole life would be insufficient to read all the works which have accumulated in the libraries of the learned. So much the better. If they were a thousand-fold more extensive than they are, they would be only the more valuable for whatever they exceeded the powers of any single reader. Those who think all parts of what an author writes of equal importance, who read by rote, and devour with the same avidity introductions, reflections, corrolaries, and so forth; ought indeed to stipulate for some limits to what they thus indiscriminately consume. Even the slightest acquaintance with a valuable author has its uses; and where all that could be desired is not practicable, the little which may be gained ought to be the more highly esteemed. Sir Walter Scott, and many other eminent literary characters, owed more to their habits of research among books than to any other circumstance—genius excepted. Their reading, however, was almost immeasurable, and pursued with reference to plans of their own which could not have been perfected by other means.

3. Writing. The mind derives the same advantages from the pen in delineating its thoughts, that the painter derives from his pencil in spreading his conceptions upon canvass. Writing is in fact, but a species of intellectual painting. By a mechanical process, thought is indicated to the eye with as much facility as sound indicates it to the ear. But the benefit of writing does not consist in merely

transferring our ideas to legible characters; a greater benefit is found in the aid, which it imparts to acts of investigation. Not that the mind knows a thing more perfectly when it is written, than when it is not, but from the difficulty of retaining thoughts in the memory, we rarely think extensively without some more effectual means of preserving our intellectual labors. With those who do not write, truth is apt to exist in the form of principle only—of principle unexpanded and unapplied. The art of writing enables us to draw out and amplify this abstract material to the best advantage, and by furnishing assistance to the thinking faculty prompts it to greater exertion. To this increased activity of the mind, more than to any thing else, we may ascribe the corrective influence which attends the habit of writing. “It is wonderful,” says Dr. Miller, “how far the crudeness and inadequacy of a man’s knowledge on a given subject, may be hidden from his own mind, until he attempts to express what he knows on paper. He then finds himself at a loss at every step, and can not proceed without much extension, and no less correction, of his former attainments. Nay, sometimes he finds that he must begin again, from the very foundation, and that he has not really mastered any part of the subject.”\* To the same effect is the well-known maxim of Lord Bacon, that “Reading maketh a full man; conference a ready man; and writing an exact man.”† That he relied upon writing for nothing but to assist the memory is evident from that part of the sentence which immediately follows the above quotation: “and, therefore, if a man write little, he had need have a great memory.” The rapidity with which many writers compose shows that

\* Letters on Clerical Manners and Habits, p. 231.

† Essays, 50.

their thoughts are already perfect, and that they have only to transfer them as fast as legible characters can be made. Yet this is not the case with all, and, for want of that mental industry which is secured by writing, many unconsciously remain in ignorance and in error. Neither should it be forgotten that literary composition is no infallible preventive of these evils. The labor of writing will not always induce caution and depth in thinking; consequently much that is written partakes of all the imperfection peculiar to an inactive state of mind.

4. Apparatus. "But certain it is, that unto the deep, fruitful, and operative study of many sciences, especially natural philosophy and physic, books be not the only instrumentals; wherein also the beneficence of man hath not been altogether wanting: for we see spheres, globes, astrolabes, maps, and the like have been provided, as appurtenances to astronomy and cosmography, as well as books; we see likewise that some places instituted for physic have annexed the commodity of gardens for simples of all sorts, and do likewise command the use of dead bodies for anatomies."\* It is to the great improvement, which, since the days of Bacon, has been made in this class of facilities, that we are indebted for some of the principle discoveries in natural science. Nature herself is, indeed a vast laboratory where every element is also an instrument, and every instrument is prolific of instruction.

5. Libraries. Books are so cheap that with some little exertion the various elementary works may readily be obtained; but these are by no means to be deemed sufficient, if more extensive collections can be procured. In general, the money which would enable an individual to purchase a library for himself, would, if directed to that object, furnish him with every possible facility for education;

\* Advancement of Learning, B. 2.

such persons have their choice of advantages—they may buy for themselves what others can at best but have access to through generosity or hire. Large collections of books afford opportunities to the student for which he will seek in vain elsewhere, and it is a most gratifying circumstance that these helps are generally available on exceedingly favorable terms. Public libraries are either free, or the same as free to all who will make a proper use of them. But at whatever cost or labor such assistance may be gained, the advantages will repay the expense and the toil a thousand fold.

#### SECTION VI. *Patronage.*

It is often of service to youth to point out the means by which they are destined to rise. By this means the utopian schemes of childhood, the wild vagaries of imagination, so common and so innocent at that age of life, will be seen in their true light, and remembered only as the inconclusive reasonings of a mind too little informed, to comprehend the conditions of its existence. Before a knowledge of the world has disclosed the laws which control the distribution of property, we naturally think that a noble design can not fail to find sufficient pecuniary support, nor to meet with that encouragement and countenance obviously needed in every difficult enterprise. But it requires no lengthened experience in the practical operations of greatness to show us that hopes of this nature are fallacious. Yet, rejecting all secondary assistance—such as, patrimony, gifts, emoluments, influence, and so forth—there is sufficient patronage for every well constituted mind. He who thinks of patronage—in the ordinary sense of that term,

does but dream; yet such is the strong tendency of the youthful mind, to lean upon this most precarious of resources that it becomes necessary to indicate, not only the value of this fictitious assistance, but those stern realities on which successful enterprise is always hinged.

1. Want. There are advantages in want. However paradoxical such a proposition may seem, time has long since, given it the authority of a maxim. It is an old adage, that necessity is the mother of invention. But the important truth of this proverb has seldom had an extensive application. Some occasional success may have been imputed to the urgency of want, yet it has not been acknowledged as the stimulous of greatness. It has provoked no gratitude as a benignant agent of Providence; it has seemed an evil, even where, but for its inspiration, life would have been a blank. The destitution of most young persons is better calculated to elicit just sentiments than a profusion of positive means. Experience has shown that where there is no want there is no exertion. The feeling of need which presses so heavily upon the young aspirant, is worth more to him than thousands of gold and silver, for it is by the aid of feelings like these that he becomes irresistible in contending for the objects of his ambition.—His soul is energized by a consciousness of impending evils, and this energy is of itself equal to any emergency. Fame has her Lent. And from the deep, and never-to-be-forgotten sufferings of his early career the champion of truth derives a cast of mind precisely adapted to the exigences of his future life. Cut off from ordinary helps, it may be, or perchance, having designs wholly extraordinary, and meeting with no corresponding helps, he assumes responsibilities and executes measures on that extended scale which takes a universe into its calculations. This intellectual hardihood never fails to spring forth, sooner or

later, where the mind is left to itself. On the contrary, where facilities abound, a habit of dependence is created, and we insensibly lean upon others for advice and for instruction, until, from disuse merely, our own minds are no longer to be trusted. There is no way of avoiding perpetual minority, or premature dotage, but to dash out of the beaten track, to set up for one's self independently of others. This implies no hostility to others or their views; it is merely an assumption of that individuality which belongs to man as an accountable being and without which even his social improvement is impossible. Necessity presents us, however, only negative advantages. Indispensable they are, but they are not alone sufficient.

2. Providence. There is a peculiar felicity in the thought that between us and the divine Omnipotence, there is no intervening agency. The association is grand beyond all conception, and can not fail to exert an ennobling influence on whoever rightly indulges the reflection. All truth belongs to the Creator, and he imparts as much to his creatures as is consistent with their circumstances.— And the enquirer, supported by a relation like this, can not easily despond. He does not know, but his Helper does; and hence, if chagrined by disappointment, he enjoys the greatest possible proximity to those desirable arcana which have so universally engaged the solicitude of mankind. It is thus that a sort of appeal is made from all sublunary and momentary adjudication, to the developments of an after life, and the conclusions of infinite Wisdom. This appeal, when properly made and solemnly felt; that is, when it is the dictate of conscience, as well as of the mind, is one of the most auspicious events that can occur to the intellectual constitution. Rarely has a great genius appeared who had not to make a public recognition of his dependence on Providence; not as a religious

act, but as a sequence of argument, or, more plainly, as the result of his circumstances. Where great attainments are sought, proportionate assistance must be had; but who or what is adequate to the necessities of him who takes the trackless path of discovery? He may or may not be caressed after success has crowned his labors, but it is all one to him. The assistance by which he toiled is not one of those trifling influences that, like the thermometer, falls with every depression of external temperature; it upholds him with equal dignity in the pursuit, and in the consummation of his object—when the world knows not, and also when it contemns the purpose of his ambition.

3. Personal effort. I come now to that part of my subject more intelligible to the impracticed eye of youth. If we may believe them, few would remain ignorant if any exertion of theirs could avail to the contrary. Not every act, no, nor any number of acts, unless they are of the right kind, will obviate the difficulties in question. But there is a competency in juvenile powers notwithstanding. No permission is to be asked, as no one has either the power or the right to imprison the soul. Liberty, however, is a useless boon if other things are misunderstood. Each has what no other one can get from him. This is all the freedom that should be expected. Every youth should regard himself the artificer of his own fortune, be that fortune what it may. If he has means of any description, for any length of time, it will be because he could not be deprived of them by the antagonist forces crowding him on every side. Life, it is said, is a perpetual war against tendencies to decay, and the remark is not less applicable to knowledge, and the means of prosperity in general. In this respect all are on a level, no one having more than his individual might can command. Very certainly great inequality exists as to external advantages, if positive aids



can alone be relied on, but that we can never trust to them is more than proved by the negligence and supineness which a consciousness of their possession so generally inspires. Numerous instances of failure occur among those who trust to their own exertions, but the number is inconsiderable when compared with a similar class who have had every pecuniary assistance; and the failure is not to be charged to any inherent deficiency of means. When not caused by error in the application of their powers, it has resulted from agencies over which it was never intended man should preside. Youth may expect assistance, they may think it very rational and very natural for them to be commiserated, but it is like reasoning in a circle, their expectation returns to them again, and they can never advance beyond their present position. The world is moved by motives that are easily apprehended. But genius when it calls for patronage is obscure and unknown. Let it come to light, let indubitable proofs of its existence be given, and there will be no complaint that it is not respected and sustained. I need not add, however, that at this stage it has a self-supporting power, and can do without the hitherto reluctant applause of the world. It has in fact laid the world tributary at its feet, and extorts now what it once solicited in vain. It would be all unjust to say there were no seasonable patrons. Some there are; yet how few the number, and how improbable that it will ever be greater!\* Nor is it any cause of regret that

\* Improbable, because in a long succession of ages but few have received assistance till after the period when it was most needed, had transpired. Mæcenas, the patron of Virgil and Horace, is usually referred to as an instance of liberality to literary men. But these poets had long been celebrated before they enjoyed the favors of Mæcenas. Without this patronage they might have died less wealthy, but not less renowned. Dr. Franklin, knew well what sort of patronage genius required when he established a fund

efficient patronage can seldom be found, inasmuch as it often brings with it a train of disagreeable consequences; creating dependence inconsistent with liberty, even if it does not require perpetual inferiority as the price of its favors.† Powers that are inadequate to establish themselves are beset with some radical defect that disqualifies them for high pretensions in this rugged world. Why should it not be so, since this is the place in which their qualities are to be tested? Tears are shed in vain over talents that might have been conspicuous; the fact that they were not so should allay all uneasiness at their fate. Doubtless some circumstances are more favorable to improvement than others; but it is the task of genius to rise above every difficulty—to force even difficulties into its service, and make them its most efficient helps. Often has the pain occasioned by the absence of the usual facilities for science, so wrought upon the mind that the powers of observation have struck out a new path to eminence, and that necessity which seemed the precursor of ruin, has

to be loaned conditionally to poor young men to aid them in the very commencement of their enterprise. Patrons are such as anticipate the development of talents; they are such as try to assist the infant Hercules, knowing that the giant strength of maturer years will enable him to do for himself.

† “Some were indeed admitted by caprice, when they least expected it, and heaped by Patronage with the gifts of Fortune; but they were from that time chained to her footstool and condemned to regulate their lives by her glances and her nods.” *Rambler*, No. 91.

The conclusion of this “allegory on the conduct of patronage” is too happy to be omitted. “The Sciences, after a thousand indignities, retired from the palace of Patronage, and having long wandered over the world in grief and distress, were led at last to the cottage of Independence, the daughter of Fortitude; where they were taught by Providence and Parsimony to support themselves in dignity and quiet.”

proved the harbinger of fame. As well might the unshorn Samson be bound with withes as the immortal mind tied to ignorance against its own consent.

It may be doubted whether the connection between external advantages and scientific proficiency is well understood. Hitherto in the race of improvement, they that have had many means, and they that have had few, have prospered alike; the pioneer artist or philosopher has even held the pre-eminence, because there being no perceptible difference between him and his successors, it is right that the first should hold the place which is his by seniority.— And we are obliged to conclude either that means are like the manna of the wilderness, of which “he that gathered much, had nothing over, and he that gathered little had no lack;” or, that the mind of man is endowed with powers which elevate it above dependence upon adventitious circumstances. Of these opinions, though both amount to the same, the latter is of course the only one admissible.

From premises like these, but one conclusion can be drawn. Genius is an alliance with Heaven, and its power over subordinate agencies must be derived from the attraction of its own splendor. Prior to its ascendancy in the estimation of others it must rely upon the intrinsic efficiency of its own powers. This may not seem an inviting view of our subject, but fidelity forbids a lighter shade.— It is not our object to amuse by commenting on the respective merits of different modes, but to give the substance of all modes. We aim at certainty, and can not stoop to that fastidiousness which shrinks from the bold outlines of truth. Let science be acquired as it may, these are the essential principles by which the student must be governed. He will find in the long run, in the summing up, that besides the oppression of want, he had no patronage but God and his own right hand.

SECTION VII. *Pecuniary Resources.*

The preceding section, I have no doubt, will be thought to indicate plainly enough the general character of these resources. But this necessary self-dependence has its peculiar method of acquisition, and our object now is to note the practical details which that method imposes.

1. Industry. Others may, or may not, be compelled to work, but the candidate for self-education, ordinarily has no alternative; he must either labor industriously for the means of support, or abandon his literary hopes forever. Where the desire for knowledge is hopefully strong, there will be no reluctance in conforming to a necessity of this kind. Personal energy is a species of capital always invested with pleasure in approved pursuits. An unwillingness to labor for the means of education is, of course, an unwillingness to labor for education itself, and bespeaks a mind of that class for the improvement of which no provision has been made in the present allotments of human nature. Examples too numerous to mention may be found of those who have risen to the highest eminence of learning, unaided by any financial resources but their own industry. With some this would be no difficult task, as they can command more lucrative situations than fall to the common lot; still, industry has always been found sufficient for those who have relied on it, whatever might be its comparative returns. Almost any business will afford something more than a mere subsistence, and this surplus may be devoted to the purchase of books or other facilities of science; but even where there is no excess—where all, and more than all, is absorbed by the current wants of physical life—there is still enough, because the mind can

think, and every thing is within the reach of thought. No occupation can monopolize intellectual capacity, and to the efforts of a determined mind, manual labor soon ceases to offer much resistance. As an encouragement, it should be observed that the world has to do only with the results of genius; it is of no consequence to us whether the celebrated authors of antiquity were rich or poor—as neither of these conditions could have had any sovereign influence over their productions.

2. Economy. If judicious economy does not increase money, it accomplishes the same thing by increasing the effects of money. It is therefore to be reckoned among the most important pecuniary advantages, and this whether we regard the wealthy or the indigent. A poor person who has any just idea of the value of knowledge can scarcely be the subject of temptations to extravagance; a desire for learning excludes every wish for the frivolous objects on which money controlled by ignorance is usually lavished. Yet there is danger lest the very limited means which the impoverished student can command should seem to render even economy useless. But if the means are small there is only the greater need that they should be rigidly applied. It is not for us here to give particular directions for such disbursements, but we can not help remarking that they should always be governed by the principle which influenced Erasmus, when in like circumstances, he said, “As soon as I get money I will buy first Greek books, and then clothes.”\* This was good economy—it was strictly in accordance with his predominant purpose to obtain an education. The late Dr. Adam Clarke purchased his first Hebrew grammar with a half guinea which he found in the garden, while a charity student at Kingswood school.†—

\* Pursuit of Knowledge under Difficulties, vol. 1, p. 25.

† Life, vol. 1. p. 88.

There is nothing peculiar in these examples—nothing but what every individual that has an honest and firm intention to acquire learning will constantly exhibit. With numbers who professedly aim at education there is none of this consistency, because they have none of the inspiration from which it originates. Equal desire will always produce equal effort.

3. Self-denial. This is an inexhaustible mine of wealth; negative to be sure, but ever available, and not the less efficient for being of the negative order. In the present state of the world human necessities are of two widely different kinds, fancied and real. The former happily are much more numerous than the latter, and comprise the greater portion of those wants for the satisfaction of which money is demanded. Hence, although the real wants of nature have never varied, the actual cost of living has been extremely various at different times. Dr. Johnson estimates that a pension of two pounds which Henry the Eighth bestowed upon Roger Ascham, was at least equivalent to ten times that sum a century and a half later.—The estimate however is based partly upon a supposed difference in the nominal value of money. His remarks on that class of wants now under consideration are too important to be omitted. “But the value of money has an other variation which we are still less able to ascertain: the rules of custom or the different needs of artificial life, make that revenue little at one time which is great at another. Men are rich or poor, not only in proportion to what they have, but to what they want. In some ages, not only necessaries are cheaper, but fewer things are necessary. In the age of Ascham, most of the elegances and expenses of our present fashion were unknown; commerce had not yet distributed superfluity through the lower classes of the people, and the character

of a student implied frugality, and required no splendor to support it. His pension, therefore, reckoning together the wants which he could supply, and the wants from which he was exempted, may be estimated, in my opinion, at more than a hundred pounds a year."\*

This train of expenses which the artificial habits of society have introduced is wholly within the power of self-denial, and may be set aside by all those who have sufficient firmness to try the experiment. Here, then, is a financial expedient which annihilates the costliness of education, and is thus, for all practical purposes, equal to a very considerable sum of money. Luxury has been aptly styled artificial poverty, because its demands, which are of our own creating, have no other effect than to cause a vast disproportion between the wants and the means of most individuals. These fictitious necessities are as imperative as they are boundless; and the consequence is that they hold multitudes of human beings in the most abject slavery—a slavery only the more to be hated because of its merely imaginative character. Under these circumstances life becomes a scene of restless, abortive toil for gratifications many of which are as low as they are unnecessary. Yet this is not all—not the worst; since to gain means for such unnatural and unlimited indulgence, one starves, another contracts disease, a third becomes a knave, and all are made fools. But those who can not cheerfully and spiritedly repel this crushing tyranny, need not aim at self-education, for the votaries of science must be disenthralled. There are few who worship at the shrine of fashion that have any thing left to offer upon the altar of learning, and the poor are never of this number; hence for them to seek knowledge is to seek nothing else.

\* Life of Ascham.

4. Retirement. It would be unjust to the reader not to refer him at once to the excellent work of Zimmerman on Solitude, where he will find every thing connected with the intellectual bearings of this subject exhibited in the most engaging and satisfactory manner. Our remarks will be confined to the pecuniary advantages of retirement.—Time is equivalent to money, because our time directed to any useful employment, will command money. So that the time spent in study may be reckoned as an investment of money for that object—that is, for knowledge. Every hour and every moment which can be subtracted from other pursuits should be considered sacred to science. And in order to save time for this object, severe retrenchments should be made from sleep, conversation, and amusement. This is no theorizing, it has actually and often been done, and the time thus spent has been productive of some of the best works in the annals of science. No person who is able to labor or to manage any kind of business is so confined as to have no leisure moments, and there are few who have not hours in the course of the day and evening that might be employed in reading, or such other studies as they should prefer. If these vacant seasons—these breaks in the ordinary routine of secular occupation, are seized on with avidity and claimed as the rightful property of a higher interest, they will be found to exert a disengaging influence upon other affairs. He that uses faithfully these little fragments of time will soon have as much time for study as health can admit or improvement require. The improvement of such shreds of time demands a mental, if not a bodily, abstraction from other concerns. And I need not say that retirement is as welcome to the mind of a student as it is favorable to his studies. Let time be saved in this manner and the poor will find that money, more than money, is saved, because



labor as well as money is the price of knowledge. Let no one complain of a want of money while time which is worth more than money is daily thrown away.

5. Accommodations. There are many incidental accommodations attendant upon every enterprise, which are unknown to the inexperienced. People are willing to help those who are determined to help themselves. Not that they have large sums of money to give, or are ready to become patrons in any proper sense, but they are at least willing to stand out of the way, and occasionally would not object to some slight expense by way of aiding intellect in its conflict with poverty. All such assistances are nothing more than is every day rendered as a mark of respect to activity, without reference to the object about which it is employed. On this principle, the student will sometimes obtain the gift of a book, or the use of a library; and if at school, he may be considered somewhat in the settlement of his bills. Another species of help which I shall set down under this head is the concurrence of circumstances. Not only do the very elements seem to combine to favor the self-sustained youth, but the entire state of things is often found unexpectedly pliable. Difficulties, which, in the distance, appear formidable, assume another aspect on a nearer approach. This incidental yielding of things to determined effort—this sort of accommodation which nature and the world bestow upon human energy, has a certain pecuniary value, and is therefore to be recorded among the resources of such as are destined to high achievement.

Should it be thought these remarks have been of too negative a character, let it be borne in mind that money is never wanted for its own sake. It is only for the effects which it can produce that money is of any value to us, and if these effects can be reached as well by other means,

all will admit that such means are of the same value as money. From the nature of the case no great amount of money can come into the hands of the poor student who is directing his efforts mainly to intellectual acquisitions; for he sacrifices the chances of wealth to the desire of knowledge. But if the negative and incidental advantages which we have specified are found sufficient for his object, then is there no cause for discouragement to him on whom the burden of such resources is thrown, not the least necessity for further details on the subject of fiscal accumulation.

## CHAPTER VI.

### **Hindrances to Self Education.**

This chapter is closely connected with the preceding one; that is a positive and this is a negative view of the same subject. Many of the obstacles which the solitary student has to meet are not peculiar to his undertaking; they belong to that class of common difficulties which press upon all enterprises, and which can not be obviated by any change of method. These might be considered in a general treatise on education, but they need not be discussed here; neither is it necessary to give prominence to difficulties which the aspirant himself does not feel, and which can at most, exert only a remote influence upon his destiny.

Several years since the author had the privilege of hearing the late Mr. Southwick,\* deliver part of a course of

\* "Mr. Southwick's 'Lectures on Self Education,' delivered co-temporaneously with those on the Bible, and subsequently reported about a year previous to his death, before the Young Men's Association for Mutual Improvement in the City of Albany, created a general interest, and secured for him, wherever the course was announced, the most intelligent and respectable audiences. These lectures were eminently worthy of the ample genius and diversified experience of their author." *Biographical Annual for 1841. Edited by Rufus W. Griswold*, p. 167.

The course was not extensive. One lecture was on History, and an other on the Philosophy of History. I heard but two, and having never seen the rest, am unable to say whether they were more to the point or not.

lectures on self-education ; and though that gentleman was a man of learning and ability, his lectures were wanting in adaptation. They were able critical dissertations ; but not exactly pertinent to the subject. Our opinion then was, and still is, that defective and spurious literature, or the difficulty of making a good selection of books and sciences, is not the main obstacle to self-education. Evils of this class are too refined to be of much consequence. There are more palpable, and more serious hindrances which claim our attention, and to the consideration of these the following chapter is devoted.

1. The want of time is undoubtedly one of the greatest difficulties to be overcome. And yet so little power does this circumstance exert over a resolute mind that it has never been able to abridge nor even to retard its acquisitions. Men of the most active habits and whose pursuits seemed to preclude all attention to literature have always found sufficient time both for writing and study. Some of them have indeed been the most voluminous writers of which we have any knowledge.

The writings of Bonaparte may be given as an instance of what is practicable under such circumstances. It is scarcely conceivable how his active military life allowed the least time for correspondence. Yet he appears to have written more than any of his contemporaries. "The correspondence of the Emperor," says Mr. Alison, "still preserved in the archives of Paris, or in the custody of his generals, if published entire, would amount to many hundred volumes. From the valuable fragments of it published in the appendixes to General Matthien Dumas, and the works of General Gourgard and Baron Fain, on the campaigns of 1812, 1813, and 1814, as well as the letters of Napoleon, contained in Nopiri's account of the Peninsular war, some idea may be formed of the prodigious

mental activity of a man, who, amid all the cares of empire, and all the distractions of almost incessant warfare, contrived, during the twenty years that he held the reins of power, to write or dictate probably more than the united works of Lope De Vega, Voltaire and Sir Walter Scott. His secret and confidential correspondence with the directory published at Paris in 1819, from 1796 to 1798 only, a work of great interest and variety, amounts to seven large closely-printed volumes; and his letters to his generals, during that time, must have been twice as voluminous.\*\*

This is not a solitary instance even in modern times, for the works of General Washington amount to about seventy large manuscript volumes; and the King of Prussia, Frederick the Great, was an extensive writer and withal a poet of no inferior pretensions. Of the ancients we need only mention Caesar and Polybius, and Xenophon, all of whom were eminent generals and equally eminent writers. These authors wrote as well as those who were less active, and as well as they would, had themselves been less active; or, in other words, the limited time which they could command was no detriment to their labors.

The self-educated have always progressed as rapidly in their studies as those who have had every facility that the schools can bestow; and they have prosecuted them, not only as far as such institutions could render assistance, but frequently much farther. Nor is this remarkable, for learning results from thought, and the mind is not dependent upon any arrangement of external circumstances for its capacity to think. The hands may be employed, but the intellect is free; scholastic facilities may be wanting, but the mind can create them for itself. It is evident

\* History of Europe, chap. 30.

therefore that the most embarrassing avocations offer no effectual resistance to literary enterprise; that neither the dangers and dissipation of the camp, nor the fatigues and cares of manual labor are incompatible with an allowance of time sufficient for the highest degree of intellectual culture.

2. Next to the difficulties arising from a want of time are those which arise from a want of money. Ever-crowding necessity is the malevolent genius of men who are obliged to educate themselves. Poverty excludes them from the ordinary means of cultivation and if they ever rise it must be without such facilities as pecuniary ability can procure. He who has money can command his time, and whatever assistance he pleases; but the poor must aim at self-education because he is poor. It is of no use to specify a thousand good works to a man who is not able to buy one; nor need we tell him who is the best author on a given subject when he can never avail himself of means to make a purchase. Neither will it benefit him to know what sciences are most useful or what methods of study are most approved, unless they are shown to be within the reach of his financial resources. But there is one subject on which he needs instruction. He wants to know how to get money; or—what is exactly equivalent—how to dispense with the use of money and yet accomplish his object. This secret, which by the way can not long be unknown to a determined mind—banishes all the seeming impossibilities that at first surround the enterprise, and gives to pecuniary advantage the very subordinate character to which alone they are entitled. In reading the lives of eminent men who in early life encountered poverty, we wish to know the secret by which they overcame:—not what the force of the tide of their success was equal to, but what gave impetus to that tide. And if

this be overlooked, nine-tenths of the value of biography is lost. We may therefore well enquire how the self-educated accomplished their task. Was it by borrowing books or money? or by the gratuity of some friend? or were the obstacles to human enterprise for once removed—in short, did they find a royal road to knowledge? No, by no means. They looked necessity in the face and bid defiance. They threw themselves upon the unearthly resources of genius—upon the majesty of the human mind, and, destitute of facilities for learning, as David was of weapons of war when he engaged Goliath, they achieved a triumph over every difficulty. The whole secret seems to lie in making small assistance efficient for high ends—in reducing the adventitious aids of the intellectual powers, not only without prejudice to the final result, but with positive advantage. This is indeed not so much to dispense with help as to find it where it is seldom sought; not so much to do with less assistance, as to obtain more from more congenial sources. Great occasions make great men; and great pursuits lead to commensurate attainments. The history of individual greatness proves that men distinguished for great and noble deeds have generally laid their plans and adopted their governing purpose at the very commencement of their course of education. A case in point is that of Pollock, whose fame will be more lasting

“Than Scotia’s northern battlement of hills.”

His biographer says that he was fourteen years in preparing the *Course of Time*, and as he died at twenty-eight, he must have formed the design and entered upon the execution of that work at the age of fourteen. Dr. Adam Clarke was forty years in preparing his commentary, and as he finished it at sixty-three, he must have commenced

at twenty-three—long before he attained any distinction as a scholar, and shortly after his rejection by the sagacious master of Kingswood school. Lord Bacon furnishes an other instance still more remarkable. At the early age of thirteen he was entered at Cambridge, but “after two years residence he quitted the university with the conviction not only that these seminaries of learning were stagnant, but that they were opposed to the advancement of knowledge.”\* Thus between the thirteenth and fifteenth years of his age he discovered the futility of the then existing systems of science and planned his own immortal work—the *Novum Organum*—upon which he labored during the greater part of his life, and ultimately published when he was Chancellor.†

Where the aim is sufficiently high, the practical effort which must follow always draws after it suitable qualifications. The occasion imparts the means; the work itself supplies the requisite ability. Hence it is not by the acquisition of money in some unusual manner that poverty is to be overcome. Eminence is prior to patronage.—Wealth and conveniences are not requisite to eminence; they are but effects which occasionally follow when the productions of genius have assumed a marketable value. The great whom we admire, first became great and subsequently rich; they first became learned and afterwards acquired what are commonly considered the means of learning.

3. It would not be easy to estimate too highly the importance of literature, but nothing can be more injurious than the supposition that science is only to be attained by a profound acquaintance with language. The art of writing is no more essential to knowledge than the art of

\* Montague's Life of Bacon, chap. 1.

† Ibid.



painting, or than any mechanic art whatever. And to suppose that a deficiency of this kind must operate as a barrier to improvement, is to imagine a difficulty where none exists. For the conveyance and retention of knowledge, language is indispensable, but not for its acquirement. Letters and sounds are not an attribute of truth, they are only an arrangement by which the commerce of truth is facilitated. Men no way remarkable for literature have possessed more real science than the age in which they lived. This was apparent in Martin Luther whose single mind embraced more knowledge of divinity than the world besides; in Galileo who was obliged to abjure his astronomical tenets to escape the Inquisition; and in Copernicus whose cosmogony, through fear, was given to the world only with his expiring breath. Literature is an emanation of science; it is essentially an effect rather than a cause of knowledge. We would be far from saying these things to those who are obliged to educate themselves, in order to lessen their esteem for literary acquisitions. Such as are competent to judge, can not fail to appreciate advantages of this kind; but our object is to remind those who can not obtain them, that it is in their power to supersede their necessity, by taking at once higher ground. Their passage into the temple of science may indeed be forced; but better so than not at all. Let them lay hold upon knowledge; literature must follow, if it can not precede.

4. An impression that learning can only be successfully prosecuted by the aid of teachers, has contributed to discourage the enterprise of self-education. That teachers are useful is not to be disputed; that they are necessary can never be shown. Although we admit the utility of such assistance, yet it must not be regarded as a principal advantage even of the schools. There are four advantages arising from school: 1. The student is separated from

other employments. 2. He is made to apply himself.—  
3. He is confined to elementary studies. 4. The aid of a living teacher is occasionally supplied. The last is of course the least essential. But even allowing that a teacher is necessary, the case is not materially altered; for the solitary student finds a teacher in his text-book, or assumes the office himself. Where books are not available to guide him, he becomes his own guide; and surely the office of direction could not, in merely human hands, be more judiciously invested. Alexander and Bonaparte, knew quite as much of war as any who could have been found to instruct them. What military school, or what veteran officer had equal knowledge? The same is true of Aristotle and Bacon. They had no teachers because none could teach them; or, rather, they taught themselves because others were ignorant of what they wished to know. Such minds are at least as competent to guide themselves as others can be to guide them; and if teachers are not necessary—not possible—in the high sphere in which they moved, let no one consider them indispensable to subordinate pursuits.

5. By many, a certain amount of conveniences is looked upon as a necessary condition of scholarship. Not to have the usual number of books, teachers, instruments, and so forth, is deemed a misfortune to which resistance is useless. This imaginary evil so paralyzes their strength that with the warmest desires for learning, they are not able to make a single vigorous effort. For the encouragement of such, let it be observed that mechanical facilities add nothing to genius. Men wrote as well before libraries and schools were established, as they have done since; we have not exceeded the ancients, although their literary advantages, according to the popular estimation, were immeasurably less than ours. The mind is not dependent

for its acquisitions upon complicated and costly agencies; it arrives at the greatest improvements by the most simple means. Dr. Franklin, one of the most successful experimental philosophers, may be taken as an example. "His discoveries were made with hardly any apparatus at all; and if, at any time, he had been led to employ instruments of a somewhat less ordinary description, he never seemed satisfied until he had, as it were, afterward translated the process, by resolving the problem with such simple machinery that you might say he had done it wholly unaided by apparatus. The experiments by which the identity of lightning and electricity was demonstrated, were made with a sheet of brown paper, a bit of twine, a silk thread, and an iron key."\* This simplicity of means implies no defect in the execution; the experiments of Franklin were as perfect as any that ever were made, notwithstanding the paucity and meanness of his instruments. The advance of science under such circumstances reminds us of the astonishing skill of Asiatic manufacturers. The finest fabrics of the East are woven in rude huts and with hand-loom of the coarsest construction. Silks, so fine and delicate as to have no equal in European manufactures, are wrought with this imperfect machinery,—if that may be called machinery, which exhibits so little of art, or if that may be considered imperfect which, in its effects, has never been equalled.† Facts like these evince a capacity

\* Lord Brougham; Statesmen in the time of George III.

† "Notwithstanding the apparent simplicity of their looms, they will imitate exactly the newest and most delicate pattern from England or France. The Chinese particularly excel in the production of damask and flowered satins. Their crape has never yet been perfectly imitated: and they make a species of *washing* silk, called at Canton *ponge*, which becomes more soft as it is longer used." The Chinese, &c. By John Francis Davis, Esq., F. R. S., vol. 2, p. 237.

that circumstances have no power to control, and the youth who hesitates to engage in literary and scientific pursuits merely because certain incidental helps are not at his command is as justly chargeable with his subsequent ignorance and degradation, as if he had been surrounded by every possible advantage. Education demands nothing but mind, and such an application as is practicable to all classes of society.

6. Genius is often totally misunderstood, and the consequence is that a certain peculiarity of mind,—necessary only to eminence of a particular kind,—comes to be regarded as essential to all intellectual efforts. If, as we have shown in an other place, all minds have sufficient strength to learn the highest truths, then the absence of what is called genius can be counterbalanced by industry. The want of greater aptitude may retard improvement, but can not render it uncertain. Moreover the mind derives its ability, in part at least, from causes within its own control. Objects of a high character,—pursuits lying beyond the common range of enterprise,—always imbue the individual with their own greatness. And those who may think that nature has denied them the requisite qualifications for learning, have only to attempt the work, to be convinced that the defect is in the lowness of their own ambition, and not in the constitution of their faculties.

7. Needless fears are entertained of the difficulty of the work; the formality and stateliness of scholastic lessons lead many to suppose that learning at school, and learning elsewhere, are things very different. They have no idea that what they already know bears any resemblance to the knowledge peculiar to such institutions. "A mother tells her infant," says Dr. Johnson, "that two and two make four, the child remembers the proposition, and is

able to count four for all the purposes of life, till the course of his *education* brings him among philosophers, who fright him from his former knowledge by telling him that four is a certain aggregate of units." Most of the knowledge reserved for maturer years will be found equally practicable, if not precisely identical with the lessons of the nursery. Youth have only to employ the same faculties that have enabled them to learn what they now know, in order to learn all that remains to be known. There is much less mystery and difficulty in science than superficial observers are inclined to believe, or than interested empirics are willing to confess. "The very depth of human knowledge, and the very height and perfection of art, are, in truth, nothing more than the revealing and applying of a few of the laws and principles of nature; and though we often flatter ourselves that there is something profound in what we know, and mighty in what we do, it is still in nature; and what we call inventions, even clever ones, are only the applications of discoveries; and of discoveries which lie as much in the way of one man as another, if both are equally diligent in search of them."\* Every truth in science and every attainment in literature is as much within the reach of common minds as any thing that they have previously learned. Facts are level to all who will take pains to observe the evidence on which they rest, and literary acquisitions are not less available to all than other practical attainments.

8. All have admitted the inestimable value of true science to its possessor, and it is only in moments of peculiar stupidity that we ever indulge the thought of remaining ignorant. But it is one thing to know that education is important, and another to know in what it consists.—

\* Mudie: Pop Guide, p. 64

Things seen at a distance often affect us more than those near at hand; we are too much ashamed of illiteracy to perceive its true character, and our ignorance appears so horrid that we flee from it as from a spectre. Let this false delicacy give place to a more philosophic feeling, assured not only that every deserving trait will flourish the better for intelligent observation, but that the inquiries of science are always and essentially beneficent. Among the terms which we use none has been more frequently perverted than learning, or education.\* Some men who have felt at least all their consequence in the

\* "It would be well for society if this word *learning* could be forgotten, or if we could make it the representative of other and very different ideas. But the delusion is continually propagated. The higher ranks of society give the tone to the notions of the rest; and the higher classes are educated at Westminster and Eton, and Cambridge and Oxford. At all these the languages which have ceased to be the languages of a living people,—the authors which communicate, relatively, little knowledge that is adapted to the present affairs of man,—are made the first and foremost articles of education. To be familiar with these is still to be a *learned* man." Dymond's *Essays on the principles of Morality*, p. 191.

The error of which complaint is here made, arises from that reluctance to change which is so characteristic of literary institutions. When these schools were founded, Latin was the language of scholars and Greek the depository of science. But such a state of things no longer exists. Scholars are not now afraid, like Bacon, that "these modern languages will, at one time or other, play the bankrupt with books," (*Works*, vol. 3, p. 151,) and they have ceased to write in Latin. The science of the Greeks has been so far exceeded by the moderns that there is not, on this account, the least occasion to cultivate their language. This change of circumstances has diminished the importance which, a few centuries ago, justly attached to these ancient languages. For all the purposes of science, Greek is now as useless as Sanscrit; and as a medium of public intercourse Latin is not available because it is not known, and it is not known because it is not wanted.

republic of letters, call those unlearned who make no pretensions to Latin and Greek, and who have never studied at a classical institution. Now we might as well assert that no man is a mechanic who has not served an apprenticeship at watch-making, or who did not learn his trade in London. Greek and Latin contain but few of the wonders of the universe, and colleges and high schools are but a small part of the world. The great value of these ancient languages may safely be admitted, without in any degree justifying their exclusive claims. Education implies nothing but knowledge gained by mental exercise, and an intelligent mind will very readily perceive that the kind of study, can only vary the value without changing the nature of the acquisition. None need, therefore, refrain from study on the supposition that education results from certain branches of knowledge, or from particular places of instruction, and from them only; it is an acquirement common to every place and to every truth. A man can not be a linguist unless he has studied language to some extent, and so of every other branch of knowledge. But it does not follow that one is not a proficient in any science because he has not an acquaintance with some that are understood by others. The same man is rarely eminent in more than one science, and there is not the strict necessity for a partial knowledge of others which some have supposed. The names of Brindley and Ferguson are proofs to what extent engineering and astronomy may be carried without a knowledge of mathematics; and we might select similar examples from other pursuits all tending to show that the mind as well as the body can dispense with ordinary facilities if it choose. Hence the absurdity of restricting the word learning to one or a few departments of knowledge while the universe is full of wonders, neither less instructive nor more difficult of access.

9. The extent of education has been as little known as its nature. And a conviction of its unmanageable greatness has been a fruitful source of discouragement to the inexperienced. The term education, does not present a subject with any naturally defined proportions, its import being fixed by conventional usage. What we now call by that ennobling name was once either unknown or disregarded. War and devotion supplied the themes for the poet and the sage, while memory lent her aid in transmitting their productions to future generations. The natural sciences were not then unfolded; there were no classical authors and no dead languages; each spoke as his spirit moved him. Yet in those unfriendly days there were learned men as well as now—men whose superiors never lived. This proves only that learning is not confined to one set of ideas; to one nor yet to many languages; nor to the modes of instruction which are most approved. Before the revival of letters in England, he who could merely read was such a prodigy that civil immunities were conferred upon him; hence, that strange statute, “the Benefit of Clergy,” which is no other than a release from punishment after conviction, in consideration of literary merit. But now it is attempted to withhold the very name of scholar from all who have not—besides other important acquisitions—conned the obsolete dialects of Greece and Rome. Thus it appears that in one age those limited acquirements to be had at a common school are deemed wonderful, while in another age, one must travel through the whole encyclopedia and master all the forgotten languages of the earth to be considered a scholar. Extremes destroy each other. The capricious use of a word shows that it either has no settled meaning, or is unjustly applied. According to present usage, the ancients must all be set down as unlearned, for they were ignorant of much that is embraced in a mod-



ern education, and those of the present day who arrogate to themselves this distinction—who claim exclusively to be the educated—will probably have to yield it in favor of a subsequent generation. Some fortunate revolution in science may give posterity to look down from an eminence upon the present imperfect state of knowledge. Then the literati of our day—if their memories and works shall find their way thus far into the distant and uncertain future—will be as eligible to the distinguishing epithets, illiterate and uneducated, as Shakspeare and Bunyan now are. Such absurdities sufficiently attest the indefinite views which have prevailed in reference to education. The subject itself not being settled, the terms used to designate it are necessarily vague. We arrive, however, at this conclusion: that education means the same as mental improvement; that the ancients were as well educated as the moderns, and as well as their successors will be, for the very good reason that both ancients and moderns had valuable knowledge—and valuable knowledge is all that the human mind can ever have; that learning depends not upon the number or kind of studies, nor yet upon the time or place of studying, but simply and exclusively upon an industrious application of the intellectual faculties; that there is no standard of attainments nor can be any, because neither the capacity of the mind nor the extent of science has been, or can be ascertained—and because knowledge is constantly varying must necessarily exclude all but those to whom it was at with every generation, so that if a standard were fixed, it first applied; that education being neither more nor less than the acquisition of useful knowledge, can never become so extensive as to be impracticable to any diligent mind.

10. An other hindrance exists in the too prevalent opinion that nothing but strictly literary and scientific pursuits have any tendency to inform the understanding.

A vast amount of real science lies concealed in all the active employments of life. Men who have been sufficiently active and observing, although ignorant of books and letters, have not unfrequently, in spite of this disadvantage, attained to the highest eminence of knowledge. "Charlemagne was as illustrious in the cabinet as in the field; and, though he could not write his own name, was the patron of men of letters, the restorer of learning, and a wise legislator."\* But the most ordinary avocations are not divested of this instructive influence; even suffering, as well as toil, has the same effect. This view of the subject is very happily expressed by Dr. Channing. "I have faith in labor, and I see the goodness of God in placing us in a world where labor alone can keep us alive. I would not change, if I could, our subjection to physical laws, our exposure to hunger and cold, and the necessity of constant conflict with the world. I would not, if I could, so temper the elements, that they should infuse into us only grateful sensations, that they should make vegetation so exuberant as to anticipate every want; and the minerals so ductile as to offer no resistance to our strength and skill. Such a world would make a contemptible race. Man owes his growth, his energy, chiefly to the striving of the will, that conflict with difficulty which we call effect. Easy, pleasant work does not give men a consciousness of their powers, does not train them to endurance, to perseverance, to steady force of will; that force without which all other acquisitions avail nothing. Manual labor is a school in which men are placed to get energy of purpose and character, a vastly more important endowment than all the learning of all the schools. They are placed, indeed, under hard masters, physical sufferings and wants, the power of fearful elements, and the vicissitudes of all

\* Universal Biographical Dictionary.

human things; but these stern teachers do a work which no compassionate, indulgent friend could do for us, and true wisdom will bless Providence for their sharp ministry. I have great faith in hard work. The material world does much for the mind by its beauty and order; but it does much more for our minds by the pains it inflicts, by its obstinate resistance which nothing but patient toil can overcome; by its vast forces which nothing but unremitting skill and effort can turn to our use; by its perils which demand continual vigilance, and by its tendencies to decay. I believe that difficulties are more important to the human mind than what we call assistances. Work, we all must, if we mean to bring out and perfect human nature."

11. But still more erroneously, manual labor is often thought to be incompatible with literary pursuits. Yet, so far is this from being the case, that it is highly probable such labor—independent of the knowledge which it supplies—is a help, rather than a hindrance, to literary requirements. It is almost the only condition on which we can have "a sound mind in a sound body;" and though it leaves less time for scientific studies than is usually deemed necessary for their successful prosecution, facts compel us to acknowledge that it leaves enough. Some have supposed that labor blunts the faculties and deprives the mind of much of its acuteness. There is no evidence however that such an effect is ever produced; but there is much evidence to the contrary. Active habits induced by physical toil are as properly habits of the mind, as those which arise from speculation; and these habits once formed, are easily applicable to purely intellectual employments. It is not because other pursuits are injurious to literature that most who are devoted to them fail of education; the reason is, that such pursuits become exclusive—they are suffered to engross all the time and

all the effort to the total neglect of literary studies. People are under no necessity of yielding to business in this manner; and it can only be through ignorance of all just rules of management, or a predominant desire of wealth, to which every thing else is sacrificed, that they thus allow themselves to be absorbed in such affairs. Labor neither unfits us for study, nor monopolizes the means that should facilitate it. And the laboring man may congratulate himself upon the possession of some advantages which never, in so high a degree, fall to the lot of others. His abundant exercise—his general and rational muscular exertion, enables the mind to reach its utmost capacity and gives it the power of prolonged endurance at this extreme point of effort. We therefore conclude that a life of labor precludes no one, unless through his own unconstrained choice, from the highest attainments in literature and science.

12. Some have failed solely from a want of perseverance. This may have been occasioned, it is true, by the ill success of an injudicious method, but it more commonly proceeds from fickleness of character. An object may be pursued forever by wrong means without being obtained; yet there are few who so absolutely mistake their way.—The most prefer to abandon the enterprise after prosecuting it awhile; they are impatient and can not wait to finish what they have begun; progress is too slow and the possibility of final success too uncertain to stimulate exertion. How utterly at variance with all practical philosophy such a vacillating course must be, is obvious to the most superficial observer. Not only self-education, but every thing else, is equally beyond the sphere of these inconstant efforts. Knowledge can be had only as other things are had—that is, by unremitted and self-sacrificing endeavors. On the general subject now under consideration, I shall do the

reader a favor by introducing the following remarks from a writer to whom I have before referred. "Many, when circumstances have turned their attention to self-improvement, and while the glowing picture is before them, often make excellent and sometimes prodigious resolutions. But because they do not at once, as by a leap, become perfect, they are soon ready to give up the effort in despair. For such, for all, it were well to remember, that self-education is a matter of slow progress, of patient and persevering effort, and that in little things, from day to day and from hour to hour. It is the fixed law of the universe, that little things are ever the elements—the parts of the great. The grass does not spring up full grown. It rises by an increase so noiseless and gentle, as not to disturb an angel's ear, and not to be seen by an angel's eye. The rain does not fall in masses, but in drops, or even in the breath-like moisture of the fine mist, as if the world were one vast condenser, and God had breathed upon it. The planets do not leap from end to end of their orbits; but in their ever onward progress, inch by inch, and line by line it is that they circle the heavens. And so with self-improvement. It is not a thing of fits and impulses, and explosions, but of constant watchfulness, and patient and unwearied effort, and of gradual and ceaseless advancement. Like the wealth of the miser, it must be heaped up piece by piece; and then, at length, like the wealth of the miser it may almost be without limit. Like the coral reefs of the ocean it must grow by small but constant additions; and then it will finally be like those reefs, admirable in all its parts, and rivalling the very mountains in size.'\*

Perseverance is necessary to respect. And if efforts at self-education prove unsuccessful, it is because they are contemptible. Weak and hesitating, precarious and incon-

\* Rev. Tryon Edwards: *Biblical Repository*, Jan., 1841.

stant, without judgment and without determination, to what but reproach are they entitled? Such persons, however, can hardly be said to fail in their attempts, as the failure lies rather in their not attempting the work at all. Their works are only a burlesque upon industry.

13. The absence of voluntary engagements is an obstacle to the success of this enterprise. One of the principal advantages of a school is the obligation which it imposes upon the learner to acquire a certain amount of knowledge in a given time. This obligation the student assumes when he enters such an institution, and so long as he subjects himself to an arrangement of this kind, there is no chance for negligence; others have the supervision of him, and are paid for guarding him against irregularity.—But self-education denies us this precaution. It places the student under no special oversight, it exacts of him the performance of no particular task. It leaves him to engage in literature as he is afterward to engage in other enterprises—guided by his own judgment and determined by his own will. Yet it must not be forgotten that in exempting us from the authority and direction of others, it does by no means exempt us from the authority and direction of ourselves. The self-educated man is entrusted by providence with the control of himself and if his conduct is not characterized by just and enlightened discipline, it proves him either incompetent or reckless. He may have as good direction as others; rules and regulations are not impossible to him, but they must emanate from himself. It is desirable, therefore, that youth should early become acquainted with this peculiarity, that they may assume, if necessary, a responsibility, which society has made no arrangements to transfer to others. Even a child, if it knows that it is left unprovided for, will see the necessity of making some choice; and almost any choice would be

preferable to allowing their juvenile years to pass away without an intelligent purpose. Self-education, although destitute of those compulsory measures furnished by the schools, is only on a level with all the undertakings of adult life. And persons who have passed the period of minority have no more need of such coercive aids to ensure attention to literature or science, than they have to ensure attention to commerce or agriculture. Occasionally they may find the pressure of voluntary engagements of service in quickening the mind to renewed exertion; but its ordinary and principal support must consist of a spirit of literary enterprise—a love of study that chooses to work even where there is no compulsion and in spite of every difficulty. This incidental assistance is thus alluded to in a passage of Sir Walter Scott's diary, "Feb. 15, (1826.) Yesterday I did not write a line of Woodstock. Partly, I was a little out of spirits, though that would not have hindered. Partly, I wanted to wait for some new ideas—a sort of collecting of straw to make bricks of. Partly, I was a little too far beyond the press. I can not pull well in long traces, when the draught is too far behind me. I love to have the press thumping, clattering, and banging in my rear; it creates the necessity which always makes me work best."\* However grateful to Sir Walter's ambition, such a constraint may have been, no one can suppose that it produced his devotion to literature. Other motives would have kept his pen employed had this been wanting; but he was too much engaged in his work not to be thankful for every circumstance which seemed to enforce its accomplishment. In the instance now given, the obligation was merely a consequence of previous activity—a veteran writer had created demands upon his genius which he could not conveniently disregard. And

\* Lockhart's Life of Scott, vol. 6, p. 176.

as this is the natural order in which such obligations arise to all but minors, the self-taught student will find them evolving in sufficient abundance from his own energies. Study draws after it obligations to study, and he that learns most is most committed to learning.

14. An erroneous impression prevails in reference to the art of writing. It is thought that writing must be a very difficult and complicated process, and therefore not attainable without the aid of scholastic facilities. Many who would cheerfully attempt it upon the supposition that it was not more difficult than other mechanic arts, are now deterred by a dread of its impossibility. People who suffer such views to influence them, must be ignorant of the history of literature. The most renowned writers have rarely done more than simply trace upon paper the imagery of their own minds. In doing this they followed no rule, no art, no system. They merely took such words as they were accustomed to speak, and such as most exactly expressed their thoughts, and placed them upon paper just as their thoughts occurred. Their writing was only an indication of certain conceptions of the mind; and whatever difficulty may have attached to the process, it arose not from a want of skill in adapting words to ideas, but in adapting ideas to things. It was in thinking, not in the transference of thought to legible signs, that the greatness of their minds became evident. Our thoughts invest themselves in words, and in right words, spontaneously when the mind is properly inspired. If style is defective, it is because the thought is defective; for words are nothing, and can mean nothing, but as thought gives them existence and gives them meaning. But notwithstanding thought is the soul and substance of writing, eminent authors frequently write without premeditation, and some of their happiest productions have



originated in this manner. Another extract from the diary of the author last quoted will furnish us an illustration here.

“Feb. 12, (1826.) Having ended the second volume of Woodstock last night, I have to begin the third this morning. Now I have not the slightest idea how the story is to be wound up to a catastrophe. I am just in the same case as I used to be when I lost myself in former days in some country to which I was a stranger. I always pushed for the pleasantest route, and either found or made it the nearest. It is the same in writing. I never could lay down a plan—or, having laid it down, I never could adhere to it; the action of composition always extended some passages, and abridged or omitted others; and persons were rendered important or insignificant, not according to their agency in the original conception of the piece, but according to the success, or otherwise, with which I was able to bring them out. I only tried to make that which I was actually writing diverting and interesting, leaving the rest to fate. I have been often amused with the critics distinguishing some passages as particularly labored, when the pen passed over the whole as fast as it could move, and the eye never again saw them except in proof.”\* Nor is this method of writing confined to works of imagination. The numbers of the Rambler—a work which for elegance of diction and profoundness of thought, is not surpassed by any thing in the English language—were composed in the same manner. “Posterity,” says Mr. Boswell, “will be astonished, when they are told, upon the authority of Johnson himself, that many of these discourses, which we should suppose had been labored with all the slow attention of literary leisure, were written in haste as the moment pressed,

\* Lockhart's Life of Scott, vol. 6, p. 172.

without even being read over by him before they were printed.”\* “He told us,” continues the author, “almost all his *Ramblers* were written just as they were wanted for the press; that he sent a certain portion of the copy of an essay, and wrote the remainder, while the former part of it was printing. When it was wanted, and he had fairly sat down to it he was sure it would be done.”† *Rasselas*, another of Johnson’s most finished works, was written with equal rapidity. “He told Sir Joshua Reynolds, that he composed it in the evenings of one week, sent it to the press as it was written, and had never since read it over.”‡ Its critical merits as a literary work are thus characterized by Sir John Hawkins, “*Rasselas* is a specimen of our language scarcely to be paralleled; it is written in a style refined to a degree of immaculate purity.”§

Examples of this kind prove that the mind can perform its highest tasks with very little of what is commonly thought to be a necessary preparation. Grammar, Rhetoric, and Logic are all evolved in every correct thought. They are all inherent in truth, are attendants of it, and breathed forth with the utterance of every just conception. Intense and correct thinking, therefore, carries with it the essentials of good writing, and the only real hindrance to authorship is the want of such ideas as deserve to be recorded.

15. The idea that a great amount of knowledge is a necessary prerequisite to scientific pursuits, or to the efficient exercise of the mind, retards improvement by impairing the confidence which every man should have in

\* Boswell’s *Life of Johnson*, vol. 1, p. 139.

† *Ibid*, vol. 3.

‡ *Ibid*, vol. 1, p. 246.

§ Quoted by Arthur Murphy in his *Life of Johnson*, p. 206.

his own powers of observation. It is only on subjects to which knowledge relates that it affords us any assistance; the study of mathematics enables us to judge better of mathematical truths, but not of other truths. On subjects of which all are equally ignorant, all are equally competent judges. But every mind is endowed with a capacity of thinking, and the elements of truth are constantly present to every mind; so that nothing but application is necessary to place all on a level in actual attainments. "The rudest peasant may be said to have in his mind, all, or nearly all, those primary notions, of which the sublimest demonstrations of the relations of number and quantity are the mere development. He would be astonished, indeed, if he could be made to understand, that on notions, which appear to him of so very trifling import, have been founded some of the proudest monuments of the intellectual achievements of man, and that, among the names, to which his country and the world look with highest veneration, are the names of those whose life has been occupied in little more than in tracing all the forms of which those few *conceptions*, which exist in *his* mind as much as in theirs, are susceptible."\* To trace out these various relations, is the appropriate business of the mind. For this purpose, the fundamental idea was given by nature, and all who are thus favored with the first original conception have the whole immensity of truth at their command. As he who takes one step has only to repeat the effort, in the right direction, to accomplish the longest journey, so he who learns one truth, has only to repeat the intellectual effort to acquire every possible science. The work is that of discovering single, not aggregated truths; and the diffi-

\* Brown: Philos., vol. 1, p. 490. Lect. 48.

culties which embarrass us when science is viewed as a whole, vanish altogether when it is surveyed by items. Reason is a power that operates upon the facts which are before it, and which requires no previous stock of knowledge to make its operations perfect. It is an endowment that performs its functions with only the knowledge derived from its own experience, and even where this knowledge is wanting it is still competent to act. Language, so often regarded as essential to its exercise, is a very contingent advantage—a mere incident to ratiocination,—as may be seen in the success which always attends the first use of this faculty. “The infant, long before he can be supposed to have acquired any knowledge of terms, forms his little reasonings on the subjects, on which it is important for him to reason, as accurately probably as afterwards; but, at least, with all the accuracy which is necessary for preserving his existence, and gratifying his few feeble desires. He has, indeed, even then, gone through processes, which are admitted to involve the finest reasoning, by those very philosophers who deny him to be capable of reasoning at all. He has already calculated distances, long before he knew the use of a single word expressive of distance, and accommodated his induction to those general laws of matter, of which he knows nothing but the simple facts, and his expectation, that what has afforded him either pain or pleasure, will continue to afford pain or pleasure. What language does the infant require to prevent him from putting his finger twice in the flame of that candle which has burned him once? or to persuade him to stretch his hand in exact conformity with the laws of optics, to that very point at which some bright trinket is glittering on his delighted eyes? To suppose that we can not reason without language, seems to me, indeed, almost to involve the same

inconsistency, as to say, that man is incapable of moving his limbs, till he have previously walked a mile."\* There can be no good reason, then, why the most illiterate and unlearned person should not commence a course of observation with the hope of distinguished usefulness. Such an individual has all the faculties and all the knowledge necessary to the discovery of truth. As for those mechanical facilities which the learned possess, and which in certain departments of science give them such decided superiority, they are mere emanations of mind—mere effects flowing from causes already under the control of the most ignorant.

16. Besides the imaginary difficulties now mentioned there is another which arises from the mistaken notion that improvement is no longer possible; that the career of invention and discovery is closed, and that nothing new remains to the ambition of the student.

The effect of such a sentiment on the general progress of science, Bacon has repeatedly noticed. "By far the greatest obstacle to the advancement of the sciences and the undertaking of any new attempt or department is to be found in men's despair and the idea of impossibility. For men of a prudent and exact turn of thought are altogether diffident in matters of this nature, considering the obscurity of nature, and the shortness of life, the deception of the senses, and weakness of the judgment. They think, therefore, that in the revolution of ages and of the world there are certain floods and ebbs of the sciences, and that they grow and flourish at one time, and wither and fall at another, that when they have attained a certain degree and condition they can proceed no further."†

\* Brown: *Philos.*, vol. 1, p. 482.

† *Nov. Org.*, B. 1., Aph. 92. A modern author of great acuteness is inclined to favor the opinion which Bacon here censures.

Self-education is from the first, an enterprise of discovery. Its hopes and incitements must therefore be such as influence those, who, having attained the utmost goal of established science, are about to advance to some thing beyond. There must be a full conviction that all has not been done which can be done. For if the solitary student is to be confined to stereotyped lessons under an impression that others have so much the advantage of him as to exclude competition on the field of discovery; or, in other words, if he imagines nothing valuable can be effected by such means as are at his command, we may rest assured that his efforts will be abortive. It is not under such auspices that the human mind distinguishes itself. Ideas of inferiority, and of inferior advantage require to be forgotten in the order of pursuit. The discoveries which have hitherto been made, show that the power to unlock the mysteries of nature and to benefit the world, is not exclusively confided to scholars of any particular grade or class. All ranks of society and all degrees of cultivation have participated in these achievements. And there is still a chance for all, and an equal chance. No student should deem his opportunities unfavorable, or his sphere too contracted to allow of eminence. However narrow the field of his observation, it brings him into living contact with exhaustless wonders—it gives him a panoramic view of the world and opens to him all the sources of knowledge.

“It is at least difficult to review the fortunes of mankind, either on a great scale, or within particular spheres, without inclining to the supposition that there are natural cycles of intelligence, disturbed indeed by accidental causes; at one time lengthened, and at an other shortened; but still returning, at not very irregular intervals; and in obedience to which, the great community of nations, and nations individually, advance or recede on the course of knowledge and virtue.” *Spiritual Despotism*, p. 176.

17. Self-education is often neglected from the supposition that when most successful it falls considerably below what can be obtained at literary institutions. The idea that such attainments are never quite so perfect as those of the schools, diminishes their value in the estimation of the student and leaves him without the necessary motives to proficiency. People do not willingly consent to what is even remotely degrading. Until right views of self-education prevail, it will continue to be pursued with languor. While it is looked upon as the least of two evils—as only preferable to ignorance, and not at all equal to the re-education of the schools—it is folly to expect any thing like a thorough application. We require to be persuaded of its value before making sacrifices to obtain it. But the idea is a fallacy. No such imperfection exists; and therefore, none should be suffered to influence the mind. The very sciences which our schools disseminate are the effect of self-education. We have shown that no science has been, or can be, invented by the aid of teachers. The highest efforts of the mind are exclusively under its own direction. Hence so far is this method from being imperfect that it is the only one by which real and original greatness can be attained.

18. Through a disrelish for the objects of human enterprise, or from the too great influence of other and unfavorable pursuits, the very desire of learning is frequently intermitted. In this state of mind, mental indolence becomes habitual, and ambition, which prompts to eminence, decays as the love of quiet increases, until at last all taste for study is lost, and knowledge itself seems to be valueless.\* Such have no purpose, no wish to learn;

\* "In America most of the rich men were formerly poor: most of those who now enjoy leisure were absorbed in business during their youth; the consequence of which is, that when they might

but this is not the worst. Their irresolution and indifference are too apt to ripen into deliberate, unmingled hatred of science. They feel the corrodings of conscience and the consciousness of inferiority which always supervene upon the neglect of known duty. Tormented in this manner, it is no wonder that they should steep their minds in forgetfulness or vent them in reproaches against learning. A little reflection will dissipate these stagnant vapors of the brain, and recover the mind from a state no less inimical to improvement than would be the destruction of the intellectual faculties.

19. An evil not altogether different from the preceding, is that of waiting for more favorable circumstances. That is an abandonment without alledged reasons; this for reasons alledged, but insufficient. A bare postponement for a limited time would not of itself be fatal, but when taken in connection with the fact that no change for the better is likely to occur at any future period, delay becomes equivalent to an entire rejection of the enterprise. He who will not begin with such means as he has, will probably never begin at all. It is necessary therefore to commence the work at once with, or without, facilities, as the case may be. Books are a desideratum not always easily supplied; especially the more important and approved text books. But then these are not the only works that will answer. Almost any book of correct moral principles is a great acquisition. Should it be a dictionary or a treatise on metaphysics, it is not the less valuable; such books are practical grammarians and expositors of words. In reading them the mind becomes familiar with a diction and definitions suited to the highest themes. Dr. Watts enu-

have had a taste for study they had no time for it, and when the time is at their disposal they have no longer the inclination."—*Democracy in America*, Vol. 1.



merates five ways of gaining knowledge; namely, reading, conversation, meditation, observation, and lectures. Now if one, for good reasons, can not read, he still has left four other ways of improvement, and these, if industriously employed, will lead to distinction. Perhaps the latter modes have one advantage over reading, and that is, we use them with more reliance upon our own understandings.

20. Perhaps we may ascribe the failure of some to a neglect of natural aptitude. They aimed to acquire what to them was impracticable. Men of the greatest genius have often been unable to learn particular sciences and arts. There are few universal geniuses; perhaps none. Of this peculiar inability we have an instance in the case of James Ferguson, an eminent astronomer and mechanician, and author of several popular works on those subjects. "I remember distinctly," says Dugald Stewart, "to have heard him say, that he had more than once attempted to study the elements of Euclid; but found himself quite unable to enter into that species of reasoning. The second proposition of the first book, he mentioned particularly as one of his stumbling-blocks at the very outset;—the circuitous process by which Euclid sets about an operation which never could puzzle, for a single moment, any man who had seen a pair of compasses, appearing to him altogether capricious and ludicrous. He added, at the same time, that as there were various geometrical theorems of which he had daily occasion to make use, he had satisfied himself of their truth, either by means of his compasses and scale, or by some mechanical contrivances of his own invention."\* Sir Walter Scott remarks of himself a similar defect in regard to perspective and music. "Even the humble ambition which I long cherished of making sketches of those places

\* Elem. Philos., vol. 2, p. 140, note.

which interested me, from a defect of eye or of hand, was totally ineffectual. After long study and many efforts, I was unable to apply the elements of perspective or of shade to the scene before me, and was obliged to relinquish in despair an art which I was most anxious to practice." "With music it was even worse than with painting. My mother was anxious we should at least learn Psalmody; but the incurable defects of my voice and ear soon drove my teacher to despair."\* Dr. Adam Clarke says, "There was one branch of knowledge in which he could never make any progress; viz. arithmetic."† The celebrated Richard Baxter was also unable to make any proficiency in mathematics. It is not necessary to add that such sciences as seem thus to elude the grasp of our faculties should be omitted, for they can not be acquired. The important point is to follow the natural inclination of the mind in the selection of studies; some knowledge may, indeed, be gained of those which are repugnant to our constitution, but it is only while we conform to our own peculiarities that we can hope for much proficiency. Among distinguished writers there is a great diversity of talent. One excels in criticism, an other in argument, and an other in style. Some prefer poetry, others history, and others metaphysics. But every man rises to excellence in his congenial pursuit; and in that alone.

21. Johnson has observed that mental vacancy is a great obstacle to learning, and I think there are few who will not accord with his opinion. "Many impose upon the world, and many upon themselves by an appearance of severe and exemplary dilligence, where they, in reality, give themselves up to the luxury of fancy, please their

\* Life, vol. 1. pp. 39, 40.

† Life, vol. 1, p. 19.

minds with regulating the past, or planning out the future; place themselves at will in varied situations of happiness, and slumber away their days in voluntary visions. In the journey of life some are left behind because they are naturally feeble and slow: some because they miss the way, and many because they leave it by choice, and, instead of pressing onward with a steady pace, delight themselves with momentary deviations, turn aside to pluck every flower, and repose in every shade. There is nothing more fatal to a man whose business it is to think, than to have learned the art of regaling his mind with those airy gratifications. Other vices or follies are restrained by fear, reformed by admonition, or rejected by the conviction which a comparison of our conduct with that of others may in time produce. But this invisible riot of the mind, this secret prodigality of being, is secure from detection and fearless of reproach. The dreamer retires to his apartment, shuts out the cares and interruptions of mankind and abandons himself to his own fancy; new worlds rise up before him, one image is followed by an other, and a long succession of delights dances round him. He is at last called back to life by nature, or by custom, and enters peevish into society, because he can not model it to his own will. He returns from his idle excursions with the asperity, though not with the knowledge of a student, and hastens again to the same felicity with the eagerness of a man bent upon the advancement of some favorite science. The infatuation strengthens by degrees, and like the poison of opiates, weakens his powers, without any external symptom of malignity. It happens, indeed, that these hypocrites of learning are in time detected, and convinced by disgrace and disappointment of the difference between the labor of thought, and the sport of musing. But this discovery is often not made till it is too late to

recover the time that has been fooled away.”\* The evil here noticed is peculiarly injurious to self-education, because of the absence of those constraints which, in literary institutions, enforce activity. Unless the mind awakes to the responsibilities of its condition, and fills up its hours with resolute, well-directed thought, instead of idle reveries, it will not only fail to improve in general science but become driveling in the elements of knowledge—in common sense itself. For our stock of natural knowledge, like our health, can only be preserved by exercise.

22. Miscellaneous efforts belong to the class of hindrances now under consideration. The mind, not sufficiently intent upon high attainments, allows itself to rest satisfied with mere fragments of learning—with scraps of information, which though ultimately useful when blended into a new system by their possessor, can never by themselves be of much service. They are materials out of which systems may be wrought, and a dilligent mind will repair all deficiencies by elaborating science from such disjunctive hints. But miscellaneous and fragmentary knowledge, if suffered to remain in this condition, is almost entirely useless; because, having neither order nor connection, it can not be applied to practical purposes. Education demands science and this demand can only be met by original invention, or by an appropriation of the labors of others. We may pass through forms which others have delineated and arrive at a knowledge of their conceptions, and in this way such science becomes our own; or, if required by circumstances, the same acquisitions can be made without the intervention of assistance. In the latter case, the mind is placed on a level with its predecessors, and has an opportunity of rivaling them on the same ground. It was thus that in his own day, the genius of Newton was equalled by

\* Rambler, 89.

Leibnitz, and at a later period by Rittenhouse.\* We do not object to miscellaneous acquisitions if they can be carried forward to completion; they may serve as stepping stones to high advancement. It is the liability to rest in such acquisitions that renders them dangerous; it is resting in them that makes them useless—makes smatterers instead of men of learning.

23. We may trace much evil to an idea that small fragments of time are of no use in literary pursuits. Where persons are compelled to labor, or where business of any kind necessarily consumes a large proportion of time, opportunities for study will, of course, be greatly reduced. But the busiest life affords some moments of leisure, and if these are faithfully devoted to learning, and with the impetus which labor gives to mental effort, there will be no real cause for regret that further opportunity was wanting. In the comparatively brief period allotted to such objects, the mind by diligence traverses the whole circle of science, and stands at last on as lofty an eminence of scholarship as a life of the most exclusive study could have attained. This grand result proceeds from a judicious improvement of those minute portions of time which by the multitude are thrown away because they are small, and, for no other reason. They appear not to be aware

\* "The more, indeed, we contemplate the early life of Rittenhouse, the more our admiration is excited. With such elementary knowledge only as could be obtained at the school or a remote settlement; under the parental discipline of a father, who rather discouraged than aided his studies, and of an illiterate, though strong-minded mother; possessed of no books but those of an humble mechanic; he persevered until he had, step by step, mastered all the truths of mathematical science, and had arrived at the principles of that calculus, for the honor of whose invention a Newton and a Leibnitz had contended." *American Biography*: conducted by Jared Sparks. Vol. 7, p. 216.

that these particles though separated in themselves, will be united in their effect. Hence, the wastage of life—those odd minutes and leisure hours incident to all employments, and devoted by the student to snatches from whatever author may be at hand, they never improve by reading.—Some frivolous entertainment is called in to give relaxation to the mind when it already suffers—suffers for want of labor. The solid and comprehensive truths of science, the pleasing and elegant accomplishments of literature would be a far better cordial than public amusement or private sauntering. A great mistake prevails in relation to the length of time which an acquaintance with science must necessarily require. That years are spent in the study of particular sciences is true, and that the study of years does not exhaust them is equally true; but this alters not the fact, that a general and sufficient knowledge of such science may be acquired in much less time. Dr. Adam Smith has remarked that the principles of almost any trade may be learned in a few weeks as well as in many years.\* The

\* “Long apprenticeships are altogether unnecessary. The arts which are much superior to common trades, such as those of making clocks and watches, contain no such mystery as to require a long course of instruction. The first invention of such beautiful machines, indeed, and even that of some of the instruments employed in making them, must, no doubt, have been the work of deep thought and long time, and may justly be considered as among the happiest efforts of human ingenuity. But when both have been fairly invented and are well understood, to explain to any young man in the completest manner, how to apply the instruments and how to construct the machines, can not well require more than the lessons of a few weeks; perhaps those of a few days might be sufficient. In the common mechanic trades those of a few days might certainly be sufficient. The dexterity of hand, indeed, even in common trades, can not be acquired without much practice and experience.” *Wealth of Nations*, B. 1, ch. 10. Part 2.

practical skill requisite to mechanics might not be perfect, yet the general principles of the art could be communicated. In science, a similar abridgement of time is practicable, without sacrificing any real advantage. A few weeks, or even days, of determined and intelligent study, will often give an individual more knowledge of a science than whole years of listless, obsequious toil.\* Bacon while yet in his novitiate saw through all the sciences of

He accordingly asserts that the extended apprenticeships in England are the result of monopolization. And he does not hesitate to apply the same principle to literature; he says the literary aristocracy, with a view to promote their own pecuniary interests by making the business of teaching more permanent, fixed upon the long period of seven years as the term of college pupilage.

\* The following account of the manner in which Bonaparte became acquainted with the civil law, is related by O'Meara, and affords a sufficient illustration of the remark here made. "When he was forming the Code Napoleon, he astonished the council of state by the readiness with which he illustrated any point in discussion, by quoting whole passages, extempore, from the Roman civil law, a subject which might seem to be entirely foreign to him, as his whole life had been passed in the 'tented field.' On being asked by Treilhard how he had acquired so familiar a knowledge of law affairs, he replied: "When I was merely a lieutenant, I was put under arrest, unjustly it is true; but that is nothing to the point. The little room which was assigned for my prison, contained no furniture but an old chair, an old bed, and an old cupboard; in the cupboard was a ponderous folio volume, older, and more worm-eaten than all the rest; it proved to be the Digest. As I had no paper, pens, ink, or pencils, you may easily imagine that this book was a valuable prize to me. It was so voluminous, and the leaves were so covered with marginal notes in manuscript, that, had I been confined a hundred years, I could never have been idle. I was only ten days deprived of my liberty; but, on recovering it, I was saturated with Justinian, and the decisions of the Roman legislators. Thus I picked up my knowledge of civil law.'" *Anecdotes of Napoleon*, p. 28.

that age. His penetrative glance so scanned the domain of existing knowledge as to leave nothing for his ambition in future years but improvement of science. Now if so short a period will suffice to decide upon the merits of an encyclopedia, and to project a revolution in science, the benefits of which must continue until tongues shall cease and knowledge shall vanish away, then, it follows that the smallest fraction of time has an intrinsic value in this pursuit, and may be productive of the highest consequences. Should the irregularity which this interrupted mode of study will occasion be deemed objectionable; should it altogether deprive the student of many of those introductory sciences by which, under other circumstances, his progress might be characterized, let it be remembered that these are things which can not lessen the value of knowledge when gained. On the contrary, they may even enhance its importance by imparting certain qualifications rarely afforded by a more tedious preliminary process. "It was said by Eugene of Savoy, that the greatest generals have commonly been those who have been at once raised to command, and introduced to the great operations of war without being employed in the petty calculations and manœuvres which employ the time of an inferior officer. In literature, the principle is equally sound. The great tactics of criticism will, in general, be best understood by those who have not had much practice in drilling syllables and particles."\*

24. With many there is a distrust of time—they are not willing to depend upon time to bring their efforts to maturity. From the uncertainty of life, they are afraid of not living to reap the fruit of their labor. Or, if exempted from fears of this kind, they imagine others have so much the start of them, and that the world is so

\* Macauly's Miscellanies: (Athenian Orators.)



pre-occupied as to exclude all chance of success. These notions are equally unfounded. Life is precarious, but its precariousness is much more regarded by the young than by the old. Not that the aged are less convinced of human frailty, for the fact in this respect is far otherwise; the reason of their apparent indifference is, that they are aware such impressions, if indulged, must be destructive of all enterprise. Barely contingent evils are either to be thrown entirely out of the account, or allowed to exert no other than a quickening influence upon necessary duties. But probably the idea that time will not furnish an occasion for the exercise of any abilities which we may acquire, is still more detrimental. Such is the constitution of society and such the course of affairs, that every individual will, sooner or later, find a station fitted to his capacity, be that capacity little or great. Learning makes employment for itself; it creates a demand which nothing else can supply. And, therefore, as it regards pre-occupation, we may pronounce it impossible. Genius has power to change the direction of energy and modify the character of taste. It sees things in a new light and opens upon the world new sources of enterprise. These considerations should allay impatience and remove doubt; for no greater security ought to be desired than others have enjoyed, and no further assurance of success than the certainty of being useful. Time is essential to all our undertakings, and the influence which it exerts in their favor, is rarely estimated. It not only carries us, without any agency of our own, through all the grades of human life, but improves our efforts and ripens to maturity projects which otherwise must have remained crude and worthless. This is a species of advantage that should engage the attention of the student not less than the man of business; to both it is the cherishing hand of Provi-

dence through which the germ receives development.— Lord Bacon has, not without reason, ascribed much to this source, that has too often been thought the product of talents merely. “Truth is by universal consent the daughter of time. It is a mark, therefore, of utter weakness and narrowness of mind to attribute infinite effects to authors, but to withhold its due from time, the author of authors and of all authority.”\*

25. The last hindrance which I shall notice arises from a false view of literary institutions. Literature, like commerce, is equally adapted to all places. It depends not upon localities, but upon energies. Yet with multi-

\* Interpretation of Nature. As it is possible to abuse this dependence upon time, by an ill adjustment of plans, I shall add the following:—“In the systematical application of general and refined rules to their private concerns, men frequently err from calculating their measures upon a scale disproportionate to the ordinary duration of human life. This is one of the many mistakes into which projectors are apt to fall; and hence the ruin which so often overtakes them, while sowing the seeds of a harvest which others are to reap. A few years more might have secured to themselves the prize which they had in view; and changed the opinion of the world, (which is always regulated by the accidental circumstances of failure or of success,) from contempt of their folly into admiration of their sagacity and perseverance. It is observed by the Comte de Bussi, that ‘time remedies all mischances; and that men die unfortunate, only because they did not live long enough. Mareschal d’Estrée, who died rich at a hundred, would have died a begger, had he lived only to eighty.’ The maxim, like most other apothems, is stated in terms much too unqualified; but it may furnish matter for many interesting reflections, to those who have surveyed with attention the characters which have passed before them on the stage of life; or who amuse themselves with marking the trifling and fortuitous circumstances by which the multitude are decided, in pronouncing their verdicts of foresight, or of improvidence.” Stewart’s Elements of Philosophy, Vol. 2, p. 103.

tudes the name of a college is synonymous with education. They imagine that a residence there must necessarily make them scholars; to them the very atmosphere of such places is impregnated with science. And shut out from such favored scenes, denied access to the consecrated retreats of literature, where knowledge is supposed to be imbibed without study, it is no wonder they are little inclined to strenuous effort. Some knowledge—enough for the ordinary business transactions of life—they may feel compelled to acquire; but an extended education is not to be attempted in the absence of this local and principal advantage. How foolish this ignorant conceit is, must be evident to the least reflection. A very short acquaintance with literary institutions brings them upon a level with all other places which afford the means of instruction. One building is just as propitious to education as an other. There can be no possible difference in local habitations and names, except as one may have books or teachers which the other has not. But we have already shown that books and teachers are not essential to mental proficiency; there is not, therefore, even here, any sovereign superiority in particular establishments of this nature. If we wish to retain the impression that such institutions are fraught with unusual dignity or have any uncommon power by which they exorcise ignorance from the human mind, we can only do so by carefully avoiding all intercourse with them, and leaving imagination to rove without the aid of reason. “Let him who is fond of indulging in dream-like existence,” says Basil Montagu, “go to Oxford, let him study this magnificent spectacle, the same under all aspects, with its mental twilights tempering the glare of noontide, or mellowing the shadowy moonlight; let him wander in her sylvan suburbs, or linger in her cloistered halls; but let him not catch the din of scholars or teachers,

or dine or sup with them, or speak a word to any of the privileged inhabitants; for if he does, the spell will be broken, the poetry and the religion gone, and the place of enchantment will melt from his embrace into thin air.”\* I will not question what the power of association can do; it is enough to have shown that no higher principle is involved.

Such are the obstacles to self-education. Not one of them invincible; not one of them but what may, by determined zeal, become conducive to greater usefulness and to greater fame.

\* Life of Bacon, chap. 1.

## CHAPTER VII.

### **Advantages of Self Education.**

These are of two kinds. I. Those which belong to education in general. II. Those which belong to self-education in particular.

I. Mind and matter are constituent elements of the same being, and in admitting the doctrine of improvement as applicable to both—as applicable to both in a similar manner, we are taking a stand of the highest practical consequence. Much of physical cultivation consists in personal skill, or in the acquisition of that knowledge which is gained only by practice. This may be seen in every occupation. A little practice enables one to perform with ease what is nearly or quite impossible to the inexperienced. Thus it is with the mind. It must be trained to its work, or in point of practical ability it will never be able to leave the nonage of life. Not that its powers are insufficient, but merely because it can not know how to apply them. Education supplies the mind with knowledge, and this knowledge is the means on which achievement depends. Where this provision is wanting, there must ever be the greatest difficulty in arriving at truth. There is the most palpable evidence that many shameful absurdities have no other foundation than the unfurnished state of the human understanding. It is also known that the desolate physical condition of the savage is only paralleled by the barrenness of his intellect; he is

apparently as destitute of ideas as the game he pursues. But the civilized and cultivated man is richly furnished with ideas, that have been evolved from his own mind, and the comforts by which he is surrounded are so many proofs of the activity and supremacy of his thoughts.

Important as is this view of the subject, we will leave it for one which is, perhaps, still more striking. What machinery is to the body, in controlling the laws of matter, science is to the mind in the investigation of truth; or, to make the expression more accurate, the aids of science are equally available to the mind as to the body. Man is naturally a very feeble being, but by the help of mechanics he forms an alliance with nature, and takes to himself the dreadful power of the elements. By the accumulation of force, and by giving to it a various application, he has renovated and exalted his condition, and brought within his reach a variety of blessings which could not otherwise have existed. Science, however, has not exhausted itself in contributing to the physical advantages of the world. Its effects are indeed more splendid, more numerous, and more beneficent in the intellectual than in the material system. Witness the savage; he has not only no steamship to plough the ocean, and no cotton factory to fabricate his cloths, but he has no law, no medicine, no divinity, no agriculture,—and in short, no thoughts. I mean those amazing thoughts, those revelations of science that are locked in eternal secrecy from the uncultivated mind. Thoughts he has, but they are only such as are inevitable, and therefore, common to all, without the trouble of voluntary application; these only enable him to provide scantily for the present moment, whereas, the deeper thinking of educated mind supplies an exhaustless abundance, and that for life. The one feebly meets the wants of sentient existence, but the other provides for all

that human nature can need. As well might we hope to make a mirror of the sea when the winds of heaven are in commotion, as to preserve unbroken the wretchedness of man, when the giant powers of his soul have been properly evoked. That "knowledge is power,"\* is no where more keenly felt than among the abettors of helotism; so sensible are they of this, that they can not rest until the mind is reduced to a blank, and the image of God degraded to a brute. Never did the traveler upon the trembling side of Etna or Vesuvius, feel more alarmed for his safety or possess less means of defense, than the despot when popular intelligence threatens an explosion. Hence, the freedom of the press has justly been styled the palladium of liberty; and I shall add, that unrestricted inquiry is not less requisite in every department of human interest. The forms of language and mathematics have done for the mind, what sculpture and painting have for the body, but this is their least praise. Not only has a valuable thought been retained, but transcriptions of it have been made with almost inconceivable rapidity, and truth has thus become an article of commerce for the benefit of the world. It is however by furnishing the means of convergence and accumulation to the scattered rays of intellectual light, that science has done most for human nature. This artificial augmentation of truth has given to the observer a superhuman ability. Science usually consists of a series of observations founded on one or more general principles, and so arranged that the

\* I have not met with precisely this form of words any where in Bacon, though the sentiment is his in the fullest degree, as is evident from the quotations on the seventieth page of this work, and from many other passages which might be cited, particularly the following: "Those two objects, human knowledge and power, are really the same." Great Instauration: (Distribution of the work.)

mind has just strength enough to ascend from one point to another, like marching up an inclined plane. Now these transitions can not be made without assistance, although the ascent has been carefully graduated to the abilities of the mind; for the various symbols, rules, and forms incident to pursuits of this kind; are so many mechanical powers constantly counteracting our natural imbecility. And it is in the use of these convertible signs and established formulas, that enlightened nations so much excel barbarians in all their undertakings. It is to aids of this kind, rather than to superior capacity, that we are to look for the extension of knowledge. A man who attempts to raise a ship with pulleys does not rely upon his personal strength, nor is the speed of a boat determined by the physical ability of the engineer. Herschel did not discover a new planet because his eyes were better than those of other men; nor did Cicero excel in eloquence, independent of the advantages of a refined and powerful language. Long enough might the former have scanned the "starry cope" to no effect, had he used only the visual organs which nature supplied; and the latter would have died without celebrity, had he declaimed in the colloquial phrases of some unwritten dialect.

Moral science has been not less decidedly benefitted by cultivation; the ethics and divinity, the politics and jurisprudence of civilized nations, are in all respects superior to the same branches among the uncivilized. Rome, though destitute of the true religion, had a body of civil law which has been admired in all succeeding ages, and the character of her religious worship was infinitely better than that of the unlettered pagan tribes by which she was surrounded.

Such are the advantages of education by whatever means it may be obtained.



II. Self-education, in the highest sense of the term, is an analytical process. It raises a man to the rank of an inventor of science, and imbues him with mental qualifications adapted to the pursuit of the highest purposes of life. It does not allow the student to pass over indefinite portions of the field of science without observation, nor can it consist with the supposition that facilities for knowledge are in any measure tantamount to knowledge itself. By increasing the appropriate means of scientific acquisition, students are soon brought to the knowledge of facts which none but the genius of the very fathers of science could otherwise have discovered. But we are not to suppose that their education is at all commensurate with that of their illustrious progenitors. This coincidence of sentiment is not the result of similar abilities. In the one case, intellectual activity has fabricated a system; in the other, mere apathy has led to the adoption of a system because it was already formed. The most ordinary navigator may now cross the Atlantic, but will he be deemed a Christopher Columbus? A man by means of machinery can raise a great weight, but does this prove that he is a very Samson? Neither does a tolerable understanding of the Copernican system prove that a man is an astronomer. Possession, simply, does not prove ownership. If one has no more than the theory, he lacks the most important element of true greatness; for in all such instances, the theory having been passively imbibed, can not supply that practical philosophy which is the most valuable part of knowledge.

The influence of self-education, in the formation of intellectual character, deserves to be especially considered. Whoever has turned his attention to the great characters which are exhibited on the page of history, must be sensible, that all who were equally eminent had not equal

advantages. This result is a tacit reflection upon the justness of our theoretical deductions. We see one surrounded with patronage and wealth, and led on by competent guides to the highest virtue, and to the greatest vigor of mind; while another, destitute of every means of cultivation, and, to all human appearance, incapable of eminence, accomplishes the same result, and stands the acknowledged equal of his more favored competitor. In the latter case, the person breaks suddenly from obscurity, and seems to undergo a transformation by some mystic process of nature. Now, as no effect is without its cause, however unintelligible to us may be the mode of its operation, we must conclude that there is some occult principle at work here, which is wont to develop itself in this manner. This principle, so long overlooked, should be recognized as one of the most efficient means of instruction. Essentially it is perhaps nothing more than the light of experience; nothing more than the information derived from the use of our faculties, superadded to preceptive knowledge. Or, if the reader please, it is an initiation into the mysterious, and to the merely speculative observer, inscrutable law of intellectual acquirement. It is not the quantity of abstract truth crowded into the mind that is decisive of mental character. Our hopes are poised upon the mode of attainment, because upon the mode must we rely for a certain kind of knowledge without which all other acquisitions are necessarily abortive. For the same reason that a person who inherits property is more likely to fail in the application of it to business, than the person who originally acquired it, would have been, do we judge that the mode of acquiring knowledge must have great influence upon its possessor, and upon the uses he will be likely to make of it. When a poor man by force of character, and the practice of

economy, has succeeded in acquiring property, he feels himself initiated into the secret of pecuniary acquisition, and he is much more capable of retaining his capital, or of giving it a profitable employment, than one whose mind has not been enlightened by the process of accumulation. And need it be said that Galileo, who invented the telescope, was a much greater optician than he who merely reads a description of it? Had this celebrated philosopher lived, his character was a pledge for future success; but of the thousands who have an equal, though exclusively theoretical knowledge, not one in five hundred can be relied on for the extension of science. Truth, acquired by intentional research, is not only valuable in itself, but is the result of principles before which every obstacle must give way. As one truth contains the essence of all truth, so the method of one discovery is substantially the method of all discoveries; and when the mind thus becomes conscious of its ability to conduct investigations for itself, it is no longer in the power of external circumstances to interrupt its inquiries; and frequently these inquiries are of such a nature that it is as little in the power of outward things to aid them. Once in possession of a knowledge of its own capacity, the mind can never afterwards yield to human authority, nor be embarrassed for the want of such secondary assistance. Thenceforward its own observations become the basis of its conclusions, and in none of its conclusions is anything but truth knowingly allowed to have weight.

If the life of Patrick Henry, or of Peter the Great, were subjected to a rigid analysis, it would appear that although neither of them had a scientific education, as science is taught in the schools or embodied in books, yet both were eminent, almost without a parallel. The former commenced the practice of law with only six weeks

study, and the latter entered at once upon the most sublime, and perhaps the only practicable plan of regenerating a whole empire. It is easy to call Peter a savage, as his biographer has done, and to reflect upon Mr. Henry for his want of literature, but it was not in the power of education to make either of them greater. Each had a complement of principles wrought out by the energy of his own understanding, and as perfect as any that exist, whether written or unwritten. Our intellectual faculties are much like the several senses. They admit of external aid, but their first or instinctive operations are perfect in their kind, and take hold on principles, the depth of which no human mind can fathom. Thus a child will ask questions which the wisest philosopher can not answer. By this we perceive that wherever mind acts, it displays a power but little dependent on foreign assistance. Its capacity is greater than its opportunities. Its action is that of a superior nature, and affords both the proof of its existence and the best means of improvement.

Another important advantage derived from this method of study is the influence which it exerts in the retention and application of knowledge. The peculiar difficulties which the solitary student has to encounter can not fail to make a deep impression upon his mind, and science gained in this manner must necessarily be remembered with greater tenacity. Universal experience proves that an omission of practice in any of the professions is followed by a declension of theoretical knowledge. Take, for instance, a teacher of ancient languages. How soon does the brilliancy of scholarship fade when the current of thought is turned from its wonted channels. Almost with tears will the aged scholar tell you he can not read Greek. When he graduated, when he was in the midst of professional life,

all was familiar; what he saw frequently he knew readily; but time has passed upon him, and the deepest inscriptions upon the tablet of memory have either been obliterated or greatly defaced. Thus the classic acquisitions of the ordinary student are held by a tenure different from those of the self-educated. The one claims by possession simply; the other by right of conquest, having subdued time, and poverty, and every thing else that had power to dispute his progress. This conflict makes the impression indelible and secures permanently to the individual what could otherwise be retained only by constant repetitions. Those who labor thus for the attainment of knowledge, feel the want of it more keenly and know precisely to what uses it should be applied; whereas, they who pass from one thing to another with the indifference of mere spectators, though they should graduate at college, will be more likely to die prematurely through intemperance, than to repay to the world the expense of their tuition. No submission to instruction, no thoughtless assent to established propositions, can secure any proper use of the facts so received. The exhaustless treasures of science will remain totally useless to minds of this description. Could they see the importance of what they learn in the light of one who has to struggle with ignorance and pines hopelessly for truth, how would such opportunities be improved! No valuable fact would lie dormant. Philanthropy, which is inseparable from the love of truth, would urge them to undertake for human weal. At what hazard and toil have not the sons of science bestowed their contributions on the world? If some have veered with every direction of the popular gale, it has been from mistaken notions of utility, or, at the worst, it was but the spirit of speculation which, in science as in commerce, too often pirates upon the public interest.

But these exceptions aside,—and they are not many,—a chivalrous devotion to the higher interests of humanity has always marked the career of intellectual improvement. In minds properly imbued, science is a living influence whose emanations are as healthful, as they are constant; but in the thoughtless, it resembles the exhalations of the stagnant pool which are both useless and offensive.

Self-education, by excluding all unnecessary assistance, and confining the mind to original sources, gives greater certainty to knowledge. On this point, the following observations from Locke, are sufficient. “I hope it will not be thought arrogance to say, that perhaps we should make greater progress in the discovery of rational and contemplative knowledge, if we sought it in the fountain, *in the consideration of things themselves*, and made use rather of our own thoughts than other men’s to find it: for I think we may as rationally hope to see with other men’s eyes, as to know by other men’s understandings. So much as we ourselves consider and comprehend of truth and reason, so much we possess of real and true knowledge. The floating of other men’s opinions in our brains, makes us not one jot the more knowing, though they happen to be true. What in them was science, is in us but opiniatrety; whilst we give up our assent only to reverend names, and do not, as they did, employ our own reason to understand those truths which gave them reputation. Aristotle was certainly a knowing man; but nobody ever thought him so, because he blindly embraced, and confidently vented, the opinions of another. And if the taking up of another’s principles, without examining them, made not him a philosopher, I suppose it will hardly make any body else so. In the sciences every one has so much as he really knows and comprehends: what he believes only and takes upon trust, are but shreds; which,

however, will in the whole piece make no considerable addition to his stock who gathers them. Such borrowed wealth, like fairy-money, though it were gold in the hand from which he received it, will be but leaves and dust when it comes to use.”\*

Again, and lastly, self-education affords, or rather, renders unavoidable, earlier opportunities for observation, than are furnished by the common course of learning. It is indeed a Herculean task to plod through the dry, abstract rules of a science, unattended by a single associate, and relieved by no remark from a living teacher; but the advantages are in proportion to the difficulty of the work. The science obtained in this manner is the least important consequence to the student. His mental habits assume a character of philosophical investigation at the most favorable juncture of life for new discoveries. Young men have new opinions. It is not expected that the aged will change their sentiments. But the young have properly no opinions, until entering at once on a course of observation, they take new and, it may be, vastly better views of things. Almost every great enterprise has been formed in youth—in early youth; the mind, at its first glance sketched the outline of its future history, and left nothing to maturer years but the labor of filling up the juvenile plan. Now if observations made at this period are to exercise a governing influence through life—if the brightest and best hopes of the future are involved in the activities of the youthful mind, then that method of study must be most beneficial which most facilitates efficient thinking.

\* Book 1, chap. 4, Sec. 23.

## CHAPTER VIII.

### Motives to Self Education.

1. Those who have been obliged to educate themselves have hitherto been subject to a certain degree of opprobrium; they have been regarded in the literary world as a sort of lower caste, from which might be withheld by those of more legitimate extraction, such honors and advantages as are peculiar to learning. I speak not now of collegiate honors, or emoluments, but of that estimate of character—that just appreciation of attainments, which is more regarded by every man of real science, than titles or money. The literary man, and the self-educated, not less than others, feels little solicitude beyond the desire of a fair valuation; if merit is admitted, he cares not how capricious other allotments may be. When he has toiled with untiring zeal and been so fortunate as to produce works that fix the character of language and give immortality to his name, it is not just that he should still be called “illiterate.”\* When he has gone over the entire

\* Mr. Macaulay applies this term to Bunyan. “Dr. Johnson, all of whose studies were desultory, and who hated, as he said, to read books through, made an exception in favor of the *Pilgrim’s Progress*. That work, he said, was one of the two or three works which he wished longer. It was by no common merit that the *illiterate* sectary extracted praise-like, this from the most pedantic of critics, and the most bigoted of Tories.” (Review of Southey’s *Life of Bunyan*.) “It is very amusing and very instructive to compare the *Pilgrim’s Progress* with the *Grace Abounding*.



field of science and literature, and gained a position evidently in advance of most of his contemporaries, it is not right that his knowledge should be styled "multifari-

The latter work is indeed one of the most remarkable pieces of autobiography in the world. It is a full and open confession of the fancies which passed through the mind of an *illiterate* man." (Ibid.)

I give these passages at length as illustrations of style—of that style which is used in speaking of this class of writers. In one sentence, the author receives the highest praise for a literary performance, and in the next, he is reproached for his illiteracy. Good writing is certainly the best proof of attainments in literature; and we cannot account for this singular oversight, except by supposing the author under the influence of that popular prejudice which makes a residence at college and a knowledge of the ancient languages essential to literary character. That we must ascribe it to something of this kind, rather than to an unwillingness to treat Bunyan with respect, is evident not only from the above, but from the following very high—perhaps extravagant—eulogium.

"The style of Bunyan is delightful to every reader, and invaluable to every person who wishes to obtain a wide command over the English language. The vocabulary is the vocabulary of the common people. There is not an expression, if we except a few technical terms of theology, which would puzzle the rudest peasant. Yet no writer has said more exactly what he meant to say. For magnificence, for pathos, for vehement exhortation, for subtle disquisition, for every purpose of the poet, the orator, and the divine, this homely dialect, the dialect of plain workingmen, was perfectly sufficient. There is no book in our literature on which we could so readily stake the fame of the old unpolluted English language; no book which shows so well how rich that language is in its own proper wealth, and how little it has been improved by all that it has borrowed. Cowper said, forty or fifty years ago, that he dared not name John Bunyan in his verse, for fear of moving a sneer. To our refined forefathers, we suppose, Lord Roscommon's *Essay on Translated Verse*, and the Duke of Buckinghamshire's *Essay on Poetry*, appeared to be compositions infinitely superior to the

cus and discursive, rather than correct and profound.”\* Discriminations of this kind may possibly be just in a given case, but not generally; not more so when applied to the self-educated, than to those educated at school. And yet to the one class they are applied with the greatest frequency; to the other class rarely, if ever. This evinces a determination not to admit the self-taught to an equal standing in the republic of letters; they may be naturalized as an act of favor or of justice, but must still be considered as aliens by birth, and as wanting in some of the requisites of perfect scholarship. It is for this reason that the offices of instruction are monopolized by those who have received what is called a regular education; it is deemed hazardous for others to assume such responsibilities, as if fitness depended on the place where they had studied, and not on the things which they had learned. For the same cause, in England, every minister of the established church must have a university education; and

allegory of the preaching tinker. We live in better times; and we are not afraid to say that, though there were many clever men in England during the latter half of the seventeenth century, there were only two great creative minds. One of these minds produced the *Paradise Lost*, the other the *Pilgrim's Progress*.” (Ibid.)

Here, then, is an author rivalling Milton, and yet illiterate; Much, very much, may be done by an illiterate man; but there is one thing which he can not do—he can not write a good book. This is the highest achievement in letters; no scholar has done, or can do, more. In conclusion, let it be observed that Mr. Macaulay's remark must necessarily be extended so as to include Shakspeare and Homer, for if Bunyan was illiterate, so were they.

\* See Amer. Bib. Repos., Jan. 1841, Art 7, where these words are used by a writer to describe the attainments of Dr. Adam Clarke. This is the stereotype form of alluding to self-educated men; it does not seem fashionable to admit that they can by any possibility be thorough scholars.

every practitioner of medicine, in London, must be a graduate of Oxford or Cambridge, in order to enjoy the honors and immunities of his profession.\* Such abuses are not so frequent in this country, but much of the same spirit which dictated the above regulation exists among us and manifests itself whenever an opportunity presents. A single instance will sufficiently confirm the present remark. By a requisition of the highest judiciary of this state, candidates for the bar, are obliged to pursue their

\* "In the reign of Henry VIII, a college of Physicians was constituted in London by charter, for the express purpose of examining and admitting applicants duly qualified for the practice of physic in the metropolis, and excluding and interdicting quacks and empirics. Some of the first members of this college were foreign graduates; and no condition of having received their education or degrees at any particular place was thought of with respect to them or their successors; nor was any distinction of practitioners into different classes established, but all professional honors were left open to every physician of sufficient learning and good morals. In process of time, however, an innovation was introduced of distinguishing the physicians of London into two classes, fellows of the college, and licentiates; the former possessing all the collegiate powers and emoluments, the latter having simply the right of practising. And the same monopolizing spirit produced the further limitation, that no one should be allowed to claim admission to the fellowship of the college, who was not a graduate of Oxford or Cambridge. Such is the state of things at the present day; and this absurd and arrogant exclusion of men whose learning and professional skill may be inferior to those of none of their competitors, is pertinaciously maintained by a body, originally instituted for the sole purpose of the public good, but perverted in its object by the mean jealousy and selfishness ever attending the *corporation spirit*." Aikin's Letters to a Son, vol. 2, p. 19.

The evil tendency of such associations, or what Dr. Aikin call the meanness of the corporation spirit was remarked by Addison. "When arts and sciences are so perverted as to dispose men to act in contradiction to the rest of the community, and to set up

classical studies under a teacher, or fail of admission.\* These things show that oral instruction is considered essential to education, and that no one is fairly entitled to the character of a scholar whose acquirements have been made without such assistance. Now those who have confidence in the human mind, and who know such imputations as the foregoing to be both unjust and ridiculous, must feel anxious to relieve themselves from the withering influence of aristocratic pride. They will naturally desire by the unquestionable character of their own attainments to redeem self-education from unmerited reproach, and to demonstrate the folly of that assumed superiority now almost universally conceded to the graduate. Or if literature is an exception among human pursuits, and can not be successfully prosecuted by individual enterprise and skill—if there is still any thing problematical in the undertaking, they must wish to solve the difficulty and place the truth beyond dispute. Others are to come after, the world is yet to have its generations of depressed and unfortunate beings, and before all these are given up to convictions of impossibility with the certainty of dying in hopeless ignorance, a daring and benevolent spirit will

for a kind of separate republic among themselves, they draw upon them indignation of the wise, and the contempt of the ignorant. It has, indeed, been observed, that persons, who are very much esteemed for their knowledge and ingenuity in their private characters, have acted like strangers to mankind, and to the dictates of right reason, when joined together in a body. Like several chemical waters, that are each of them clear and transparent when separate, but ferment into a thick troubled liquor when they are mixed in the same vial." The Freeholder, No. 33.

\* "Time spent in classical study without the aid of a competent teacher—will not be allowed." Rules and Orders of the Supreme Court of the State of N. Y., p. 10.

aim to know the utmost limits of intellectual capacity. In short, the self-educated desire neither to be borne down themselves by obloquy, nor to be accessory to the evils inflicted upon the poor by the popular error, that education can be had only at literary institutions.

2. But however desirable it may be to repel the aspersions to which self-education has been so unjustly subjected, there is an other motive of much sterner character—necessity. All that we learn must be self-learned, because others can not learn for us. It matters not what a teacher may know, as his pupil can only learn by exercising his own mind; and if he will do this he may learn whether he has a teacher or not. But this necessity arises as well from the condition of science as from the constitution of the mind. I have already observed that what is not known can not be taught; the student who departs ever so little from his text book—who aims at any thing more than second-hand knowledge, is obliged to be his own instructor. No one can guide him in unknown regions, and he must forever be confined to the beaten path or assume the responsibility of self-direction. We surely ought to acquiesce in a necessity which ultimately enforces independence and wrests from pupilage all those who ever attain to honorable distinction. Providence interposes to prevent the evils of mental vassalage, and also to remind those who are destitute of foreign assistance, that they are able to help the—useless.

3. By directing our own education, we secure an exemption from the trammels of authority. When the mind is just commencing its survey of things, and needs more knowledge than it has had time to accumulate, authoritative instructions are often necessary for the preservation of life or the direction of conduct; but when time has afforded opportunities for acquisitions of knowl-

edge equal to the wants of the individual, this authority is no longer needed, and can no longer be exerted without injury to the intellectual constitution. Man was made to think for himself, and when he ceases to do so he is not the being his Creator designed; he is absorbed by other minds and loses his identity in the world around him. No where is such a result more to be apprehended or more to be dreaded than in those halls of learning, where youth are expected to form their characters and store their minds with hoarded knowledge. Here the wisest men shape their ideas according to a text-book, and the understanding itself is subjected to the authority of authors. Not to submit, is contumacy; to do so, is the destruction of reason. Under these circumstances, youth must become indifferent to truth, or blind to error; must cease to think, or think only as they are bidden. Such a state of mind may consist well enough with pursuits which task only the memory, but it will not allow the higher faculties to be employed.

On this subject, as much, and more, has been said by Lord Bacon. "In the habits and regulations of schools, universities, and the like assemblies, destined for the abode of learned men, and the improvement of learning, every thing is found to be opposed to the progress of the sciences. For the lectures and exercises are so ordered, that any thing out of the common track can scarcely enter the thoughts and contemplations of the mind. If, however, one or two have perhaps dared to use their liberty, they can only impose the labor on themselves, without deriving any advantage from the association of others; and if they put up with this, they will find their industry and spirit of no slight advantage to them in making their fortune. For the pursuits of men in such situations are, as it were, chained down to the writings of particular

authors, and if any dare to dissent from them, he is immediately attacked as a turbulent and revolutionary spirit.”\*

And again, in the tract on the Praise of Knowledge, he says, with more severity: “In the universities of Europe at this day, they learn nothing but to believe: first to believe that others know that which they know not; and after, themselves know that which they know not.

\* Nov. Org. B. 1. aph. 90.

We might easily add many corroborating testimonies, but the following, from Dr. Playfair, must suffice. “It would be gratifying to be able to observe, that the universities of Europe had contributed to the renovation of science. The fact is otherwise;—they were often the fastnesses from which prejudice and error were latest of being expelled. They joined in persecuting the reformers of science. It has been seen, that the masters of the university of Paris were angry with Galileo for the experiments on the descent of bodies. Even the university of Oxford brought on itself the indelible disgrace of persecuting, in Friar Bacon, the first man who appears to have had a distinct view of the means by which the knowledge of the laws of nature must be acquired.” Playfair’s Preliminary Dissertation to the supplement of the *Encyclopedia Britannica*, Part I, Sec. 4.

Our author has shown how slowly even the most important improvements in science can gain admission to such institutions. “When one considers the splendor of Newton’s discoveries, the beauty, the simplicity, and grandeur of the system they unfolded, and the demonstrative evidence by which that system was supported, one could hardly doubt, that, to be received, it required only to be made known, and that the establishment of the Newtonian philosophy all over Europe would very quickly have followed the publication of it. In drawing this conclusion, however, we should make much too small an allowance for the influence of received opinion, and the resistance that mere habit is able, for a time, to oppose to the strongest evidence. The Cartesian system of vortices had many followers in all the countries of Europe, and particularly in France. In the universities of England, though the Aristotelian physics, had made an obstinate resistance, they

They are like a becalmed ship; they never move but by the wind of other men's breath, and have no oars of their own to steer withal." That these institutions are what they were in the days of Bacon, and that they must ever remain substantially what they now are, may be shown without difficulty. The first of these facts is familiar to all who have any knowledge of the present state of Europe. It is thus alluded to by Dugold Stewart.

had been supplanted by the Cartesian, which became firmly established about the time when their foundation began to be sapped by the general progress of science, and particularly by the discoveries of Newton. For more than thirty years after the publication of those discoveries, the system of vortices kept its ground, and a translation from the French into the Latin of the *Physics* of Rohault, a work entirely Cartesian, continued at Cambridge to be the text for philosophical instruction. About the year 1718, a new and more elegant translation of the same book was published by Dr. Samuel Clarke, with the addition of notes, in which that profound and ingenious writer explained the views of Newton on the principal objects of discussion, so that the notes contained *virtually* a refutation of the text; they did so, however, only *virtually*, all appearance of argument and controversy being carefully avoided. Whether this escaped the notice of the learned Doctors or not is uncertain, but the new translation, from its better Latinity, and the name of the editor, was readily admitted to all the academical honors which the old one had enjoyed. Thus the stratagem of Dr. Clarke completely succeeded; the tutor might prelect from the text, but the pupil would sometimes look into the notes, and error is never so sure of being exposed as when the truth is placed close to it, side by side, without any thing to alarm prejudice, or awaken from its lethargy the dread of innovation. Thus, therefore, the *Newtonian* philosophy first entered the University of Cambridge under the protection of the *Cartesian*." Ibid, Part 2, Sec. 4.

Facts of this kind contain a lesson at once humiliating and instructive. It is not wonderful that a mind so comprehensive as that of Bacon, should be disgusted with a narrow policy which frowned upon all improvement. Well might he exclaim: "In the universities, all things are found opposite to the advancement of the sciences."



“Unwilling as I am to touch on a topic so hopeless as that of Academical Reform, I can not dismiss this subject, without remarking, as a *fact*, which, at some future period, will figure in literary history, that two hundred years after the date of Bacon’s philosophical works, the antiquated routine of study, originally prescribed in times of scholastic barbarism and of popish superstition, should in so many Universities, be still suffered to stand in the way of improvements, recommended at once by the present state of the sciences, and by the order which nature follows in developing the intellectual faculties.”\* The second assertion—that such institutions must remain as they now are, is but too evident both from the history of the past and from the nature of the case. Causes which have operated to prevent any change thus far—causes which, for a period of two hundred and fifty years of unparalleled intellectual activity, have kept the universities of Europe stationary, will certainly be able to control them for the time to come. But admitting a change in the order of studies and in the kind of studies, yet there can be no improvement because the mind is still subject to authority and can never by such aids enlarge the boundaries of knowledge. Its “entire hopes and fortunes must be wrapt up in the weak brains, and limited souls of about half a dozen mortals,”† while original sources are left unexplored, and the highest powers unemployed.

4. Setting aside the elevated attainments now mentioned, which can be achieved only by self-education, there is with many another species of necessity that the most unambitious disposition can not remove. Poverty has excluded them from such advantages as are furnished by schools, and their only election is between self-education

\* *Elemto Phil.*, vol. 2, p. 352.

† *Interp. Nature.*

and ignorance. In this instance the motive has all the force of a divine appointment. The student feels that his task has been assigned him by that Being with whom are the treasures of wisdom and knowledge, and that its difficulties are only intended as an inducement to diligence—to that diligence which rightly claims supernal patronage. Something more than an ordinary love of independence, and something higher than the wonted range of mental aspiration, may perhaps be necessary to determine in favor of this course the choice of one who has means at his command; but to the poor, it is the destiny of nature, and he must either educate himself or yield all hopes of improvement. He may consent to part with originality and never to rise above the subordinate character which a college can bestow, but it avails nothing for even these acquisitions are denied to poverty on every other condition but that of self-directed toil. On one side is the cheerless oblivion of ignorance; on the other, the insurmountable heights of science. It is here, in the outset of life—of such a life, that the true dignity of human nature is displayed. No assistance has been proffered, and therefore none is needed. Under these circumstances, we are justified in presuming upon the highest attainments by the force of mind alone. This original capacity in man for dispensing with the ordinary means of improvement, is one of those conservative principles by which, when the cycle of error is completed, he starts anew in the career of science. Thus, as a compensation to the poor, the guarantee of greatness is doubled; to the law imposed by the nature of science, is added deliverance from temptation to inferior achievements.

5. Emulation is a motive which, however easily corrupted, certainly and deservedly exercises great influence on every well-constituted mind. When greatness ceases

to inspire emotion, the individual has sunk too low to be the subject of hope. A desire for noble deeds always arises spontaneously in the presence of merit. The uneducated youth may look upon the great masters of science and say, if not as Carregio, when he first saw the paintings of Raphael, "I too am a painter"—yet, as one conscious of possessing a kindred nature, "I too have a mind." These are his examples, their success is the pledge of his own; and he is thankful that the world offers resistance enough to his progress to call for efforts which may identify him, with the benefactors of mankind. Others have had their difficulties to encounter and he would not be without his; he entertains no inferior hope and stipulates for no inferior task.

6. The improvement of science is another consideration of much importance. I am aware that such improvement is by some deemed impossible, and the very desire of it is viewed as pernicious. Those who aim at nothing original themselves are too often unwilling to countenance others in attempts at originality; they have chosen to restrict their own labors to the acquisition of second hand knowledge, and it afflicts them to see others calling in question the propriety of their choice.

Without becoming as skeptical as Boyle or Des Cortes, we may admit the possibility of unprecedented changes in the literary and scientific world. But these new and paramount acquisitions will take place under the auspices of a very different spirit from that which suffers so much from the fear of innovation. Convinced that truth is ever consistent with itself, the true friend of science is willing to arrive at any conclusion that can be sustained by a rigorous induction. The untraveled peasant, who should so far forget himself as to think that all other landscapes were like that which surrounded his own dwelling, would

not be more mistaken, nor less deserving of sober argumentation, than he who makes defference heresy in matters of truth. It may be asked, whence are these improvements to spring, and how are such diversities to be reconciled with the unity of truth, and the stability of science? In answer to this, we would observe, that no great enterprises have ever been carried on to perfection without frequent recurrence to first principles; and then only for a time, in any one form. We must except, indeed, revealed religion, the principles of which are matter of revelation, and hence not subject to improvement or alteration by human wisdom. But even the unimprovable character of first principles in religion serves to show the truth of the first part of our observation. Inexplicable as are the mysteries of faith, they must be retained, or we lose our hold on the influence of Christianity. Doctrinal corruption has always been followed by practical depravity. Luther, who waked the flames of the Reformation, did but kindle the smothered embers of evangelical truth. Religion, as a whole, has undergone changes, and others are probably to follow, which shows us that this part of Jehovah's works is subject to progressive development; but this variety of dispensations is the result of a design so ample as to prevent anticipation, except by the assistance of types. Not so with common science. Here each well-ascertained truth is a stepping stone to another. And we are certain that the research is legitimate, although we can not tell where the truth may be. Our knowledge is as the sources from which it is derived. If it be wrong or deficient, it is because our principles are wrong or defective. Error springs only from error, and the erroneous inferences which are sometimes drawn from correct principles are, in fact, a departure from such principles, and not a consequence of them. Hence every sound

conclusion from well-established principles carries with it demonstrable certainty.

But all sciences are very much as chemistry was some years ago—I might rather say, is now. The natural elements, fire, air, earth, and water, were considered, and very probably, as primitive substances. Observations and experiment have, however, dissipated such an unscientific opinion; and we have made out a more extended list of simple substances, but are no more certain that any of these are essentially primary, than our less learned predecessors were that such was theirs. Our first principles in common science are only so in appearance; or, what is more correct, perhaps, are only so because we have made no greater proficiency. Every advance puts us in possession of a still more general truth, and this more general truth gives a new aspect to all that went before it. On this account there will be a perpetual variation in science; and what looked like the perfected and immutable fabric of knowledge, on a nearer approach, appears no more than a rude and shapeless mass of materials. It is evident, then, that no one set of first principles can long constitute the *ultima thule* of any science. Change follows upon change until the original object is lost sight of, or subordinated and made one among a thousand others, which for the time being, are valued only as they are supposed to contribute to something still greater. So long as the principles of knowledge are inexhaustible, so long will it be impossible to predict what may arise to affect existing system. Not that what we now know by the more certain methods of acquisition is to turn out incorrect; but that, if true, as far as sound philosophy ever affirmed, its truth and importance are exceedingly diminished in respect to the whole. Nay, it may be that what is now demonstrably true, will not only appear true, but more vividly and

interestingly true. At all events we have the greatest reason to distrust the ultimate correctness of our apprehension on the most important points; and none will be less inclined to be dogmatical than he who, beyond all dispute, knows the most. Newton, whose mind was second to none in its comprehensive grasp of facts, could say, however his attainments might appear to others, that "the great ocean of truth lay all undiscovered before him." Should any suppose that a want of confidence in the perfection of received maxims must diminish a zeal for learning, they have only to reflect that it has never been given to man to know perfectly. Those who have done most for the advancement of science have been well aware that perfection was impossible; and if this fact did not discourage them, neither may it those who are to follow in the same adventurous career. A boundless curiosity—an instinctive love of truth, has ever been one of the most sovereign principles of human nature.—Throughout the universe there seems to be an anxiety to know. What is seen is so majestic, and what is mysterious is so wonderful, that both angels and men "desire to look into things" which yet lie concealed from their intellectual vision.

All that is requisite under these circumstances is to be at the post of observation, holding on to the best established principles the age affords, with a full conviction that new and transcendent discoveries await us. Past achievements, so far from lessening the probability of new success, present the strongest assurance that it is possible, and the most powerful inducement for its attainment. The advance of knowledge has already displaced many of the once honored, and once useful, fabrics of science, and given to the world a new system with the old name. And although we were more heedless of these unavoidable

mutations than we are, they would not be intermitted to the reproachful apathy of unaspiring mind. It is our privilege and duty to co-operate with the manifest workings of Providence in the greater diffusion of science; and invited by the success of past inquiries, we should enter upon such original observations as have for their appropriate reward the certain, though it may be humble, assurance of augmenting the sum of knowledge. Having formerly shown that for this object our reliance must be upon self-education, we can present no stronger motive to such an education than the fact that this result—the improvement of science, is not only practicable in itself, but even a necessary consequence of mental activity.

7. Learning deranges the state of society by destroying the natural equality of individuals; and hence the cultivation of the mind becomes indispensable as a means of self-preservation. To be ignorant, is to allow others more knowledge of us than we have of ourselves. It is to give them the same advantage over us, that one who can see has over one that is blind. Could we consent to part with our physical faculties and powers—the eyes, the ears, the hands or the feet, we should be no more helpless nor foolish than he who suffers his mind to be uncultivated. Science is an inexhaustible source of felicity and power to mankind; and prosperity is little more than a name for the practical application of knowledge to the affairs of life. What do we require to combat disease, to gain wealth, or to expound the laws of nature, but more knowledge? The unlearned, if it is their fortune to live among the intelligent, are as imbecile and dependent as children, continually liable to all sorts of impostures, and suffering without the possibility of avenging injuries. Among society of their own grade, nature would assume the control, and as she has not given to lions and tigers,

guns and swords, so she would not permit savage rusticity to arm itself with the tremendous power of science. Should it be thought that the great diversity of trades and sciences leaves even the learned obnoxious to this species of abuse, we have only to say that acquiescence on their part must be voluntary, as they have the means both of detection and redress in their own hands. Why has one nation despoiled another, and why has political, pecuniary and social depression afflicted large majorities of mankind in every age? Is it not because ignorance disqualifies for high pursuits—dwarfs the affections, dims the eye and paralyzes the arm, reducing to vassalage those whom nature meant to be free? It is by ignorance that oppression is upheld. Let light in upon the public mind, and the most reckless despot dare not move. It was only under the cover of darkness that he ventured to approach his victim, and it is only while that covering shields him from observation that he has power to inflict the wrong. The acquisition of knowledge is therefore a dictate of necessity, and can not be neglected by any who are not equally regardless of duty and of safety. Submission or intelligence is inevitable; and those who fail of the latter, will not escape the former.

8. This system affords the only real greatness. Minds which never arrive at majority, can never do more than to follow established usages. They learn what others have learned, and do what others have done; but this is a task that confers no distinction, because it evinces no capacity, or none that deserves to be noticed. It is by the performance of acts which require original talent that character is shown, and that character is formed. Such as tamely follow a leading mind have nothing that can be called their own; they drift along with the current of other people's thoughts, too inactive to think for them-



selves and too unaspiring to attempt any thing new. What Dr. Aikin has observed in reference to some who fill important stations in society, is not less applicable to many who pass for learned men. "The great affairs of the world are frequently conducted by persons who have no other title to distinction than merely as associated with these affairs. With abilities not at all superior to those of a clerk in an office, or a subaltern in a regiment, the civil and military concerns of great nations are often managed according to a regular routine, by men whom chance of birth alone has elevated to high stations. Such characters appear in history with a consequence not really belonging to them; and it seems the duty of a biographer in these cases to detach the man from his station, and either entirely to omit, or reduce to a very slight notice, the memorial of one whose personal qualities had no real influence, over the events of his age, and afford nothing to admire or to imitate."\*

However great the powers of the mind may be, they can only devolve themselves to our view by their acts; where these acts, by which alone our judgment is to be determined, bespeak nothing original—nothing but absolute dependence and blind obsequiousness, we justly conclude either that there is no talent or that none has been employed. Now, as talent can not be known even to its possessor except by this practical application, and as what we attempt must ever bear some proportion to the estimate we place upon our abilities, the beneficial tendency of a system calculated to elicit these powers in the highest degree becomes fully apparent. The individual learns the measure of his strength, and aims at objects great enough to occupy that strength; but left to ignorance of himself, his powers are sure to be wasted upon:

\* Memoir of John Aikin, p. 112.

puerilities. He may glide along the beaten path of science, but it is with a mean servility that provokes only contempt; he creeps where he ought to walk, and bows where he ought to stand erect. He divests mind of its prerogatives and sinks it to the level of matter; receives direction from everything and gives direction to nothing. "No business or study," says Dr. Channing, "which does not present obstacles, tasking to the full, the intellect and the will, is worthy of a man. In science, he who does not grapple with hard questions, who does not concentrate his whole intellect in vigorous attention, who does not aim to penetrate what at first repels him, will never attain to mental force." This assertion is so perfectly in accordance with the laws of mind and the history of intellectual character, that we can not but wonder how any should have been so far mistaken as to hope for excellence by other means, or as to deem the obstacles to self-education real disadvantages.

9. A generous nature will not only aim to possess real greatness, but also to diffuse it. This can best be accomplished by the influence of example, as one successful instance settles the question of practicability in favor of all who wish to repeat the attempt. We need only to know what others have done to feel a sort of compulsion to do at least as much. Men are both imitative and sympathetic, hence, a brilliant example never fails of extensive effect. All see that what has been done, can be done; all feel that what may be done, should be done. It is thus that such a literary character as Shakspeare, has infused hope into myriads of minds that might otherwise have sunk in despondency. The man who was to stand at the head of English literature was not to be a cloistered student of Oxford or of Cambridge. This honor was reserved for one who owed nothing to colleges,

or to college studies—for one who, in the graphic language of Ben Jonson, “had small Latin and less Greek,” and whose only school was the theatre. The genius of learning passed by the polyglots of that age and devolved this high distinction upon one of the lowest pretensions, and, apparently, in the most unpropitious circumstances—upon a servant boy, without science, and without assistance. Every example of this kind inspires confidence in those who are denied the usual advantages for improvement. As soon as they perceive that it is not unreasonable to hope for the highest excellence, they become conscious that their exertions can not be in vain.

10. Probably there is not among all the motives to self-education a stronger one than the wish to be exactly free. This native, irrepressible desire stimulates us to constant activity. It is under the excitement, or rather, the restless anxiety, produced by such a state of mind, that the soul acquires its mastery over opposing circumstances.

“The fixed and noble mind  
Turns all occurrence to its own advantage.”

This unalterable purpose often gives to the very slightest means the greatest efficiency. Powers never deemed equal to high achievement suddenly assume control, and nothing is able to impede the progress of him who seems to be helped by nothing. The individual, in such cases, is not without help; but being without the usual help, he is supposed to have none. His success arises from the force of application. To use a mechanical phrase, it is the increased momentum with which the obstacles before him are assailed, that makes them yield to such naturally feeble means. Mr. Mudie says, that a single thread of a spider’s web, might be made to move

fast enough to cleave the earth asunder.\* Now although, this is somewhat extravagant, and like the infinite divisibility of matter, deserves to rank with scholastic fictions, yet it is undoubtedly true that the slender means in the hands of every youth, may be applied with sufficient force to overcome all difficulties in the way of his advancement. When difficulties have thus been overcome solely by dint of application, there remains a much more complete sense of independence than if the work had been effected by the help of accumulated facilities.

\* "Soft iron can be made to move so rapidly as not only to cut the hardest steel as freely as a steel saw cuts soft timber, but it can be made to burn the steel as easily as if that were the most inflammable of substances. The purest water of the brooks and streams wears away their channels; and the winds which are but the thin air in motion, level the abodes of man with the earth, and sweep the productions of the earth into the sea: nor is there the least doubt that if a spider's thread of sufficient length, and no thicker than those threads generally are, could be borne onward against the globe with sufficient velocity, it would cleave the globe asunder, more easily, and in less time than the arrow of Tell cleft the apple on the head of his son." Popular Guide to the Observation of Nature, p. 127.

## CHAPTER IX.

### **Mental Characteristics demanded by the Enterprise.**

Having shown that self-education is both a solid and a practicable attainment, I shall designate some of the traits of mental character, on which its acquisition depend.

1. The first undoubtedly is, such a love of study as leads to an industrious application. For, although every mind has capacity enough to know all that can be known, and has actually learned numberless truths equal in importance to any which it still has to learn, yet every mind has not sufficient industry to acquire all that is within its reach. A considerable part of knowledge is spontaneous and inevitable, but the balance depends upon a voluntary application of powers which many are never inclined to devote to that object.

2. The next requisite is firmness of purpose. There must be an unalterable purpose to have an education or every thing is uncertain. When this determination is properly fixed in the mind, there need be no fear, except in a contest with divine Providence—and Providence itself often yields to an uncompromising sense of want. Any resolution of this kind is unknown to the mass of mankind, hence, they are not to be entrusted with the business of self-education. Change our opinion we may, if at any time it shall appear that the reasons on which it was founded no longer exist. But when will the aspirations for immortality which lead to literary consecration vanish

from the human mind? It is generally deemed advisable not to engage in pursuits without a fair probability of success, but here we fling probabilities to the wind, as there is no retreat without worse disaster than can possibly attend perseverance. The fact is, when the mind first determines upon this enterprise, it is influenced by higher considerations than can ever be brought to bear upon its relinquishment. Education, like religion, is a privilege and a blessing, not to be foregone, even by the consent and with the advice of the public.

Firmness is indeed necessary to respectability of character as well as to practical efficiency; and the individual who lacks this important quality is unfitted for any arduous service, and peculiarly so for that now under consideration. "A man without decision can never be said to belong to himself; since, if he dared to assert that he did, the puny force of some cause, about as powerful, you would have supposed, as a spider, may make a capture of the hapless boaster the very next moment, and triumphantly exhibit the futility of the determinations by which he was to have proved the independence of his understanding and his will. He belongs to whatever can seize him; and innumerable things do actually verify their claim on him and arrest him as he tries to go along; as twigs and chips, floating near the edge of a river, are intercepted by every weed, and whirled in every little eddy. Having concluded on a design, he may pledge himself to it,—if the hundred diversities of feeling which may come within the week, will let him. As his character precludes all foresight of his conduct, he may sit and wonder what form or direction his views and actions are destined to take to-morrow; as a farmer has often to acknowledge the next day's proceedings are at the disposal of its winds and clouds.

“This man’s opinions and determinations always depend very much on other human beings; and what chance for stability, while the persons with whom he may converse, or transact, are so various? This very evening he may talk with a man whose sentiments will melt away the present form and outline of his purposes, however firm and defined he may have fancied them to be. A succession of persons whose faculties were stronger than his own, might, in spite of his irresolute reaction, take him and dispose of him as they pleased. An infirm character practically confesses itself made for subjection, and the man so constituted passes, like a slave, from owner to owner.

“It is inevitable that the regulation of every man’s plan must greatly depend on the course of events which come in an order not to be foreseen or prevented. But in accomodating the plans of conduct to the train of events, the difference between two men may be no less than that, in the one instance the man is subservient to the events, and in the other, the events are made subservient to the man. Some men seem to have been taken along by a succession of events, and, as it were, handed forward in quiet passiveness from one to another; without any determined principle in their own characters, by which they could constrain those events to serve a design formed antecedently to them, or apparently in defiance of them. The events seized them as a neutral material, not they the events. Others, advancing through life, with an internal invincible determination of mind, have seemed to make the train of circumstances, whatever they were, conduce as much to their chief design as if they had taken place on purpose. It is wonderful how even the apparent casualties of life seem to bow to a spirit that will not bow to them, and yield to assist a design after having in vain attempted to frustrate it.

“Another advantage of this character is, that it exempts from a great deal of interference and persecution to which an irresolute man is subjected. Weakness in every form tempts arrogance; and a man may be allowed to wish for a kind of character with which stupidity and impertinence may not make so free. When a decisive spirit is recognized, it is curious to see how the space clears around a man, and leaves him room and freedom. This disposition to interrogate, dictate, or banter, preserves a respectful and politic distance, judging it not unwise to keep the peace with a person of so much energy. A conviction that he understands and that he wills with extraordinary force, silences the conceit that intended to perplex or instruct him, and intimidates the malice that was disposed to attack him. There is a feeling, as in respect to fate, that the decrees of so inflexible a spirit *must* be right, or that, at least, they will be accomplished.”\*

3. Another characteristical endowment is, a consciousness of intellectual ability. Those who may wish for authority in support of a sentiment like this are referred to the biographies of eminent men. But those who are candid and fearless enough to admit what passes within them, and have sufficient stamina to promise success in the hardy enterprise of self-education, can cheerfully attest the correctness of this position. This peculiarity is thus noticed by Dr. Johnson, in reference to two of the most distinguished English poets, Pope and Milton.—“Self-confidence is the first requisite to great undertakings. He, indeed, who forms his opinion of himself in solitude without knowing the powers of other men, is very liable to error; but it was the felicity of Pope to rate

\* Foster on Decision of Character. Letter 1.



himself at his real value.”\* Of Milton he says: “It appears in all his writings that he had the usual concomitant of great abilities, a lofty and steady confidence in himself.” “In this book (a work on Prelacy) he discovers, not with ostentatious exultation, but with calm confidence, his high opinion of his own powers; and promises to undertake something, he yet knows not what, that may be of use and honor to his country. ‘This,’ says he, ‘is not to be obtained but by devout prayer to that eternal Spirit that can enrich with all utterance and knowledge, and sends out his seraphim with the hallowed fire of his altar, to touch and purify the lips of whom he pleases. To this must be added, industrious and select reading, steady observation, and insight into all seemly and generous arts and affairs; till which in some measure be compassed, I refuse not to sustain this expectation.’ From a promise like this, at once fervid, pious, and rational, might be expected the *Paradise Lost*.”† Indeed they who undertake to do without assistance what others have found a hard task when aided by every possible help, may well be pardoned some reliance upon the vigor of their own understandings. How early this feeling of confidence develops itself, is matter of conjecture, but probably it is coeval with the formation of the adjunct peculiarities that enter into the constitution of great minds. This confidence enabled Columbus to adhere to his conclusions and plans—to defend them, and secure patronage to complete the most hazardous voyage ever undertaken. Numerous instances might be adduced where a consciousness of ability and of the rectitude of his proceedings, has remained to the abettor of noble

\* Life of Pope.

† Life of Milton.

enterprises, as his chief support amid the treachery and imbecility of surrounding contemporaries.

4. A willingness to engage in difficult and dangerous attempts, or high mental courage, is the next attribute of a mind adapted to the exigencies of this pursuit. If the derision with which pride and insolence never fail to treat those who are below them in external advantages, has any terrors to the aspiring mind, there is little hope of success. If we grant, for the sake of the argument, that there will be a competition between the self-educated and the college graduate, will it tend to the disparagement of the former? Certainly not. The whole strife must be upon grounds not before occupied by either party, for who disputes about the elements of knowledge that are taught in schools? He who fears to advocate the truth merely because the battery of formal criticism will be opened upon him, may properly be excused from taking any part in the service of mankind. Such a timidity shrinks from the path of duty and would shackle effectually the most finished scholar. The literati inflict upon each other the most caustic reviews and criticisms. Longinus says, that the blemishes of the best Greek writers—and the Greek writers are reputed the best in the world—greatly exceed their beauties. “If any one should pick out the slips of Homer, Demosthenes, Plato, and the other consummate authors, and put them together, the instances in which those heroes of fine writing have attained to absolute perfection would be found to bear a very small, nay, an indefinitely small, proportion to them.”\* Nor is there any reason why irregularity in education should furnish a sanctuary for mistakes.

Self-education is not necessarily imperfect, and the

\* On the Sublime, sec. 36.

reproach and suspicion with which it stands connected in the minds of some, have arisen from weak and superficial attempts, or from an utter want of judgment and taste which is so characteristic of a few who have had the entire control of their own education. What if a few have been justly chastised for carelessness, and censured for palpable faults? shall we refrain from making a declaration of our sentiments for no other reason than this—that obvious literary abuses can not be tolerated? It would be better to take the course of the celebrated John Howard, who, not understanding the grammar of his native language as fully as was desirable, employed a more competent hand to revise his works before they went to the press.\* It is far more difficult to acquire sentiments and truths that shall deserve publicity, than to clothe them in appropriate diction. Yet it must be acknowledged that they who have not industry enough to learn to write, are not likely either to form valuable conclusions, or make new and useful discoveries.

Literary efforts although entirely useless in themselves tend to the formation of habits decisive of future eminence.† And to discourage juvenile efforts for fear of a drawback upon the popularity of after life, evinces no particular discernment. There is a sort of apprenticeship in great business as well as small, in which to look for perfect efforts is a violation of common sense. Those,

\* See Life of Howard, by Dr. Aikin.

† I am happy to corroborate this remark as well as to extend its application somewhat by the following. “An author will seldom find cause to regret the time and labor which he may have bestowed upon an abortive or unsuccessful work, provided he has applied to it, during its progress, the full force of his mind. Such essays serve to root deeply in the mind ideas which afterwards spring up with renewed vigor and beauty, and in a more propitious season mature their fruits.” Aikin’s Memoirs, p. 111.

therefore, who would be so cautious as never to err, are left to the sad alternative of never beginning.

Nothing can be more certainly destructive of all the possibilities of improvement than this excessive and needless fear. "An heroic mind is more wanted in the library or the studio than in the field. It is wealth and cowardice which extinguish the light of genius and dig the grave of literature as of nations."\* There can be no excellence where there is not originality, and there can be no originality where there is not independence. Nor is there the danger in putting forth new exertions which many have supposed. It is commonly imagined that great geniuses hazard their reputation by every subsequent effort, but it would be difficult to assign any sufficient reason for an assumption of this kind. Unless the intellect exhausts itself by its labors, of which there is not the least evidence, we see not why its successive productions may not possess the same intrinsic excellence.

5. In the mind of every successful student literature and science are made an integral part of the leading enterprise. No man was ever learned by chance.—Attainments of this kind are the result of industry directed to a specific object, whether that object be a livelihood, the establishment of important principles, or competency in any of the professions. When the importance of science is duly recognized, it no longer ranks as a mere contingency; the individual pays the same attention to his studies as to his other pursuits. Learning, once regarded as necessary, ceases to depend upon convenience, and is reached like any other indispensable object without reference to time or money. What we must have, we rarely fail to obtain. This accounts for

\* Blackwood's Magazine, January, 1845.

the extraordinary acquisitions of some eminent men—their purpose carried with it a necessity for just such acquirements. Dr. Webster after he had concluded to write his American Dictionary, spent ten years in preparatory studies, although he was at that time one of the most accomplished and profound scholars. During this period he acquired a competent knowledge of twenty foreign languages. Now if this accession of knowledge had not been rendered necessary by the part which the great lexicographer had assigned to himself, and if that necessity had not been felt in his own mind, he would never have grasped at these vast literary treasures. Those who think to serve either the public or themselves efficiently without science, give us no reason to believe they will ever obtain an education, and our conviction of the futility of their casual studies should not be withheld from their knowledge.

These are among the more obvious peculiarities of mind demanded by literary and scientific pursuits. We have not enumerated genius as one of these requisites, because its existence, beyond what is implied in the qualities here specified, is not essential to success. He who loves an enterprize, who resolves to accomplish it, who dares to meet every danger which it involves, and who makes his arrangements accordingly, can never be defeated. These energies if not genius, are at least equivalent to genius; they secure the desired result with as much certainty, if not with as much facility.

## CHAPTER X.

### **Errors of Self Education.**

It is a fact not to be disguised that self-education has been regarded as peculiarly and hopelessly defective; its character for error is such that those who claim to fix the meaning of language would withhold from it the very name of education. But a little attention will place this subject in a different light—in a light so different that the alledged imperfection will be found to be a positive excellence.

The errors charged upon self-education consist chiefly in violating some of the minor rules of criticism. Yet the observance of such rules is utterly impossible to a work of genius. Self-education is an original work, and must have all the peculiarities of an original work. The critics have undertaken a task which they can never execute. They would give laws to language and laws to mind; but they can not do either without destroying what they attempt to improve. Wherever their authority is acknowledged as paramount, there genius dies and improvement ends. The effect of their labors has never been more complete than in France and never more disastrous. Dr. Campbell, having noticed the absurdities which, in our own language, have resulted from this volunteer service says: "The French critics, and even the academy, have proceeded, if not always in the same manner, on much the same principle in the improvements they have made on their language. They have indeed

cleared it of many, not of all their low idioms, cant phrases, and useless anomalies; they have rendered the style in the main more perspicuous, more grammatical, and more precise than it was before. But they have not known where to stop. Their criticisms often degenerate into refinements, and every thing is carried to excess. If one mode of construction, or form of expression, hath been lucky enough to please these arbitrators of the public taste, and to obtain their sanction, no different mode or form must expect so much as a toleration. What is the consequence? They have purified their language; at the same time they have impoverished it, and have, in a considerable measure reduced all kinds of composition to a tasteless uniformity. Accordingly, in perhaps no language, ancient or modern, will you find so little variety of expression in the various kinds of writing, as in the French. In prose or verse, in philosophy and romance, in tragedy and comedy, in epic and pastoral, the difference may be very great in the sentiments, but it is nothing, or next to nothing, in the style." Well and sternly does he add, "Is this insipid sameness to be envied them as an excellence? Or shall we Britons, who are lovers of freedom almost to idolatry, voluntarily hamper ourselves in the trammels of the French academy?"\*

Here then we see what criticism can do for the perfection of languages. It can pervert and destroy, but it can not improve them. The languages of Greece and Rome were excellent, but they attained their excellence, and all their excellence, before the critics lent their assistance. The languages of these nations rose and declined with their virtues, and philology had nothing to do with their origin or continuance. But the whole

\* Philosophy of Rhetoric, B. 3, chap. 4, Sec. 2.

subject derives its greatest light from the fact that words are only representatives of ideas. Grammar and rhetoric belong to thought, they exist in the thought before they are transferred to words. Hence the operations of the critic should be directed to mind rather than to language. He should teach us how to shape our ideas, as ideas must determine both the character and arrangement of words. The author to whom we have just referred, makes a distinction between rhetoric and grammar, the correctness of which we are not able to perceive. He thinks the former is a natural and the latter an artificial method. "From all the examples above quoted, those especially taken from holy writ, the learned reader, after comparing them carefully, both with the original, and with the translations cited in the margin, will be enabled to deduce, with as much certainty as the nature of the question admits that that arrangement which I call rhetorical, as contributing to vivacity and animation, is, in the strictest sense of the word, agreeably to what hath been already suggested, a natural arrangement; that the principle which leads to it operates similarly on every people, and in every language, though it is much more checked by the idiom of some tongues than by that of others; that, on the contrary, the more common, and what for distinction's sake I shall call the grammatical order, is, in a great measure, an arrangement of convention, and differs considerably in different languages. He will discover, also, that to render the conventional or artificial arrangement, as it were, sacred and inviolable, by representing every deviation (whatever be the subject, whatever be the design of the work,) as a trespass against the laws of composition in the language, is one of the most effectual ways of stinting the powers of elocution, and even of damping the vigor both of imagination and of passion.



I observe this the rather, that, in my apprehension, the criticism that prevails amongst us at present leans too much this way."\* This is most certainly a distinction without a difference. These kindred sciences are so interwoven with each other and the relation which they hold to language is so similar as to make it altogether improbable that they should not have a common origin. They are constituent principles of speech and without them language, whether written or spoken, can not exist—can not, because it would cease to represent things. We have no evidence that any, even the most unimportant part of language is the work of man, and whenever he has attempted to improve this production of nature, his efforts have necessarily impaired what had otherwise been perfect.†

It follows therefore that those faults which are alledged against self-education, are only traits of independent genius—mere varieties of nature, and inseparable from original achievement. This conclusion is strengthened not a little by the remarkable fact that no eminent writer has ever paid the least attention to what may be called

\* B. 3, chap. 3, Sec. 2.

† "All languages whatever, even the most barbarous, as far as hath yet appeared, are of a regular and analogical make." *Philosophy of Rhetoric*, B. 2, Chap. 7, Sec. 1.

"If language is a human invention, it was the invention of savage man, and this creation of barbarism would be a higher trophy to human power than any achievement of civilization. The study of the rudest dialects tends to prove, if it does not conclusively prove, that it was not man who made language, but he who made man gave him utterance." *Bancroft's History*, vol. 3, p. 268.

Language even in its most uncultivated state has an organism too perfect to require or to admit of any essential service from human sagacity.

the critical code. Every great writer has followed his own taste and judgment, to the neglect of all rules and all authorities, except so far as they may incidentally have been a matter of convenience. Nor has this refusal to take the advice of critics abated in any degree the fame or the usefulness of these authors. Who reads Dr. Johnson the less because his style has been severely censured? or, who for this reason will lay aside the volumes of Jonathan Edwards?\* when will Locke or Shakspeare become as obsolete as some of their phrases? or in other words, when will they be rejected out of regard to the laws of style? As none of these valuable writers, nor any like them, will ever be the less esteemed for such defects,—if defects they be,—it follows that the authority of criticism is merely nominal; that it never had, and never can have, any real influence upon the destiny of genius.

There is another class of errors having their origin, not in constitutional peculiarities, but in a divergence from the common path of information. Not unfrequently is the self-educated man obliged to glean his knowledge from sources wholly unknown to the ordinary student.—

\* “It is well known that the high character and extensive circulation of his writings have not arisen, as in some other cases, from any thing peculiarly attractive in their style. To this point he never seems especially in early life, to have directed particular attention. Intent only on his weighty and important thoughts, he was not solicitous about the dress in which they were presented. Hence his style is circuitous, sometimes tedious, never elegant, and often loaded and perplexed. Both his choice and his arrangement of terms is frequently untasteful; he repeats the same words and phrases in the same paragraph again and again, without scruple; he is in a great measure regardless, both of euphony and harmony of diction; and the result of the whole is, in many cases, less distinct and impressive than is desirable.” Dr. Miller’s *Life of Edwards*. (Spark’s *American Biography*, vol. 8, p. 215.)

Whether this necessity is upon the whole any disadvantage is another question altogether, but if after being educated in this manner he is to be tried by the common standard of attainments, he will no doubt appear deficient. And who would not? It is no way probable that Homer had the knowledge necessary to an examination in one of our modern schools. Demosthenes and Cicero united could not have answered half the questions in one of our works on elocution. Hannibal knew nothing of tactics, nor Archimedes of mathematics, compared with a student at West Point. Bacon was no philosopher if the lessons of the present day are made the standard, and Chesterfield would be taken for a clown by a modern *petit maitre*. Such are the absurdities which inevitably result from the assumption that education depends upon a particular class of studies. We therefore conclude that a person who is really ignorant of many things embraced in the popular system of instruction, may still be justly considered as educated. Among this class of errors are to be ranked certain mistakes in the use of language—mistakes which no more prove that their authors are uneducated than the imperfect efforts of a foreigner to speak our language prove that he is illiterate. Terms familiar to those who have read one author may be wholly unknown to those whose reading has been confined to other authors. For this reason a person of no inferior knowledge might confound Ptolemy the geographer with Ptolemy king of Egypt, or regard Cicero and Tully as different individuals. In a letter to lord Montagu, Sir Walter Scott mentions a similar blunder committed by the Ettrick Shepherd. “Hogg is here busy with his Jacobite songs. I wish he may get handsomely through, for he is profoundly ignorant of history, and it is an awkward thing to read in order that you may write. I give him all the help I can,

but he sometimes poses me. For instance, he came yesterday, open mouth, inquiring what great dignified clergyman had distinguished himself at Killiecrankie—not exactly the scene where one would have expected a churchman to shine—and I found, with some difficulty, that he had mistaken Major-General Canon, called, in Kennedy's Latin song, *Canonicus Gallovidiensis*, for the canon of a cathedral.”\* There is a passage often quoted from Dr. Johnson, which I believe no one would be likely to understand without reading it in its original connection. “That man is little to be envied, whose patriotism would not gain force upon the plain of Marathon, or whose piety would not grow warmer among the ruins of Iona.”† The classic field of Marathon—known wherever any thing of Grecian history is known—is here associated, not with some equally celebrated spot of the Eastern world, but with one of the Western Isles of Scotland. We can not dispute the claims of Iona, yet its comparative obscurity leaves the reader dependent upon the author's narrative for a full understanding of this allusion. For the same reason, and to a much greater extent, all the merely technical terms of art and science, are unintelligible to those who have acquired their knowledge by original observation without the use of scholastic forms. Roger Bacon, whatever may have been his skill in chemistry, would not have recognized the substances with which he was familiar, if their names had been rehearsed according to the new chemical nomenclature. It is therefore somewhat worse than idle to alledge defects of this kind as proof of ignorance; and it is even more ridiculous to offer them as evidence of a want of educa-

\* Lockharte's *Life of Scott*, vol. 4, p. 171.

† *Journey to the Western Islands*.

tion, for a person may be ignorant of a particular science, and yet not be uneducated. No one need either be, or appear to be, illiterate, because he has not made the circle of the sciences. Care should be taken to avoid the use of words which we do not understand, and if this is done, there will be no room for those blunders so frequent among the superficial and the thoughtless. It detracts nothing from the merit of genius that its acquisitions are not universal. "No man," says Dr. Watts, "is obliged to learn every thing." Much less is it necessary to dip into every thing in order to acquire the character of a scholar. This character depends upon accuracy rather than extent; it consists of knowledge rather than of boundless knowledge.

Still we do not mean to say that self-education has not its errors. The truth is, there is no education but what has its defects; and if most of those charged upon self-education may be referred to that unalterable law of nature, which gives rise to specific differences, then the admission of its errors is no concession of inferiority.—The assertion so often made in substance,—that self-education has nothing to lose by the most rigorous comparison with that which is furnished by the schools,—remains an established fact. Faults it has, but they are the faults of greatness. They are such faults as are inseparable from intellectual exercise, unless in the low department of mere mnemonics. They are errors, in short, which can not be avoided without committing greater ones. If the so called regular student is not subject to them, it is because he dare not think for himself. He sacrifices all the chances of eminence to an ignoble fear of violating the foolish rules that critics have instituted without any authority but their own caprices. It is observed by Dr. Campbell in the latter of the preceding

quotations from him, that to treat all deviations from the acknowledged standard of grammatical accuracy as violations of the laws of composition "is one of the most effectual ways of stinting the powers of elocution, and even of damping the vigor both of imagination and of passion." He had too sagacious a mind not to perceive that the master-pieces of ancient and modern literature were characterized by a freedom totally inconsistent with any great attention to such authority. He saw that they were pervaded by an ambition of higher excellence, and by an energy that could not brook unauthorized control. He saw also that wherever the meddling of criticism had been regarded, wherever its inferior suggestions had been followed to the neglect of original genius, there talent had invariably sunk to mediocrity and dived in puerile imitations. Self-education may expose us to the censures of the critic; but the obsequiousness too often contracted in the schools makes us contemptible to men of sense. One precludes the approbation of the aristocracy of learning; the other deprives us of the merit necessary to immortality. Therefore if there are errors in the former, there are still greater errors in the latter; and if the one demands our utmost vigilance, the other demands a constant solicitude added to that vigilance.

The evils arising from a predominance of criticism are well expressed by an anonymous author. "There is a most grievous impediment to genius in later, or as we term them, more civilized times, from which in earlier ages it is wholly exempt. Criticism, public opinion, the dread of ridicule—then too often crush the strongest minds. The weight of former examples, the influence of early habits, the halo of long-established reputation, force original genius from the untrodden path of invention into the beaten one of imitation. Early talent feels itself

overawed by the colossus which all the world adores ; it falls down and worships, instead of conceiving. The dread of ridicule extinguishes originality in its birth. Immense is the incubus thus laid upon the efforts of genius. It is the chief cause of the degradation of taste ; the artificial style, the want of original conception, by which the literature of old nations is invariably distinguished. The early poet or painter who portrays what he feels or has seen, with no anxiety but to do so powerfully and truly, is relieved of a load which crushes his subsequent compeers to the earth.”\* It is only in an enervated condition of the mind that the works of genius thus paralyze its powers. In a healthier state—when its faculties are unimpaired by vice and unembarassed by false direction, the influence of great example is altogether salutary. Hence that decline to which the literature of old nations is subject, is an effect of dotage and proves that the public mind is no longer competent to distinguished deeds. The genius that suffers itself to be crushed by “the weight of former examples” is only the feeble off-shoot of a greatness which neutralized unfavorable influences and rose to higher eminence as it met with sterner toils.

Although the rules of criticism which self-education disregards are futile and of no authority whatever, yet there are certain general principles which enter into the composition of every work of genius. These the judicious critic recognizes as essential to mental integrity, but with the details of their application he never attempts to interfere. They are such principles as may be said to originate works of excellence as well as to pervade them ; they are prerequisites without which such works can not

\* Blackwood's Magazine, January, 1845.

exist, and with which they can not fail to exist. Longinus has given five directions for producing the sublime, but they are all clearly resolvable into the first two, which, according to his own admission are natural endowments. "Now, there are, if I may so express it, five very copious sources of the sublime, if we pre-suppose a talent for speaking, as a common foundation for these five sorts; and indeed without it, any thing whatever will avail but little.

"I. The *first* and most potent of these is a felicitous boldness in the thoughts, as I have laid down in my Essay on Xenophon.

"II. The *second* is a capacity of intense, and enthusiastic passion; and these two constituents of the sublime, are for the most part the immediate gifts of nature, whereas the remaining sources depend also upon art.

"III. The *third* consists in a skillful moulding of figures, which are two-fold, of sentiment and language.

"IV. The *fourth* is a noble and graceful manner of expression, which is, not only to select significant and elegant words, but also to adorn the style, and embellish by the assistance of tropes.

"V. The *fifth* source of the sublime, which embraces all the preceding, is to construct the periods, with all possible dignity and grandeur."\*

Every reader will at once perceive that the third and fourth of these rules are as really founded upon the two preceding ones, as the fifth is upon them all united. This being the case, he who observes the first two can not violate the three following. Boldness of thought gives boldness of language, and intense feeling secures intense expression. Nor can these results be obtained by

\* Longinus on the Sublime, Sec, 8.



any other means so perfectly. Most critics acknowledge the necessity of these fundamental principles, and then, with strange inconsistency, proceed to furnish a multitude of rules directly subversive of the freedom and energy which they had enjoined. It is this contradiction of himself that makes the labors of the critic contemptible.\* He would be respected and his efforts might be useful if confined to a simple notation of the circumstances under which the productions of genius take their rise. But consulted as an oracle—regarded as gravely dispensing a system of rules for the attainment of perfection, he sinks from the high character of a philosophical observer, to that lowest of intellectual objects—a literary mountebank. The independence in which self-education originates is peculiarly opposed to the success of such pretensions; it compels men to think for themselves and consequently to despise that affected and impertinent supervision which would teach them how to think. And if it does not prevent mistakes in the application of their powers, it saves them at least from debasing their minds by meanness of purpose.

\* Pollok has well described this class of writers.

“The critics,—some, but few,  
 Were worthy men, and earned renown which had  
 Immortal roots; but most were weak and vile.  
 And, as a cloudy swarm of summer flies,  
 With angry hum and slender lance, beset  
 The sides of some huge animal; so did  
 They buzz about the illustrious man, and fain,  
 With his immortal honor, down the stream  
 Of fame would have descended; but, alas!  
 The hand of time drove them away. They were,  
 Indeed, a simple race of men, who had  
 One only art, which taught them still to say,  
 Whate’er was done might have been better done;”—

Course of Time, B. 8.

## CHAPTER XI.

### Scientific and Artistic Rules.

No doubt the clamorous and impotent criticism which we have noticed in the previous chapter, derives its importance from the supposed necessity of adhering to certain prescribed forms or rules in our intellectual efforts. Hence the critic is forever guided not by common sense and the nature of things—not by the inspiration of genius and the wide range of possibilities, but by arbitrary rules of his own creation. These canons are professedly established upon the works of genius; they are pretended oracular responses given forth by the works of genius when put to the torture by the mere compiler. How completely worthless all such directions are will appear, if it can be shown that the productions of genius are spontaneous, and that the mind is self-directed on these occasions; we shall then see that rules have no more to do with these efforts than they have with the vegetation of a plant or the glittering of a diamond. Several considerations tend to establish this view of the subject.

1. Many arts, and even sciences, are acquired at so early a period as effectually to preclude assistance of this kind. Children often learn to sing, not only without formal instruction, but before they are old enough to understand the nature of any rule whatever. Others have performed feats in the various branches of mathematics while ignorant of all rules and destitute of all assistance but the intuitive grasp of their own minds.

In poetry we have abundant examples of a similar precocity. Pope says of himself,

“When yet a child, ere yet a fool to fame,  
I lisp'd in numbers, for the numbers came;”

and he used to say that he could not remember the time when he began to make verses.

2. In this respect, however, the first, and the last efforts of genius are alike. They are equally independent of the advantages which arise from the labor of previous scholars. The classifications and systematic arrangements made by their predecessors may be of occasional convenience, but are never indispensably necessary. Linnæus, without those classifications in Botany and Natural History which have been so useful to all succeeding enquirers, was able to conduct his researches quite as successfully as more recent philosophers. No rules have ever been given, or ever can be given, for producing the higher works of art. The ability which produces these works, if not, as some suppose, directly the gift of God,\* is at least the result of a cause over which the critic has no control. The resources of genius are within, not without. Its inherent power sets outward obstacles at defiance, and makes outward helps of trifling importance. The study of rules never made an artist or a scholar; nor did the violation of rules ever render a work of genius essentially defective. We need no other proof of this, than the fact

\* “Who taught Newton to ascertain the laws by which God governs the universe, through which discovery a new source of profit and pleasure has been opened to mankind through every part of the civilized world? No reading, no study, no example, formed his genius. God, who made him, gave him that compass and bent of mind by which he made those discoveries, and for which his name is celebrated in the earth.” Dr. A. Clarke, (Theology, p. 338.)

that many of the best productions originated before such rules had any existence. Writers succeed no better now than they did when these rules were wanting; and those who disregard them do it with perfect impunity, if not with commendation.\* Homer is not the less popular because he was ignorant of them, nor is Shakspeare because he neglects them. The latter is especially recreant; he pays no regard to the unities, often confounds characters, and blends tragic with comic—faults which the most ordinary critic could have assured him would be fatal to his reputation; but which, in fact, have never had the effect to make him other than the most popular of English writers.

3. The same conclusion is reached by observing the order in which the rules of art and science take their rise. They derive their existence from works of art, and hence never precede such works in the order of time. Until some writer has given an example of elegant composition, there are no rules for fine writing; until some philosopher has discovered a science, there can be no rules for teaching that science; and until an artist has invented some art, all the rules of that art must be unknown, for with the knowledge of the art comes also the knowledge of its rules. Here then we see that both art and science may exist at any time, and must originally have existed, without method. Those systematic forms by which their acquisition has been supposed to be greatly facilitated are

\* "It is a great mortification to the vanity of man, that his utmost art and industry can never equal the meanest of nature's productions, either for beauty or value. Art is only the under-workman, and is employed to give a few strokes of embellishment to those pieces which come from the hand of a master. Some of the drapery may be of his drawing but he is not allowed to touch the principal figure. Art may make a suit of clothes, but nature must produce a man." Hume's Essays: Vol. 2, Essay 15, p. 131.

often embarrassments rather than helps. Our earliest knowledge is acquired without formal instruction, and there is little doubt but the highest possible attainments of which we are capable are to be achieved in the same manner.

4. It should be observed also, that genius is always in advance of the age; it acts the part of a pioneer, urging its way forward to truths which the aggregate of society can not know till long afterwards. This priority of effort utterly excludes the facilities in question. Others, who are to come after the first adventurer, may have guides, but he can have none. Alone, and perhaps contemned by those about him for his apparent recklessness, he passes on to realize the correctness of his own opinions, and to gain the reward of an unwavering, though solitary confidence. Columbus would never have discovered a new continent if he had waited till the popular geography gave assurance of its existence, or until the improvement of navigation had demonstrated the practicability of such a voyage. Jenner would never have announced his theory of vaccination to the world if he had waited till it was virtually comprehended in the science of medicine, or even till his best friends had sanctioned its publicity.\* A genius thus in advance of his contemporaries must of necessity be like

“Kneller, by Heav'n, and not a master taught,  
Whose art was nature and whose pictures thought.”

Works of enduring fame are executed beyond the pro-

\* “It is not a little remarkable, that Mr. Hunter, like Jenner's friends at Alveston, thought so doubtingly of his views on vaccination, that he cautioned him against publishing them, lest they should interfere with the fame he had acquired by his ‘Essay on the Cuckoo.’” *Distinguished Men of Modern Times*. Vol. 2, p. 277.

vince of human instruction; they speak of communings with a higher wisdom, and their authors seem to feel as if the injunction were addressed to them: "See that thou make all things according to the pattern showed thee in the mount."

The reader will perceive how fully these observations establish a principle laid down in another part of this work—that we learn by practice, and not by the study of rules.

## CHAPTER XII.

### Schools.

We have seen how little dependent the human mind is on those systematic forms which are designed to promote the acquisition of the arts and sciences; even the masterpieces of its achievement are the result of an inherent ability which needs no prompting and will admit of no control. This fact affords at least presumptive evidence that there is nothing indispensable in the advantages of association—that the aids of supervision are as unnecessary as the dictates of authority. Of this more direct proofs are not wanting.

1. The intellect is not a planet reflecting only borrowed rays; it is a sun shining by its own light. Its powers are original, not derived; natural, not acquired. This accounts for those splendid works which had their origin almost in the dawn of human existence—for the pyramids of Egypt, the poems of Homer, and the Institutes of Menu. These are but instances of what the mind can accomplish whenever it pleases, without waiting for the benignant influence of schools to give it ability. Such works are an unfathomable mystery to those who regard scholastic facilities as essential to greatness. On this hypothesis all improvement must be slow, because the intellect having no resources within itself and being incapable of directing its own energies, can not become distinguished till assisted by the kindly office of instruction. But this notion is effectually refuted by the fact

that the very earliest ages of the world abound with the highest productions of human genius.

2. That intellectual capacity which elevates mankind above the need of precarious assistance, seems to consist in the power of thinking. The object of education is, not to learn the mind to think, but to make it think, and especially to direct its thoughts. Great thoughts are all that is necessary to improvement—they are improvement. What are the greatest inventions but conceptions of the mind which have been verified by experiment? All that can be called great or good in the intellectual world, is but a mere record of thought. He that would excel, must, therefore, rely upon the workings of his own mind. Now it is well known that this process of the mind is in no way dependent on schools, whether high or low. These institutions do not discourage thinking, but they restrict it to pre-conceived opinions, thus exercising the memory rather than those faculties which are more immediately conducive to intellectual eminence. But even allowing that they encourage original thought, still this is a department of mental activity in which much assistance is neither practicable nor necessary, and that which may be afforded disappears in the grandeur of the final result. “As the lesser lights of heaven are paled in the surrounding effulgence of the sun, so the artifices of rhetoric become invisible amidst the splendor of sublime thoughts.”\*

3. Another consideration of no small weight is, that the arts and sciences are the same everywhere. Language is the same in seclusion that it is in public; the same in school and out of school. Latin is Latin, and Greek is Greek in spite of times, places, or numbers. There is, therefore, no necessity for resorting to literary emporiums

\* Longinus, sec. 17.



as the standard of lingual excellence, since language maintains an unalterable identity, and is equally perfect however it may be acquired. Pronunciation will be unknown to the solitary student, but it is no less unknown to the schools. That those who have the aid of schools may advance faster we shall not dispute, for this is not a question of facility, but only of possibility. Science will unfold its wonders with equal astonishment to the private learner; there are no arcana into which he may not penetrate, no rules the neglect of which will invalidate his acquisitions. The rapturous exclamation of Archimedes, and the overpowering emotions of Newton,\* exhibit alike the joy of the lone seeker of truth and the imperishable nature of his discoveries. Science has not only its identity wherever found, but such an ubiquity as makes it to be found everywhere. It speaks out in the revelations of the telescope and of the microscope, in the animal and in the vegetable kingdoms, in the crust of the earth and in the firmament of heaven. All nature is great and redolent of truth to the philosophic mind. Such a mind can never be without lessons or instructors, for, like Shakspeare's Duke, it

" Finds tongues in trees, books in the running brooks,  
Sermons in stones, and good in every thing."

4. "No body," says Locke, "ever went far in knowledge or became eminent in any of the sciences, by the

\* The demonstration of a particular problem having occurred to Archimedes while he was bathing, he was so overjoyed that he leaped from the bath and ran through the streets of Syracuse, crying, "I have found it! I have found it!" It is said that Sir Isaaq Newton was so deeply affected when he perceived that his calculations were about to establish the doctrine of Gravitation, that another hand had to finish the process.

discipline and constraint of a master.”\* That there is a great want of stronger motives in these institutions there can be no doubt in the minds of any who observe how little the majority of students profit by the advantages which they enjoy. That some make great proficiency varies not the case, for such would make proficiency under any circumstances. It is not the fear of correction, nor the hope of reward within the institution, that stimulates them to industry; nor yet is it a consciousness that such advantages are of short continuance, or that their studies can not be prosecuted elsewhere with success. These lesser motives undoubtedly have some influence, but the grand cause is the love of knowledge and the desire of improvement. Where this is wanting, though there may be diligence enough to secure from censure and success enough to save from contempt, yet the higher elements of scholastic proficiency are absent, and the individual must sink for want of influences which the schools can not supply. A student of this class may be something in school, in another place he would be nothing. If, then, the motives which alone are decisive of high attainments exist as fully with the private scholar as with any other,—if the mind gathers no higher—no unwonted inspiration in the halls of science, and if the abilities to be displayed in such institutions must be brought there, we may safely conclude that the human faculties have no radical connection with such advantages and can not be paralyzed by the want of them.

5. These institutions are circumscribed. The work of education begins with the first moments of conscious existence, and some of our most valuable acquisitions are made, not only before the period at which scholastic instruction usually begins, but even before the period to

\* Locke on Education, sec. 94.

which memory is afterwards to extend. At this time we learn to walk and to talk, to know our friends and to feel our wants. To these branches of knowledge which are necessarily acquired before the schools lend their assistance, must be added both collateral and subsequent acquirements: those which we gain by other means while the schools are in progress, as the knowledge of business and of social life; and those which we gain after they have closed, as a knowledge of new sciences and a more profound acquaintance with such as had been previously studied. From the fact that these institutions, however useful, do not propose to teach but a small part of what all must learn, we conclude that they are not essential to learning—that the mind is as competent to learn without their assistance what they propose to teach, as it certainly is to learn without such assistance what they do not propose to teach. That some can teach does not prove that others must be taught.

6. It has been well remarked by Mrs. Farrar, that “where school education ends, there self-education must begin.”\* This unavoidable necessity of ultimately practicing on a different principle, shows clearly enough that there is something excellent in that only other way which is open to us. The method that must answer for all the great enterprises of maturer years, may, if adopted from necessity, prove very efficient in the less difficult undertakings of juvenile life. But as self-education is the destiny of all who continue to improve—of some earlier, and of others later—we can not regard the common scholastic advantages as by any means complete. They are only introductory to the constitutional plan; they terminate in the method of nature—in self-direction.

\* See her excellent work on Female Education.

7. Some degree of care is necessary that these advantages, which are never absolutely requisite and must in all cases finally be laid aside, may not fail of accomplishing the good of which they are capable. Such institutions can be useful only while they recognize their own inferiority; they are the servants of mind and should never be allowed to usurp authority over it. Too often have they continued to teach exploded sciences; too often have they persecuted those who had courage enough to think for themselves. These, and similar evils, are, in some measure, inseparable from the didactic system, and in order to retain it we shall occasionally be obliged to let dogmatism pass for science; but when this becomes a prevailing habit, when the teacher knows every thing and the scholar nothing, and when the thing that has been is the only thing that can be, then the system and its products are alike contemptible. To such a state of things the words of Cowper are appropriate.

“The schools became a scene  
Of solemn farce, where ignorance in stilts,  
His cap well lined with logic not his own,  
With parrot tongue performed the scholar’s part,  
Proceeding soon a graduated dunce.”

Perhaps the habit of repeating from year to year, and from age to age, exactly the same lessons, would be less stultifying if the proper, initial character of such studies were always kept prominently in view. This however is not the case, and the fact that one is a graduate, announces, not so much that he has begun his studies, as, that he has reached the acme of possible attainments. He has gained the farthest goal—his education is finished—he is a graduate. However useful college acquirements may be under other circumstances, where such an impres-

sion prevails they can only be regarded as a source of mischievous pedantry.

8. The schools are mostly confined to those branches of knowledge which are only of relative importance. Of this class are language and mathematics. This is generally considered as one of the happiest arrangements, because these are the instruments by which the mine of knowledge is to be worked. But knowledge and the means of acquiring knowledge are things very different; the latter derive all their consequence from the former, and should be esteemed of no importance, except when applied to their legitimate purpose. An education consisting chiefly of these relative attainments, must always be of very little advantage to its possessor until he has had time to make the necessary application of his newly acquired powers. Greek applied would give us the history of Greece and whatever else of history or of science the language might develop; but Greek unapplied gives us nothing save a useless collection of signs. Now, although we may not undervalue such acquisitions, yet they indicate sufficiently how imperfect that education must be which is confined to things of no independent value.\* Another question meets us at this point, and it is one affecting the whole system of instruction. Under what circumstances are these relative studies most successfully pursued? As to language there can be no doubt but the schools have signally failed. By changing

\* "Though classical learning be the *shibboleth* by which we judge, generally speaking, of the proficiency of the youthful scholar, yet, when this has been too exclusively and pedantically impressed on his mind as the one thing needful, he very often finds he has entirely a new course of study to commence just at the time when life is opening all its busy or gay scenes before him, when study of any kind becomes irksome." Sir Walter Scott; (Life, vol. 5, p. 59.)

their mode of instruction they might remedy this, but it is hardly probable that any change will be effected, as the general uselessness of dead languages affords no sufficient encouragement to cultivate the habit of speaking and writing them. With mathematics it is something different; it is not so easy to separate this science from the objects to which it relates. Still, analogy would teach us that even mathematical acquisitions are rendered easier by the aid of practical application. It follows, therefore, that the means of knowledge are equally available to the private student, and that he loses nothing from that apparent want of preparation which characterizes his efforts.

9. It should not be forgotten that literature reached its zenith long before colleges or universities had any existence. At least that it did, is the opinion of those who so much admire the ancient classics. We need not now inquire into the causes which originated and polished the literature of Greece and Rome; the fact itself is indisputable, and as to the cause or causes it is enough to note the absence of that which is mainly relied on, in modern times, for the accomplishment of such an object. Nothing could more fully establish the incidental relation of these institutions to the progress of knowledge and to the general subject of mental improvement. They do not appear important even as auxiliaries, but only as a contingent advantage which public zeal adopts from choice, not from necessity.

10. The schools do, indeed, facilitate mental improvement. To deny this would be to insult the good sense of the age. It has not been my object to depreciate their excellence or to discourage the attendance of those who are able to avail themselves of such advantages. I have aimed to estimate, in view of the constitution of the

mind and of the character of these institutions, the value which ought to be placed on them for educational purposes. This, of course, results in abridging certain extravagant claims which, as they can never be maintained, should never be asserted. No literary aristocracy, no intellectual caste can be established on so narrow a foundation as the schools supply; all real greatness is beyond the sphere of their operations, and dependent upon causes which they are equally unable to originate or to control. The aid which they afford is undeniable; but it is as manifestly of a very secondary character, and can be dispensed with, when necessity requires, without detriment to intellectual culture. We see them following in the train, not leading the march of improvement—humbly waiting to receive contributions of science from the hands of self-directed genius, and only capable of giving them an imperfect diffusion, without the hope of adding to their value. To make such institutions essentially necessary to education is to reverse all our ideas of human capability. Those who pride themselves upon distinctions of this kind, and who affect to look down with pity or with contempt upon the solitary student as one cut off from all the means of improvement, and doomed to perpetual illiteracy—one that may never be classed with educated men, nor rise to respectable scholarship—are only to be pitied for their ostentatious ignorance; for however much their acquisitions may rise above the common standard, they fall much farther below those exalted attainments which are possible to individual effort.

## CHAPTER XIII.

### **Inventions and Discoveries.**

The various incidental observations which, in the course of this work, have been made on inventions and discoveries, have by no means exhausted the subject. And as it is a department of inquiry that from the nature of the case, falls wholly within the province of self-directed exertion, we shall resume the consideration of it in a few particulars which seem to require further notice. Their relative importance, the means by which they are to be effected, and the spirit in which they should be prosecuted, are the points requiring investigation.

I. Improvements in the arts and sciences are but improvements in society—so intimately blended is the state of knowledge with the condition of the world. Knowledge belongs to mankind and whatever increases it increases their common inheritance, and multiplies both their happiness and their strength. Hence those who have labored successfully to make improvements are always considered as benefactors of their race. And, whether it be just or not, reputation seems to be confined to this species of acquisition. The greatest names in science owe their celebrity almost entirely to their inventions or discoveries. We should not have heard of Newton, or of Leibnitz, or of Herschel, but for the discoveries which have immortalized their memories. To learn what others have learned adds nothing to the general stock of knowledge, however much it may benefit the learner himself; and the public



have little cause of gratitude because they have received little advantage. Had Newton merely gone over the sciences as they were taught in the universities in his day, he would have performed what thousands have done and been forgotten as thousands are; but by venturing forward to unknown truths he enlarged the boundaries of knowledge and made himself a name by giving new sciences to the world. We would not be understood to say that the application and the diffusion of knowledge are not important; their importance however, has in it nothing uncommon—it is only what is required of every one and affords no ground for distinction. The use of natural knowledge will save mankind from sinking to that degradation which always attends the total neglect of the intellectual faculties, and the use of the sciences as they now are, will preserve to the world the very great advantages of which it is already possessed; there are however other, and greater advantages in store—the future is full of possibilities that can only be reached by passing the present confines of knowledge. The prospects of society are worth more than its possessions; yet, is there no advancing so as to realize these prospects except by the adventurous path of discovery. Bacon avowed it as the object of his philosophy to bring out these latent truths and by this means augment the number of the arts and sciences. “The end of our science,” says he, “is not to discover arguments, but arts, not what is agreeable to certain principles, but the principles themselves, nor probable reasons, but designations and indications of effects.”\*

The numerous improvements which have taken place since the true object of philosophic inquiry was thus pointed out by Bacon, not only confirm the truth of

\* Distribution of the Instauration.

his speculations, but give cheering hope to all who are engaged in prosecuting schemes of invention. Notwithstanding the evident importance of the object which the inventor or the discoverer has in view, his labors seem never to be appreciated except when they happen to be successful. This shows that such efforts are not recognized by the public as legitimate, and that they are only approved in those instances where the greatness of the success renders the contrary impossible. For this evil there is perhaps no remedy but the increase of intelligence, by which the connection between scientific invention and social welfare shall be better understood.

II. The means of these achievements happily are not of doubtful character.

Knowledge is the way to knowledge. There is in all science a tendency to expansion, and this tendency is the pledge of new discoveries. But the mind is endowed with an original power of knowing, and can at all times gain knowledge without the intervention of assistance. So that where there is previously no science, the exercise of this original power of knowing is always attended with its proportionate increase of knowledge. These first perceptions commonly include all that can ever afterwards be known, yet it is only in the shape of rudiments, as the acorn includes the oak, and the subsequent necessary expansion must be effected, like the growth of the oak, by the enlargement of the germ. Copernicus conjectured that Venus would appear with different phases like the moon, but it was reserved for Galileo to demonstrate the fact by means of the telescope. Thus a better knowledge of the laws of optics enabled one philosopher to prove what, for want of such knowledge, an other philosopher could only conjecture. One truth becomes a stepping stone to another, and so onward—how far is yet unknown.

The Logic of Bacon is justly regarded as one of the most powerful instrumentalities in this work. Still the efficacy of the inductive system is derived altogether from its spirit, and not from its details. The idols of the tribe, of the den, of the market, and of the theater; the method of exclusions, and the twenty-seven prerogative instances are of no value. Neither is the method of induction itself, of much consequence, except as it ensures that careful regard to things without which all reasoning is fallacious. A syllogistic argument is always an assumption, because it takes for granted the very thing to be proved; this exceedingly disgusted Bacon and led him to the widest extreme from such an absurd mode of reasoning. The syllogism manifests neither care nor proof, but induction largely comprehends both. It is here that we perceive the true character of his system, and it is by this feature alone that the system has achieved such wonders in modern science. Nothing but the principle of this philosophy is applicable to science; the followers of Bacon have never been inclined to avail themselves of his formulas, nor is it probable that they could have done so successfully had they been thus disposed. Bacon's own success is evidence enough that his rules are only of secondary consequence, for without them—but not without the care which is the foundation of all his rules—he made one of the greatest discoveries of modern times—the true method of philosophizing. Since this discovery, dogmatism has rarely passed for science; and since dogmatism has failed to pass for science, the real enquirer has as rarely failed in his researches.

Before this reform in logic, words had been the grand instrument of invention, and facts were never allowed to have weight against propositions; but the inductive system swept words totally away, and left nothing but facts to the use of the intellectual powers.

III. Many pretend to be seeking truth, or aiming at improvements, while it is evident to all discerning minds that they either have no just idea of what the search requires, or are purposely trifling with the pursuit. If of the first class, they are ever learning and never able to come to the knowledge of the truth, and this because they seek it not in the right manner; if of the second class, they are daring speculatists or idle system builders who wish to burlesque the scanty knowledge of man and reproach a prudence but too well justified by the present condition of the human faculties. To guard against perversion and dissipation of this kind, we shall notice some of the characteristics of the true enquirer.

1. Utility. As he who works may be distinguished from him who plays by the greater degree of usefulness which marks his efforts, so he who is really aiming at improvement and means to increase the sum of human knowledge, may be known by the advantages which he proposes to confer in case he shall be successful. What worthy object has any mere theorist ever had in view? Such men wish to amuse themselves or the world by strange combinations, and by exhibiting a sort of comic in the department of science. Odd, unlooked-for, and hasty solutions of things mysterious are the delight of such geniuses. If they study Astronomy, it is not to enlarge commerce and exalt our ideas of the supreme Being, but simply to tell how the world was made; they have a decided *penchant* for the useless, and would drag us through the worlds of either in search of truths which, if ever gained, would be lighter in value than the ether through which we pass to get at them. Not so with the sober inquirer after knowledge. He seeks for nothing which can not be useful; he has no time for things merely speculative.

2. Modesty. The inquiries of one in search of truth are always unassuming, and free from that bold—that forward, unblushing front which characterizes the mere theorist and the dealer in dogmatism. He who means to make his word or his ingenuity pass for science, will tell you with the greatest deliberation that things are thus, merely because he thinks them thus, and not because he has any indubitable evidence for what he alledges. In this it would be well for all to imitate Sir Isaac Newton, who gave his views to the world under two heads, *facts* and *queries*. He could not,—though of all men he had the best right to,—ask mankind to take his mere conjectures for indisputable truths. Yet, how often do we see men offering their own fancies to the world as reliable facts—verities that may not even be questioned. What is this but impudence? And what but folly can allow such impudence to pass unreprieved?

3. Docility. Lord Bacon has justly said that there is no conquering nature but by submission.\* He illustrates this in an other place as follows: “There is no other entrance open to the kingdom of nature than to the kingdom of heaven, into which no one may enter except in the form of a little child.”† Men who seek truth, but not with a teachable spirit, are not so much learners as teachers; they profess to seek truth, while in fact they are only communicating it. To be ready and willing to learn—nay, to be more ready to learn than to teach, is one of the most prominent characteristics of original investigation. No mind wanting in docility can patiently and delightfully glean from every source whatever is available of knowledge, saying constantly with an eminent man, “what I know not, God and man teach me.” This spirit is evinced

\* Nov. Org. Aph. 3.

† Interp. of Nature.

in the inductive philosophy, by that marked attention which is paid to minute circumstances. In this philosophy the falling of an apple affords a clue to unravel the system of the universe. But such a circumstance would never be thought to carry with it any thing instructive—no philosopher would search the nature of such a trifle for the theory of the universe, unless he sat at the feet of nature, and believed her every work fraught with the same infinite wisdom. Great things are often only an aggregate of small ones; the ocean is only a collection of drops, and drops are only a collection of particles. Now each of these particles—each of these drops, contains all the peculiarities of the whole mass, and hence, each of them is a fountain of truth which the teachable will not despise.

4. Caution. Caution in determining and industry in collecting are the essentials of induction. But the course of daring speculators is exactly the reverse. They look out upon the heavens and see luminous spots—and because, after getting the highest magnifying powers, these luminous spots still appear to be luminous spots, they gravely conclude that these collections of shining matter are young worlds just starting into existence. They tell us that this globe was once equally light and rare, and that it has become dense by degrees. We are informed how all this is done—it cools, it rolls, it consolidates, until out of thin, transparent matter an adamantine world is composed. Thanks to these gentlemen for the *modus operandi* by which this mundane system was ushered into being, though we still incline to believe on good authority that “in six days God made the world.” But the astronomer is not alone in his fault. The geologist must have his share, nay the mesmerist belongs to this fraternity of philosophers. The former sees a stone or a shell—immediately he assures us millions of years are necessary to such

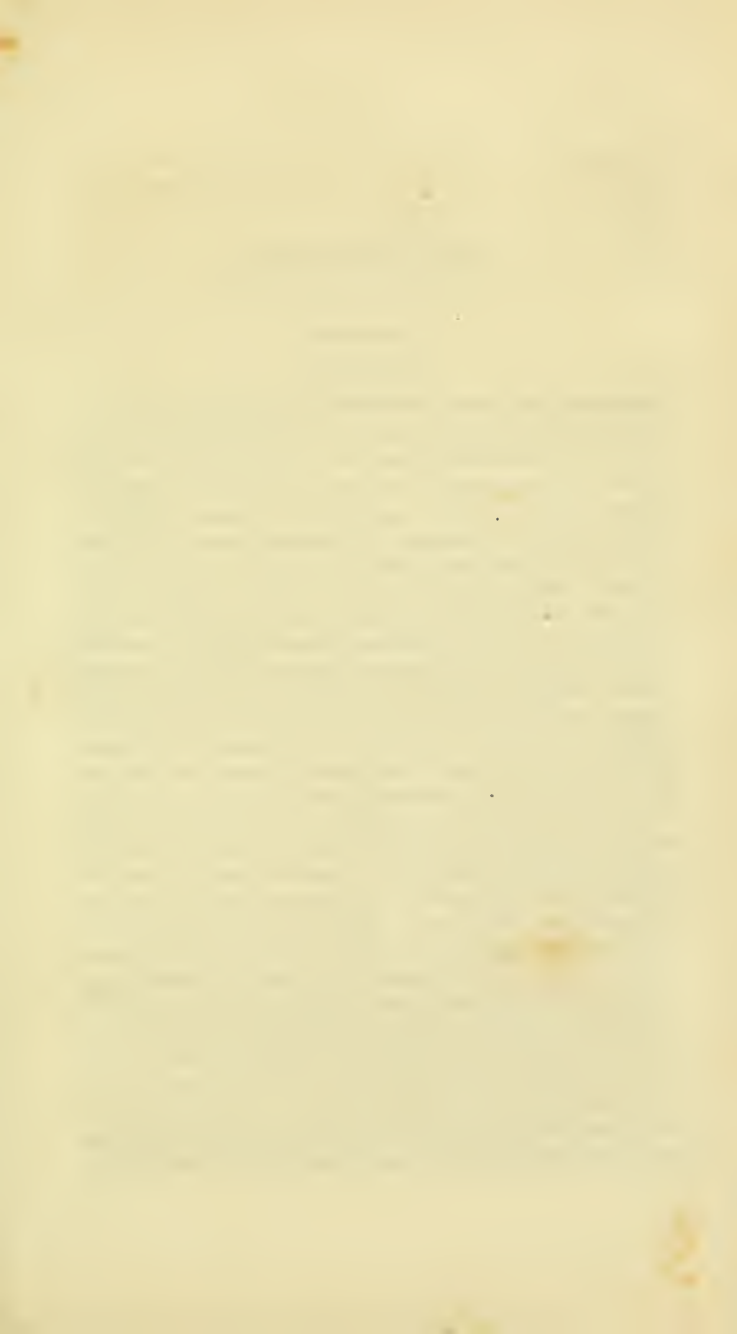
productions; the latter finds he can strangely affect the nervous system of some individual, and hence concludes all mysteries are resolvable into magnetism. Miracles are magnetism—Christianity is magnetism. Such haste sets all care at defiance. And yet most of these errors, inexcusable as they are, can be traced to distinguished names in the learned world.

5. Self-support. This enterprise is characterized by a self-sustaining power. The object, though distant, ennobles the mind. Truth lends its greatness to the seeker; truth is dignified and dignifies those who seek it. Hope mingles largely in the support of those who are toiling for the advancement of science. The greatness of their object inspires patience, and they are willing to labor long and hard for value so high. Like men conscious of approaching wealth, they dread not to exhibit indications of poverty; they care not for foreign opinions, since certain prospects inwardly sustain them against all opposition from without.

These are the most important traits of that progress of which science is yet capable. That the burden of this progress is thrown upon self-education none can deny, for such a work never was attempted by the schools. But in self-education the chances of eminence are not confined to an extension of science, as its limited means often afford an opportunity for re-invention and re-discovery. Hence, if science were at a stand and all hopes of improvement cut off, the solitary student might yet rival Newton, for he might yet make the discoveries that Newton made. To those however who follow a text book or a teacher, such achievements are impossible; and they can only hope to equal the great masters of science when they have advanced to where helps of this kind are no longer available. Nevertheless, the desire of original improvement

should not act as a dissuasive from the usual means of education, because the world is not so much to be benefited by re-discovering what is already known, as by augmenting the sum of knowledge. Nor is the labor of passing, in any particular direction, to the extreme of accredited science, such as to discourage a reasonable ambition. It may be that in the very outset, while canvassing the rudiments only, new light will break in upon the mind, and thus not only shorten the process of acquisition by enlarging comprehension, but revolutionize the science by superseding the deductions of previous enquirers.







# APPENDIX.

## CHAPTER IV.

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That books have nearly superseded the use of oral instruction and greatly changed the character of our literary institutions, has been remarked by Carlyle in his usually quaint but graphic style.

“Look at Teaching for instance. Universities are a notable, respectable product of modern ages. Their existence, too, a modified, to the very basis of it, by the existence of books. Universities arose while there were yet no books procurable; while a man for a single book, had to give an estate of land. That, in those circumstances, when a man had some knowledge to communicate, he should do it by gathering the learners round him, face to face, was a necessity for him. If you wanted to know what Abelard knew, you must go and listen to Abelard. Thousands, as many as thirty thousand, went to hear Abelard and that metaphysical theology of his. And now for any other teacher who had also something of his own to teach, there was a great convenience opened: so many thousands eager to learn were already assembled yonder; of all places the best for him was that. For any third teacher it was better still; and grew even the better the more teachers there came. It only needed now that the King took notice of this new phenomenon; combined or agglomerated the various schools into one school; gave it edifices, privileges, encouragements, and named it *Universitas*, or School of all Sciences: the University of Paris, in its essential characters, was there. The model of all subsequent Universities; which down even to these days, for six centuries now, have gone on to found themselves. Such, I conceive, was the origin of Universities.

“It is clear, however, that with this simple circumstance, facility of getting Books, the whole conditions of the business from top to bottom were changed. Once invent Printing, you metamorphosed all Universities, or superseded them! The Teacher needed not

now to gather men personally round him, that he might *speak* to them what he knew: print it in a Book, and all learners far and wide, for a trifle, had it each at his own fire side, much more effectually to learn it!—Doubtless there is still peculiar virtue in speech; even writers of Books may still, in some circumstances, find it convenient to speak also. There is, one would say, and must ever remain while man has a tongue, a distinct province for speech as well as for Writing and Printing. In regard to all things this must remain; to Universities among others. But the limits of the two have no where yet been pointed out, ascertained; much less put in practice: the University which would completely take in that great new fact, of the existence of Printed Books, and stand on a clear footing for the Nineteenth Century as the Paris one did for the Thirteenth, has not yet come into existence. If we think of it, all that a University, or final highest school can do for us, is still but what the first School began doing,—teach us to *read*. We learn to *read*, in various languages, in various sciences; we learn the alphabet and letters of all manner of Books. But the place where we are to get knowledge, even theoretic knowledge, is the Books themselves! It depends on what we read, after all manner of Professors have done their best for us. The true University of these days is a collection of Books.” Carlyle on Heroes and Hero-Worship, p. 144.

## CHAPTER V.

*Page 94.*

No one acquainted with the difficulties of acquiring completely a dead language will wish to be very positive on the subject of translations. Still the greatest obstacle to a correct rendering of the ancient poets into modern language is the want of that genius which dictated the originals. To preserve and to transfer the beauties of the author, the translator himself should be capable of employing his own language in its most poetic forms. It is no wonder that many attempts at translation are failures, for something more than a lexicon and grammar are necessary to reconstruct an ancient poem. The complaint that these works cannot be translated does not arise from those who are best fitted for such tasks, but from quite another class who think it wrong inasmuch as they know the language, that these old bards will not submit to be translated by them. Poets will only yield to poets. Pope, Milton, Johnson and Cowper experienced none of this indignity.

To them the classic bards disclosed their mysteries freely as to peers—kindred spirits with whom to associate would be no dishonor, and in whose hands their fame might safely be entrusted. Nor would it have availed if to these as to the other class, the classics had proved unmanageable. If Pope could not decipher Homer, he could supply what was wanting and let Homer go. He was himself a master workman, and Homer might speak—might give his consent, or stand aside.

As to any other difficulty, it is merely nominal. True, we cannot without much labor comprehend the genius and the terms of a dead language, and this very difficulty will always diminish the value of such languages; but when they are understood, and as far as they are understood, if it be plain matter of prose, the sense can be sufficiently well expressed for all practical purposes. But the truth is, that the original is not apt to be well understood, and for this reason the work of translation is not likely to be agreeable.

*Page 121.*

The dependence of genius on the Divine Being is so uniform as to lead to the conclusion,—not new however,—that study tends to piety. Accordingly most eminent men have been as remarkable for religion in some form, as for science. The following prayers are taken from Lord Bacon and Dr. Johnson; and they are but a fair expression of that strong religious feeling—that thorough dependence on God—which distinguished them through life, and went far towards enabling them to execute those works by which, and by which alone, they are known to us. The first concludes what is properly the introduction to Bacon's *Instauration*--the greatest work of modern times; and the last is Johnson's prayer for the success of his *Rambler*--which his biographer justly says is the basis of his fame.

“May thou, therefore, O Father who gavest the light of vision as the first fruits of creation, and hast inspired the countenance of man with the light of the understanding as the completion of thy works, guard and direct this work which proceeding from thy bounty, seeks in return thy glory. When thou turnedst to look upon the works of thy hands, thou sawest that all were very good, and restedst. But man, when he turned towards the works of his hands, saw that they were all vanity and vexation of spirit, and had no rest. Wherefore if we labor in thy works, thou wilt make

us partakers of that which thou beholdest, and of thy rest. We humbly pray that our present disposition may continue firm, and that thou mayest be willing to endow thy family of mankind with new gifts through our hands, and the hands of these to whom thou wilt accord the same disposition."

"PRAYER ON THE RAMBLER.—Almighty God, the giver of all good things, without whose help all labor is ineffectual, and without whose grace all wisdom is folly; grant, I beseech thee, that in this my undertaking, thy Holy Spirit may not be withheld from me, but that I may promote thy glory, and the salvation both of myself and others; grant this, O Lord, for the sake of Jesus Christ. Amen."

## CHAPTER XI.

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In the eleventh chapter I have referred to the subject of precocious genius. One of the most striking instances of the kind has recently occurred in our own country. I allude to the case of young Safford, of Vermont, an account of whom has gone the round of the newspapers, and might for that reason be omitted here, were it not deserving of permanent record, as an illustration in the philosophy of mind.

"Being a few days since in the vicinity of Royalton, Vt. on business connected with my Bible agency, I was induced, by the reports I had often seen in the public prints, of a remarkable boy in town, to pay him a visit. The name of this precocious youth is Truman Henry Safford, Jr. He is the son of Truman Henry and Louisa Safford, of Royalton, Vt. He was born on the 6th day of January, 1836. He was consequently ten years old on the 6th day of January, 1846. His constitution is frail—his health, though more robust than a year since, is yet delicate—his limbs small, his hair dark, his eyes dark, projecting and indescribably brilliant, and his countenance pallid, yet open, and beaming with intelligence.

"His wonderful powers of mind began to be developed when very young. At the age of twenty months he learned his letters. Before three years old, he could reckon time upon a clock almost intuitively. He also learned to enumerate according to the Roman method from Webster's spelling book. He commenced

going to school when three years old; but this he did not like. His mode of study was perfectly unique. He did not pursue the common, circuitous route to the results of study. Since then, he has been very little, and now goes none at all. Probably, no college in the United States could instruct him much, if any.

“When he first began to go to school, his teachers could not comprehend his ways, nor instruct his infant mind. Every branch of study he could master alone with ease and rapidity. He commenced Adams’ new arithmetic on Tuesday morning and finished it completely on Friday night! And when he finishes a book, it is done perfectly. He would not fully set down his sums, but cover his slate with a shower of figures, and at once bring out the answer. The teacher would look on in astonishment, unable to keep up with him, or to comprehend his operations, carried on in his mind with the rapidity of lightning, and then dashed on to the slate, no matter which end first. His thirst for all kinds of knowledge is very great. The whole circle of science is as familiar to him as a household word. His father obtained for him Gregory’s Dictionary of the Arts and Sciences, in three large volumes. This work, you know, is a vast encyclopedia of knowledge, treating briefly upon all branches of human knowledge.

“This was just the work he wanted; for an outline of anything is enough—he can make the rest. It was this book that first gave him a taste for the higher mathematics. Here he found the definition of a logarithm, and from this alone he went on and made almost an entire table of them before seeing them.

“One day he went to his father and told him he wanted to calculate the eclipses and make an almanac! He said he wanted some books and instruments. His father tried to put him off; but the boy followed him into the fields and wheresoever he went, begging for books and instruments with the most affecting importunity. Finally, his father promised to accompany him to Dartmouth College, and obtain for him, if possible, what he wanted. At this the boy was quite overjoyed; so much so, that when they hove in sight of the College, he cried out in rapture, ‘O, there is the college! there are the books! there are the instruments!’ But they did not find all they wanted. At Norwich, however, they made up their complement.

“On coming home, the boy took up Gummere’s Astronomy, opened it in the middle, rolling it to and fro, dashing through its

dry and tedious formulas, went out at both ends. By the way, this is his usual mode of study. He does not begin any book at the beginning, but always in the middle, and then goes with a rush both ways. I asked him if, when he opened Gunmere's Astronomy in the middle, he could comprehend those complicated formulas that depended on previous demonstrations? He replied that he could generally, but sometimes he 'looked back a little.' On arriving at home, he projected several eclipses, and also calculated them through all their tedious operations by figures. This, as all mathematicians know, involves a knowledge of labyrinthine mathematics, and also of formulas and processes most complicated and difficult.

"He has recently made an almanac for A. D. 1846, in which are the calculations of two eclipses of the sun wrought out wholly by its infant author, besides other valuable tables; especially, one showing the amount of duties on wool, under all the tariffs since the formation of the government up to the act of 1842. This table the boy calculated alone. And that he calculated, without aid, the two eclipses of the sun, is attested by the published certificates of judges, lawyers, and clergymen.

"If any still doubt the boy's ability to calculate an eclipse and explain it in all its parts, I would recommend them to go to Royalton, Vt., where he is now to be seen, and by a personal examination, satisfy themselves. He will not only bury you in a minute beneath a flood of figures, sines, tangents, co-sines and co-tangents, but he will use all the technical terms of mathematics, with the greatest precision—dashing through abstruse formulas, and narrating every step of his work with ease, rapidity, and never-failing accuracy. When in his presence, under such circumstances, if any one, even the most learned, can repress the emotions of wonder that must struggle in his soul, and not feel that he is in the presence of a superior being, I confess I shall be very much surprised. Not satisfied with the old circuitous process of delay, young Safford is constantly evolving new rules for abridging his work. He has found a new rule by which to calculate eclipses, hitherto unknown, as far as I know, to any mathematician. He told me it would shorten the work nearly one third. When finding this rule, for two or three days he seemed to be in a sort of trance.



“ One morning, very early, he came rushing down stairs, not stopping to dress himself, poured on his slate a stream of figures, and soon cried out in the wildness of his joy, ‘ O ! father, I have got it ! I have got it ! it comes ! it comes ! ’ I questioned him respecting this rule. He commenced the explanation. His eyes rolled spasmodically in their sockets, and he explained his work with readiness. To hear him talk so rapidly, and yet so technically exact, and so far above the comprehension of all, save the most profound mathematician, put to flight all my doubts and filled me with utter astonishment. He said he did not know as his new rule would work in all cases, but as yet it had. He also remarked that the nearer noon the eclipses come on, the easier it was to apply his rule.

“ But young Safford’s strength does not lie wholly in mathematics. He has a sort of mental absorption. His infant mind drinks in knowledge as the sponge does water. Chemistry, botany, philosophy, geography, and history are his sport.

“ It does not make much difference what question you ask him ; he answers very readily. I spoke to him of some of the recent discoveries in chemistry. He understood them. I spoke to him of the solidification of carbonic acid gas, by Prof. Johnston, of the Wesleyan University. He said he understood it. Here his eyes flashed fire, and he began to explain the process. When only four years old he would surround himself upon the floor with Morse’s, Woodbridge’s, Olney’s, Smith’s and Malte Brun’s Geographies, tracing them through and comparing them, noting all their points of difference.

“ His memory too is very strong. He has poured over Gregory’s Dictionary of the arts and sciences so much that I seriously doubt whether there can be a question asked him, drawn from either of those immense volumes, that he will not answer instantly. I saw the volumes, and also noticed that he had left his marks on almost every page. I asked to see his mathematical works. He sprang into his study and produced Greenleaf’s Arithmetic, Perkin’s Algebra, Hutton’s Mathematics, Gummere’s Astronomy, and several nautical almanacs. I asked him if he had mastered them all. He replied that he had. And an examination of him for the space of three hours convinced me that he had ; and not only so, but that he had far outstripped them. His knowledge is not intuitive. He is a pure and profound reasoner. In this he excels all other geniuses

of whom I ever read. He can not only reckon figures in his mind with the rapidity of lightning, but he reasons, compares, reflects, and wades at pleasure through all the most abstruse sciences, and comprehends and reduces to his own clear and brief rules, the highest mathematical knowledge. His mind is constantly active. No recreation or amusement can avail for any length of time to divert him from mental effort. Accompanied by Rev. C. M. Smith, of Randolph, Vt., who was acquainted with Mr. and Mrs. Safford, I had free access to the boy, and ample opportunity for a long and thorough examination. I went firmly expecting to be able to confound him, as I previously prepared myself with various problems for his solution. I did not suppose it possible for a boy of ten years only to be able to play, as with all the higher branches of mathematics. But in this I was disappointed.

“Here follow some of the questions I put to him, and his answers. I said, ‘Can you tell me how many seconds old I was last March, the 12th day, when I was 27 years old?’ He replied instantly, ‘85,255,200.’ Then said I, ‘The hour and minute hands of a clock are exactly together at 12 o’clock; and when are they next together?’ Said he, as quick as thought, ‘1 hour, 5 minutes, 11 seconds.’ And here I will remark that I had only to read the sum to him once. He did not care to see it, but only hear it announced once, no matter how long. Let this fact be remembered in connection with some of the long blind sums I shall hereafter name, and see if it does not show his amazing power of perception and comprehension. He would perform the sums mentally, and also on a slate, working by the briefest and strictest rules, and hurrying on to an answer with a rapidity outstripping all capacity to keep up with him.

[We take the liberty of omitting numerous arithmetical questions, all answered satisfactorily, on account of their length.]

“Then said I, ‘What number is that which being divided by the product of its digits, the quotient is 3; and if 18 be added the digits will be inverted?’ He flew out of his chair, whirled round, rolled up his wild, flashing eyes, and said in about a minute, ‘24.’

“Then said I, ‘What two numbers are those whose sum multiplied by the greater is equal to 77; and whose difference, multiplied by the less, is equal to 12?’ He again shot out of his chair like an arrow, flew about the room, his eyes wildly rolling in their sockets, and in about a minute said, ‘4 and 7.’ ‘Well said I,

'The sum of two numbers is 8, and the sum of their cubes 152. What are the numbers?' Said he instantly, '3 and 5.' Now in regard to these sums, they are the hardest of Davie's Algebra. I have had classes of one hundred scholars who have not been able to perform several of them. But young Safford, at one reading, comprehended them at a flash, and returned almost instantly correct answers. He also gave me correct Algebraic formulas for doing them. Then I took him into Plane Trigonometry.

\* \* \* \* \*

"I then asked his parents if I might give him a hard sum to perform mentally. They said they did not wish to tax his mind too much, nor too often to his full capacity; but were quite willing to let me try him once.

"Then said I, 'Multiply in your head 365,365,361,361,365,365 by 365,355,465,395,365,365!' He flew round the room like a top, pulled his pantaloons over the tops of his boots, bit his hand, rolled his eyes in their sockets, sometimes smiling and talking, and then seeming to be in agony, until, in not more than one minute, said he, '133,491,859,208,566,925,016,658,299,941,533,225!' The boy's father, Rev. C. N. Smith, and myself, had each a peneil and slate to take down the answer, and he gave it to us in periods of three figures each, as fast as it was possible for us to write them. And what was still more wonderful, he began to multiply at the left hand, and bring out the answer from left to right, giving the first 133,491, &c. Here, confounded above measure, I gave up the examination. The boy looked pale, and said he was tired. He said it was the largest sum he ever did!

"In conclusion, I am aware that this narrative is almost incredible. But let it be remembered that I went a skeptic, took a good witness with me, examined the boy carefully, and here pledge my sacred honor that all I have stated is true.

"HENRY W. ADAMS,

"Agent of the American Bible Society.

"Concord, N. H., Jan., 1846."

The above is a clear, consistent, and well authenticated account of one of those mental prodigies which, if they afford no rule to ordinary minds, serve at least to demonstrate the essential capability of the human intellect. They reveal the law of acquisition, though inferior geniuses may never be able to imitate their rapid progress. Another advantage also arises from the consider-

ation of these phenomena—they explain those instances of analogous character which occur in more advanced years. In some minds this peculiar talent does not exhibit itself till a much later period of life. The case of Safford, for instance, fully discloses the method in which the following individual acquired his knowledge of languages.

“ One of the most remarkable instances, on record, of success in the acquisition of languages, by unaided effort, is seen in the case of RICHARD ROBERT JONES, a young man who became known to the literary world, through the kindness of the late Mr. Roscoe of Liverpool. R. R. Jones was a poor boy, whose whole occupation, previously to his visit to Liverpool, had been fishing. At the time of his presenting himself to Mr. R., he was but little more than twenty years of age, and yet he was already familiar with Latin, Greek, and Hebrew; he could read Italian, and converse in French. He had read the Iliad, Hesiod, Theocritus, &c., was conversant with the refinements of Greek pronunciation, with the connection between Greek and Hebrew, and could translate Latin into either English or Welsh. Shortly after this, he had a conversation with Dr. Parr, one of the most distinguished scholars in Europe. In this interview, they discussed the profoundest matters of Greek erudition, the works of critics and commentators, and Richard is reported to have sustained himself fully; but when he turned the conversation to Hebrew and Chaldee, the Doctor was obliged to retreat. When asked his opinion of Dr. Parr, he said that ‘he appeared to him less ignorant than most men.’ Yet, so abject was the poverty of this young man, that he had never learned the use of a bed; but when he was first shown, for the night, into a room containing one, crept under it.” Pursuit of knowledge under difficulties, (Wayland’s edition, vol. 1. p. 283.)

THE END.

## Errata.

|       |    |                   |        |                 |                                                |
|-------|----|-------------------|--------|-----------------|------------------------------------------------|
| Page. |    |                   |        |                 |                                                |
| 48    | 8  | line from top for | or     | <i>Newton</i> , | read and <i>Newton</i> .                       |
| 59    | 16 | "                 | "      | "               | <i>Coudillac</i> , " <i>Condillac</i> .        |
| 62    | 9  | "                 | "      | "               | <i>Odessy</i> , " <i>Odyssey</i> .             |
| 69    | 12 | "                 | "      | "               | <i>irremediable</i> , read <i>irremeable</i> . |
| 88    | 2  | "                 | bottom | "               | <i>Romulous</i> , " <i>Romulus</i> .           |
| 108   | 6  | "                 | top    | "               | <i>juvenal</i> " <i>juvenile</i> .             |
| 116   | 17 | "                 | "      | "               | <i>corrolaries</i> , " <i>corollarics</i> .    |
| 122   | 14 | "                 | "      | "               | <i>impracticd</i> " <i>unpraetieed</i> .       |
| 123   |    |                   | note   | "               | <i>transpired</i> " <i>expired</i> .           |
| 123   | 17 | "                 | bottom | "               | <i>two</i> " <i>ten</i> .                      |
| 132   | 9  | "                 | top    | "               | <i>not</i> " <i>nor</i> .                      |
| 134   | 2  | "                 | bottom | "               | <i>Nopiri's</i> , " <i>Napier's</i> .          |
| "     | 4  | "                 | "      | "               | <i>Gourgand</i> , " <i>Gourgaud</i> .          |
| "     | 5  | "                 | "      | "               | <i>Matthien</i> , " <i>Matthieu</i> .          |
| 160   | 15 | "                 | top    | "               | <i>order</i> , " <i>ardor</i> .                |
| 189   | 8  | "                 | "      | "               | <i>judiciary</i> " <i>judicatory</i> .         |
| 191   | "  | "                 | bottom | "               | <i>the-useless</i> , " <i>themselves</i> .     |
| 194   |    |                   | note   | "               | <i>opposite</i> , " <i>opposed</i> .           |
| 197   | 5  | "                 | top    | "               | <i>Carregio</i> , " <i>Corregio</i> .          |
| "     | 11 | "                 | bottom | "               | <i>Boyle</i> , " <i>Bayle</i> .                |
| "     | "  | "                 | "      | "               | <i>Des Cortes</i> " <i>Des Cartes</i> ,        |
| 199   | 6  | "                 | "      | "               | <i>system</i> " <i>systems of science</i> .    |
| 231   | 9  | "                 | "      | "               | <i>Ienner</i> , " <i>Jenner</i> .              |
| "     |    |                   | note   | "               | " " " "                                        |

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