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## Art. I.—*Sanctification.*

Sanctification is the maintenance and progression of a new life, imparted to the soul, by a direct agency of the Spirit of God, in regeneration or the new birth. Of the latter, Coleridge admirably says that "not the qualities of the soul merely, but the root of the qualities is transcreated. How else could it be a birth, a creation?"* By nature, or the first birth, we are not only destitute of every element of this Divine principle, every spiritual desire or aptitude, we also have within us a principle utterly, and to finite power invincibly antagonistic to it; a deadly, death-working energy, that reigns and rules with a sovereign sway throughout and over our entire nature. It is described by the apostle as a merciless tyrant that rouses himself and asserts his supremacy at the least symptom of resistance to his malignant sway. This is sin, original sin, knowing no infancy, adult in the new-born babe; as Augustine says, *Tantillus puer, tantus peccator;*† the spring-head and ever-flowing fountain of all wrong acts and words and thoughts and feelings; it is like the poison in the viper, which makes it

* Works, vol. v. p. 370, Shedd's edition.

† See South's Sermons, vol. ii. p. 430, Bohn's edition.

we are not to be a law unto ourselves, rejecting those general laws of language which have been established for ages, and pleading the custom and usage of the unlettered many against the example and the practice of the cultivated few, but we are to accept those things as fixed, which the most diligent students of the language have discovered to be the normal and prevalent modes of expression. If any sneer at grammarians and their rules, a greater than the scoffers thus spoke: "Whoever in a state knows how to form wisely the manners of men and to rule them at home and in war by excellent institutes, him in the first place, above others, I should esteem worthy of all honour; but next to him the man who strives to establish in maxims and rules the method and habit of speaking and writing derived from a good age of the nation, and, as it were, to fortify the same round with a kind of wall, the daring to overleap which, a law, only short of that of Romulus, should be used to prevent."* Thus wrote John Milton.

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ART. III.—*The Culture Demanded by Modern Life:* A series of Addresses and Arguments on the Claims of Scientific Education. By Professors TYNDALL, HENFREY, HUXLEY, PAGET, WHEWELL, FARADAY, LIEBIG, DRAPER, DE MORGAN: Drs. BARNARD, HODGSON, CARPENTER, HOOKER, ACKLAND, FORBES, HERBERT SPENCER, SIR JOHN HERSCHEL, SIR CHARLES LYELL, Dr. SEGUIN, Mr. MILL, etc. With an Introduction on Mental Discipline in Education, by E. L. YOUMANS. New York: D. Appleton & Co. 1867.

*Modern Inquiries, Classical, Professional, and Miscellaneous.* By JACOB BIGELOW, M. D., late President of the American Academy of Arts and Sciences, and late a Professor in Harvard University. Boston: Little, Brown & Co. 1867.

*Classical and Scientific Studies, and the Great Schools of England.* A Lecture read before the Society of Arts of the Massachusetts Institute of Technology, April 6, 1865. By W. P. ATKINSON. With additions and an Appendix. Cambridge: Sever & Francis. 1865.

* The Dean's English, p. 100.

*Classical Studies as a part of Academic Education.* An Address delivered at Andover, February 7, 1866, before the Alumni of Phillips Academy, at the dedication of the new Academic Hall. By PHILIP H. SEARS. Boston: Press of Alfred Mudge & Son. 1866.

*Inaugural Address delivered to the University of St. Andrews,* February 1st, 1867. By JOHN STUART MILL, Rector of the University. Boston: Littell & Gay.

*On some Defects in Public School Education.* A Lecture delivered at the Royal Institution, on Friday, February 8th, 1867. With Notes and Appendices. By the Rev. F. W. FARRAR, M. A., F. R. S., late Fellow of Trinity College, Cambridge; Hon. Fellow of King's College, London; One of the Masters at Harrow School; Author of the "Origin of Language," "Chapters on Language," etc. Published by request. London: MacMillan & Co. 1867.

*Classical Studies: Their True Position and Value in Education.* By the Rev. JOSHUA JONES, M. A., Principal of King Williams College, Isle of Man; late Senior Mathematical, and Johnson Mathematical Scholar, Oxford. Extracted, by permission, from the Transactions of the Literary and Philosophical Society of Liverpool. London: Longman, Green, Reader & Dyer. Liverpool: A Holden. 1866.

THIS long series of publications, recently issued, is but a portion of those which the projects for radical innovation or revolution in the studies usually included in a course of liberal education have called forth. The contributions to this controversy, with which the press teems, evince the zeal and persistency of the reformers, who are confronted at all points by able and resolute defenders of the established course of liberal training, in its substantive and essential features, however they may accept modifications of its minor details. The importance and breadth of the subject, invest with high consequence the controversy now waged with such warmth and vigour in regard to it. Although, therefore, we have recently brought to the attention of our readers one phase of this great question, in an examination of the arguments of Drs. Woolsey and Hedge, respectively, for and against classical culture,* we make no apology for inviting their attention to further views upon dif-

* See Biblical Repertory, January, 1867, art. iii.

ferent sides of the subject, which are set forth with various power and skill in the volumes and pamphlets above mentioned. The massive volume of Prof. Youmans, plausible in its confident pretensions, and the vast weight of its alleged authorities; the far abler argument of Dr. Bigelow against the present prominence of classical study in liberal education; the still abler argument of J. S. Mill on the other side, and in behalf of a well-balanced, rounded culture, that have appeared since our former article, have given a progress, a public interest, and a many-sided character to the discussion, which we cannot properly overlook or ignore.

The first of these volumes, entitled the "Culture demanded by Modern Life," is a compilation of Essays, Lectures, and fragmentary extracts from various eminent scientists and educators, British and American, with introductory and concluding articles by the editor, Prof. Youmans. So far as the editor's own deliverances are concerned, they are bold even to audacity in the sweeping revolutions they propose. They go the full length of extirpating classical studies from liberal education, attenuating the mathematical course, and filling the vacuum with studies in physical science. He founds the chief argument for this revolution on Materialism, the advocacy of which forms the leading feature alike of his introductory and his concluding essays, even more than the educational innovations which he proposes to build upon it. It is quite aside of our present purpose to discuss Materialism. We discover nothing new in Prof. Youmans' arguments to establish this grovelling theory. He simply adduces some of the familiar facts which evince the powerful reciprocal influence of mind and body, and the special implication of the various forms of mental action with affections of the nervous and cerebral organisms. Some facts of this sort, which have long been among the commonplaces, not only of science, but of ordinary intelligence and information, he parades with all the emphasis and pomp of new discoveries. He complains, that, in the past, philosophers have studied the mind as if it were an entity distinct from the body, and hence have failed to reach any valuable results. He even tortures Sir William Hamilton's rhetorical extravaganza, when the latter quotes Lessing's famous avowal of a preference for

the search for truth above the possession of it, if he must have either alone exclusively of the other, into a confession of the advocates of the dualism of mind and body, that they "have actually denied the attainment of truth to be their object; declaring that the supreme aim of philosophy is nothing more than to serve as a means of intellectual gymnastics." "It is now established that the dependence of thought on organic conditions is so intimate and absolute that they can no longer be considered except as unity. Man as a problem of study is simply an organism of varied powers and activities; and the true office of scientific inquiry is to determine the mechanism, modes, and laws of its action."

"My purpose, on the present occasion, is to show that the doctrine which has prevailed in the past, and still prevails, is doomed to complete inversion; that the bodily organism, which was so long neglected as of no account, is in reality the first and fundamental thing to be considered; and that, in reaching a knowledge of mind and character through the study of the corporeal system, there has been laid the firm foundation of that Science of Human Nature, the completion of which will constitute the next and highest phase in the progress of man." Pp. 376, 377. Again, after reciting some facts illustrative of the limitations of intellectual power in the greatest minds, concerning which he alleges that "the old contrast between matter and mind led to the growth of an all-prevalent error;" he tells us:

"These phenomena find no explanation in the old hypothesis of mind as a vague spiritual entity; they throw us back immediately on the organism whose acknowledged limitations offer at once a solution of the mystery. These mental inaptitudes may be either organic deficiencies, or a result of concentrating cerebral agency in certain directions, and its consequent withdrawal from others. Thus viewed, every attainment involves the exercise of brain-power—each acquisition is a modification of the cerebral structure. All sensation of objects and words that we remember, all acquired aptitudes of movement; the associations of the perception of things with visible symbols, vocal actions and sounds, the connections of ideas with feelings and emotions, and the formation of intellectual

and moral habits, are all concomitants and consequents of the only kind of action of which the brain is capable—are all the products of organic nutrition; and the ratio and limit of acquisition, as well as the capacity for retention, are conditioned upon the completeness of the nutritive processes." P. 400.

The materialism of this is bald enough. We repeat that it is no part of our plan to discuss this doctrine now and here. The type of it which is now most rampant and blatant has been ushered in by the Positive Philosophy, and is readily espoused by divers physiological, medical reformers, and pseudo-psychologists. When occasion arises to deal with it directly, it will require to be made the chief, and not the incidental topic of an article. We have to do with it now, as it is made a basis of educational reform. The author educes from it some principles which he undertakes to apply to the support of his pet theories on this subject. On these we remark, that so far as they are true, they are not, in any important sense, new, and still less are they dependent on his materialism for proof and authority, either in themselves or their applications. Nor do they avail for the main purpose for which he uses them—the discontinuance of classical training and culture as a leading element of liberal education.

From the doctrine above stated, that "the rate and limit of acquisition, as well as the capacity for retention, are conditioned upon the completeness of the nutritive processes," he argues that there is such a limitation of mental power as must necessarily set limits to the amount of profitable, or even possible, study and intellectual acquirement: that "if we overburden the brain as in school-'cramming,' nutrition is imperfect, adhesion feeble, and acquisition quickly lost." Hence, as the number of studies must be limited in right education, he urges that those should be dropped, which can be omitted with least injury; and that these least valuable studies are the Latin and Greek languages, which, in his view, have small educating power, in comparison with the vast and increasing range of the physical sciences. Now we agree that it is both true and an important truth, that the mind is of limited capacity, and that, while it is good for it to be fully tasked, it is ill for it to be overburdened or crammed. But this is true, and known to be true, irrespec-

tive of all materialistic theories. And we still further concede and maintain that educational studies must not be encyclopediac, but made up of such a selection as will best develope and invigorate, instead of crushing, the mind. But all this does not prove that the ancient languages should be left out of the curriculum, or that physical sciences taken alone would be equally effective in informing and disciplining the intellect.

Another inference of Prof. Youmans, from the identity of mind and body which he maintains, is the needful alternation of rest and action, the equilibrium of the two being necessary to support the latter. This is brought in aid of the argument for curtailing or wholly eliminating classical studies. That the mind cannot bear uninterrupted continuous action, without ample and periodic intervals of rest, is undeniable. Although this is true of body also, it by no means follows that body and mind are one. And it determines nothing as to the place which the ancient classics should occupy in liberal training.

He also urges that the mind, being material, takes a permanent impression and acquires an enduring bent, from repeated exercises of any given kind,* and that hence, if we would exercise it most effectively for intellectual discipline and invigoration, it should be employed not upon the dead languages, but upon the living facts with which it has to do in the work of life. Now the power of habit, and of repeated exercises of any given kind in forming habits, is unquestioned and unquestionable. But this is wholly independent of materialism. And it settles nothing with regard to the comparative utility of classical studies in liberal education. If the mind is identical with the body, then the true way to study the mind is through the body, and psychology is best mastered through physiology. So Prof. Youmans confidently and strenuously maintains, "that the bodily organism which was so long neglected as of no account, is in reality the first and funda-

* "The basis of educability, and hence of mental discipline, is, therefore, to be sought in the properties of that nervous substance by which mind is manifested. That basis is the law that cerebral effects are strengthened and made lasting by repetition. When an impression is produced upon the brain, a change is produced, and an effect remains in the nerve-substance; if it be repeated, the change is deepened and the effect becomes more lasting." P. 15.

mental thing to be considered; and that in reaching a knowledge of mind and character through the study of the corporeal system, there has been laid the firm foundation of that Science of Human Nature, the completion of which will constitute the next and highest phase in the progress of man." P. 377. "Science now teaches that we know nothing of mental action, except through nervous action, without which there is neither thought, recollection, nor reason." P. 385. "Intellectual capacity is thus at bottom an affair of physical impressibility or nervous adhesiveness. Regard being had to the law that all nutritive operations involve repose, cohesion or completeness of association depends upon repetition." P. 15. "Corporeal agency in processes of thought has an aspect still more marked; the higher intellectual operations may take place, not only independent of the will, but also independent of consciousness itself. Consciousness and mind are far from being one and the same thing. . . All thoughts, feelings, and impressions, when disappearing from consciousness, leave behind them in the nerve-substance, their effects or residua, and in this they constitute what may be called latent or statical mind. They are brought into consciousness by the laws of association, and there is much probability that, in this unconscious state, they are still capable of acting and reacting, and of working out true intellectual results." Pp. 383, 4.

Of course, if the "statical" or permanent mind is a modification of the nerve-substance, which, underneath and independent of consciousness, is "capable of working out true intellectual results," then it follows that "the higher intellectual operations" cannot be ascertained or interpreted in the light of consciousness, which has no connection with them. The study of the mind, its processes, laws, and phenomena, is not therefore the study of consciousness, primarily and in chief. But it is mainly the study of nerve-structure and its modifications, and of physiological phenomena and laws. Also mental is but a form of physical education, and must be chiefly directed by physical or physiological laws.

In regard to all which, we maintain, that every mental act is an act of consciousness, and can only be known or studied as such. An unconscious mental act is absurd and inconceivable.

All acts of mind are acts either of knowing, feeling, desiring, or willing. And the very essence of knowing or thinking is consciousness of so knowing or thinking. Will it be pretended that there can be feeling without consciousness? As well may there be a sphere without roundness, or breathing without living. And the same may be said of desiring and willing. And if there were such acts of unconscious intelligence, feeling, or will, how could we ever know their nature, or in any wise interpret them? How, unless in having them, we know, are conscious, that we have them? Psychological study must therefore be primarily and fundamentally a study of consciousness. Aside of this, mere external, physiological examination of brain, nerves, cranium, spinal columns, etc., never could discover to us the first mental fact. All external inspection, therefore, outside of consciousness, must be subordinate and ancillary to this in psychological inquiries. They never can take a leading and dominant place. It is true that much light may be shed upon the workings and powers of the human mind by the study of the language, laws, history, literature of our race. And why? Because these are the exponents and records of the consciousness of our race. The study of these is but the study of the collective consciousness of mankind. It is true also, that when by the study of the phenomena of consciousness, we ascertain and classify the operations of the human soul, we may investigate conditions, physical or metaphysical, in which they take rise, or to which they give rise, or which they in any manner imply or presuppose.

If it appear, as it undeniably does, that any mental exercises become easier and stronger after successive repetitions, till what at first was burdensome effort acquires the facility and spontaneity of nature, and at length even a tyrannous mastery, then it is a just inference from this, that such repeated exercises of any given kind beget and leave behind them a permanent state of the soul, which constitutes an inward aptitude and facility therefor. But this proves neither materialism, nor that we can learn the phenomena and properties of mind otherwise than through consciousness. It is simply an implication of our conscious experience. So, if it be ascertained that given kinds or degrees of mental actions, whether normal or

morbid, are preceded, attended, or followed by certain conditions or phenomena of the body, whether outward or inward. These are important facts. They should be duly heeded, so far as they have anything to do with conserving or increasing intellectual health and vigour. But these states of the body are not states of the mind, and, taken by themselves, might be observed a life-time by the most accomplished physiologist or phrenologist, without discovering the first mental fact, law, or faculty. Such facts can only be known through consciousness. Any connected or related facts otherwise learned have only a subsidiary and derivative bearing on psychology. They shed no original light upon it. And, although such facts may prove a most intimate and sympathetic union between the mind and body; and that various parts or members of the body are of the nature of organs or instruments through which the mind acts or expresses itself, yet this by no means proves their identity. The union of mind and body is vital and mysterious, but it is without confusion or composition. Surely matter does not think or will. As some one has said, the ink in which a poem is printed is not that poem. So the telescope through which the eye looks is not the eye. And the eye through which the mind sees is not the mind.

It is not strange that they who deem the mind to be matter abjure metaphysics and think psychology best mastered by the study of physiology, should deem the study of the ancient languages useless. For language is but the exponent and record of human consciousness. The physiological psychologist will put but a low estimate on studies whose main merit is that they unfold the workings of the human soul, and train the powers of thought, by exercise upon the finest forms of human thinking, in ways, for which, as will soon appear, the modern languages afford no sufficient opportunity.

We have said all that space will permit of Prof. Youmans' contributions to this volume. They would have little importance of themselves, standing alone, even if amplified to a volume. They owe whatever weight they may have to the lectures, essays, and testimonies of higher men with which they are associated, and which, with slight exceptions, give no sanction to the views of the editor, in support of which they are,

not very honestly, paraded; views which, without such apparent sanction, and resting only on the name and reasonings of their author, are so extreme as to be suicidal. These eminent savants, philosophers, and educators give no countenance to materialism. With slight exceptions, they do not depreciate classical study. Many of them strongly commend it. They simply press the importance of certain scientific studies in education, both for the sake of the useful information, and the intellectual discipline they impart; or they advocate changes in the accepted method and time of classical study, and in that order of antecedence in the various branches usually pursued in a course of liberal education. These are all fair subjects for discussion. Good and not evil will result from an investigation of them conducted with candour and ability. Many of the views propounded by these authors in favour of such studies as Botany, Zoölogy, Physiology, etc., their influence on the Education of the Judgment; much also in the papers on the Development of Scientific Ideas, the Study of Economic Science, the Influence of Scientific Discovery on Education, command our hearty assent. They contain comparatively little which is objectionable. They are the fresh and vigorous productions of able men. The main point which they either establish or emphasize is, that scientific studies not only store the mind with useful knowledge, but are also valuable for their disciplinary efficacy in educating the powers of observation, comparison, judgment, and inductive reasoning, in the sphere of contingent matter. This may be granted, without conceding the comparative inutility of the ancient classics, or of the *literæ humaniores*—an idea which finds little countenance among those illustrious authors, although, along with materialism, it is made to stand in the fore-front of Professor Youmans' book, and in such a way as to convey the impression that these men are its chief authors, and the advocates of its leading principles. Indeed, the placards announcing the book, put up in front of bookstores which we have noticed, drop the name of Prof. Youmans altogether, and represent the distinguished men whose productions he has quoted as its authors. This is an artifice for giving to debasing and disorganizing

theories a surreptitious sanction of celebrated names, that does no credit to the author or his dogmas.

Leaving for the present this volume, the next on our list is that of Dr. Bigelow, already characterized in a short notice in our April number.

*Classical and Scientific Studies and the Great Schools of England*, by Prof. Atkinson of the Massachusetts School of Technology, is chiefly made up of extracts from the evidence collected in the Report of the Parliamentary Commission to investigate the condition of eight of the leading High Schools of England, including Eton, Harrow, Rugby, and Westminster, with a running comment upon them. It is decisive as an argument against the system of exclusive, extreme, and, in some respects, stolid training in the ancient classics current in the great schools of England. But it has little force against the curriculum of our American colleges. Attacks upon it, however annihilating, prove nothing against the classical course which enters into American liberal education. They decide nothing in regard to the questions now in controversy on this subject in this country. But it is in these expòsures of the extravagance of the great English schools, that the current objections to all training in the ancient classics find their chief plausibility.

The address of Mr. Sears at Phillips Academy is a hearty and judicious plea for that classical training, which that honoured institution has so signally promoted. It is in some respects a happy refutation of the allegations of Prof. Atkinson. And we hail it as a voice for genuine liberal culture from a region which, greatly as it has been distinguished for classical culture and elegant letters, has of late abounded in vehement attacks upon the study of Latin and Greek in our colleges.

The *Inaugural Address* of John Stuart Mill is by far the ablest of all the publications at the head of this article. The destructive philosophical heresies which he has taken up from the Positive Philosophy scarcely appear in sight, while the views of liberal education, and of the due place of the ancient languages, and the physical and metaphysical sciences therein, are profound, clear, well-poised, in short, every way admirable. We shall have occasion to recur to it.

The lecture of Mr. Farrar on "*Defects in Public School Education*," is very much occupied with a just exposure of the defects and extravagancies of the great English schools to which we have alluded. But it establishes nothing against a rational, balanced classical training, along with proportionate attention to other departments, such as has place in American colleges.

The tract by Principal Jones is a sound and judicious argument for giving the ancient classics a leading and fundamental, but not an exclusive or overbearing place in liberal education. He takes strong ground against the extreme course in the great English schools. He would give a due place to physical sciences and other studies. But he advocates assigning a pre-ëminent place to the ancient classics in a liberal education, with all the power of a penetrating, judicial, and comprehensive mind. This pamphlet ranks, in our judgment, next to that of Mill, in the series under review.

We will now reproduce, chiefly from the pamphlets of Messrs. Mill and Jones, some cogent arguments for a course of classical, mingled with other studies, not differing essentially from that established in our best American colleges. These strongly corroborate, by many additional considerations, the views we have presented to our readers in the article already referred to, and enforce them by arguments which have not been fairly answered. The principal and most plausible answer is, that, conceding the utmost weight to the mental discipline imparted by classical study, the information given by it concerning languages now dead, and the customs of an age which knew far less than our own, is comparatively useless, while the study of physical science is replete with the most useful knowledge, and at the same time has a disciplinary power not excelled by the ancient languages. It is claimed, in short, that scientific studies are not only the most utilitarian, but the most disciplinary. And it is especially insisted by Prof. Youmans, that the most useful and effective discipline is obtained by exercises of the mind directly upon the matters in which it is to be employed in life, and not upon subjects which are never afterward to occupy it, such as the dead languages; that this "vicarious discipline" is as absurd as if one should endeavour to discipline

himself for the work of a smith, a carpenter, or a mason, by swinging dumb-bells, or heaving ten-pins—an argument which, by proving too much, proves nothing; since, if it were sound, all education is faulty which is not immediately professional.

We freely accord to physical science a high place in liberal education, as a source both of useful knowledge and intellectual discipline. We would not lower its position or narrow its sphere in our colleges. But neither would we allow it to crowd out or overshadow the ancient languages, or to sink them from that regal position which makes them most of all the essential and characteristic element in liberal education. We are quite in favour of Scientific and Polytechnic schools, in which science and its applications hold the chief place, while all else is subordinate and ancillary, and the ancient languages are altogether ruled out. They are of great service to those who have not the time or means for a full course of liberal education, as also for those who, whether liberally educated or not, design to qualify themselves for engineering and other professions of applied science. What we insist on is, that there is no substitute for the ancient languages as an integral and leading part of a liberal education.

But, as preliminary to a brief discussion of this point, we wish to clear away somewhat of the confusion of ideas which is conspicuous among those who claim to be the special advocates of utilitarianism, and of utilitarian studies in education. By utility we understand that property or attribute of things whereby they are a means of some good beyond themselves. What is simply good *per se*, irrespective of its being a means to some other good, may be on this account supremely excellent, as virtue or moral goodness. Moral goodness is supremely good in itself, aside of its being a means to any good beyond itself, such as happiness. And therefore it is not to be gauged by any *merely* utilitarian standard. And yet it is a means of the highest possible good beyond itself—even the highest happiness of the rational creature. It therefore realizes all that of which the utilitarians are in quest, who reduce virtue to a *mere* means of happiness, thus debasing and destroying its very nature, whereby alone it can be instrumental of our highest happiness.

Now somewhat of this analysis applies to knowledge. It is a good, an eminent good in itself. It is so in proportion to its thoroughness and the elevation of the subjects to which it relates; and irrespective of its further uses, which are many and great, and vary with its nature. So also is mental discipline or culture, in proportion to its perfection. It is a good in itself, exalted in the ratio of its completeness, while it makes a keen polished instrument for the highest uses in working out exterior results. And, *ceteris paribus*, that mental discipline is best *per se*, and best in its utilities, which is most perfect. A low utilitarianism in education, therefore, as in morals, defeats itself. In opposing all mental attainment and discipline except what is acquired in professional study, or in science and its applications, (in all consistency, the utilitarians ought to limit education to the useful applications of science), they impair the instrument, which is needed, in utmost strength and sharpness, to achieve these practical utilities. And hence, we are prepared for the testimony given by the Professors in schools of Applied Science, that their liberally educated students, who have been well-trained in the classics of the college course are, as a class, far better scientific students than others not thus prepared. Another point deserves consideration here. It is in the search for truth as truth, and not in view of its utilitarian applications, that the discoveries of greatest ultimate utility, or capable of the most useful applications, have been achieved. To be imprisoned in our search for truth within the limits of its perceived utilitarian applications, is to be precluded from pursuing more than a minimum of the most useful truths. Even Prof. Tyndall, in his argument for the study of Physics, published in Prof. Youmans' volume, warns the utilitarian to "beware of attempting to substitute for that simple love with which the votary of science pursues his task, the calculations of what he is pleased to call utility. The scientific man must approach nature in his own way; for if you invade his freedom by your so-called practical considerations, it may be at the expense of those qualities on which his success as a discoverer depends. Let the self-styled practical man look to those from the fecundity of whose thought, he, and thousands like him, have sprung into existence. Were they

inspired in their first inquiries by the calculations of utility? Not one of them." An exclusive utilitarianism therefore in science and education, as in morals and religion, is self-destructive. Did those who made the original discoveries in electro-magnetism, which culminated in the electric telegraph, then have that telegraph in view? Let us eschew that narrow suicidal spirit, which, in its avidity for the golden eggs, kills the bird that lays them—in its eagerness for practical education removes that high symmetrical, independent culture, which alone invigorates and sharpens the mind for the noblest practical achievements.

In regard to the great inquiry before us, our first position is, that the thorough study of language, in some way, is essential to all high and thorough education. It is so, for the simple reason that language is the exponent of the mind, the vehicle of its thoughts, the expression and record of its conscious exercises, its achievements, conquests, and treasures. A knowledge of the workings, laws, products of the human mind, has its first foundations laid, therefore, in a mastery of the language that voices it. It is here that we have brought before us continually all the forms of thought, with its necessary logical relations and conditions; the products of abstraction and generalization in all common terms; judgments and reasonings of every kind, categorical, conditional, disjunctive, dilemmatic; with continual illustrations of every law and every fallacy of logic. Not only so, but language reflects every phase of the soul, and brings to view all the elements of psychology. And still further, in the modifications of verbs and nouns, the connections of clauses and sentences, not only are psychological phases manifestly reflected, but they articulate many metaphysical principles and distinctions. The force of the distinctions of tense and mood, of connective particles, and interdependent sentences, is largely metaphysical, as well as psychological. Moreover, the mastery of language by exact knowledge involves, within certain limits, exact knowledge of the things represented in this knowledge. It has been said that words are things. This is an exaggeration of the truth. In respect to a large class of objects, however, words are in such a sense things, that to know the former is to know the latter. To understand the

words, circle, triangle, acorn, maize, is, so far forth, to understand the things themselves. We understand the one only as we understand the other.

A due mastery of language, in its genius, spirit, laws, import, is therefore the best introduction to the knowledge of the soul, the immaterial, conscious spirit which articulates itself through this medium. In the merest utilitarian view is this knowledge useless, or of less than the highest utility? Is it not the knowledge of our higher being, and of the noblest essence this side heaven? Can such knowledge and the discipline it gives be underrated or degraded below the knowledge of the properties of matter, unless at the behest of the coarsest materialism? Can there be any higher discipline of the mind than to understand itself, its own powers, workings, aptitudes, as these are voiced in language? Can there be a better preparation for the study of physics and material nature, than a knowledge of the properties of the instrument by which we investigate them? Locke was first moved to those psychological investigations which issued in the immortal treatise on the Human Understanding, by the desire to see whether he could not get a clearer insight into some obscure and perplexing inquiries, by learning the exact powers, and limitations of the powers, of the mind, the instrument of investigation. This of course points to the need of direct studies in logic and mental philosophy in order to a good liberal education. But it indicates all the more certainly the preliminary necessity of thorough training in language as the grand manifestation of the soul. Besides, the mastery of language is requisite to that power of precise, elegant, forcible expression, which is the proper fruit and badge of liberal culture, and is one of the great endowments by which educated men facilitate and perfect their own thinking, and the effective communication of it to their fellow-men. But why may not all this be accomplished by the thorough study of our own tongue, the very instrument of expression we need to possess, without wasting precious years in the toilsome, and seemingly profitless study of the dead languages? In answer to this, it is readily granted that the study of our own language is, in its due place and time, an essential part of liberal education: that it is not without disciplinary power: that for those whose

opportunities at school are too short to admit of any important progress in classical studies, it is best to omit them altogether and attend only to the English language. But, after all these concessions, it is still true, that the study of our vernacular is no sufficient substitute for classical studies, in liberal and high education, because, in the words of Dr. Jones,

(1.) "To confine our language-studies to the vernacular is to narrow our range of thought and expression. 'In learning Greek and Latin as boys,' says Dr. Max Müller, (*Survey of Languages*, p. 2), 'we are learning more than a new language, we are acquiring an entirely novel system of thought. The mind has to receive a grammatical training, and to be broken, so to say, to modes of thought and speech unknown to us from our own language.'"

(2.) "Again it is very difficult to arrive at a correct insight into the nature of language, its laws, forms, and analogies, and in a general way to attain to any great power or exactness in the use even of our own language, without acquiring in addition to it some other one as well. For our mother tongue is so identified with our current modes of thought and expression, we use it with such facility, and with the exertion of so small an amount of reflection upon the meaning and force of the words and the structure of the sentences which we utter, that we fail to obtain from its study that knowledge of the principles of language and grammatical forms generally, and that force and accuracy in its own use, which we get from the acquisition of a language learnt only by prolonged and laborious effort. And this absence of effort in the use of the vernacular seriously impairs, in other respects as well as in this, the value of its study regarded as a mental discipline.

(3.) "Our own language would further appear to be inferior to the classical languages for the purposes of education for the following reason; it is singularly simple in the structure of its sentences and in the arrangement of its words, while they are most varied in the collocation of their words and most involved in the formation of their sentences; and hence, to arrive at the meaning of a passage in a classical author requires a much greater exertion of the reflective and analytical faculties, and

consequently involves a proportionately higher and more vigorous intellectual training.

(4.) "Again, the English language, beautiful and expressive as it is, is not as perfect in its grammatical structure and forms as the languages of Greece and Rome, and, accordingly, cannot afford so good a specimen for the language studies of the student as they do. For example, it conveys by a cumbersome array of little words what they convey by a change of inflection; and the abundant use of inflections in a language not only makes it more terse and forcible in itself, but also renders it possible to arrange words in sentences in such a way as to express ideas in the clearest and most striking manner; while a deficiency of inflections often renders it necessary, for the sake of making the meaning intelligible, to place the words so as to represent the ideas much less appropriately and forcibly. The inflection at once shows the proper position of a word as regards the sense, wherever it may happen to be placed in a sentence; and thus in Greek and Latin, each idea can be arranged according to its relative importance, and where its expression will be most striking to the mind, and we may add, most euphonious to the ear; whereas, in English, a certain fixed order of words and clauses must be for the most part observed, or the sentence would become mere unintelligible jargon.

(5.) "Nor must it be forgotten that the classical languages lie at the foundation, and enter largely into the structure of our own language. Many of our words are derived directly from them, and their meaning cannot be rightly appreciated without some classical attainments. 'If,' says the *Edinburgh Reviewer* (July, 1864), 'the knowledge of Greek and Latin among our upper classes were lost, it [our language] would become (as it unfortunately is to women, and to the mass of people already) a strange collection of inexpressive symbols.' It is not then perhaps too much to say that an acquaintance with Latin and Greek is almost indispensable for a precise and correct knowledge of our own language; at all events we may say, with her Majesty's Public School Commissioners, that the 'study of the classical languages is, or rather may be made, an instrument

of the highest value for the purpose' of acquiring 'a command of pure grammatical English.'—(*Report*, p. 33.)

(6.) "Lastly, it may be urged that some classical knowledge is of great value in helping the English student to acquire the humble but important accomplishment of correct spelling; because in the case of words of Greek or Latin origin, one possessed of this knowledge knows, from his acquaintance with the original languages, whence they are derived, how they ought to be spelt.

"For all these reasons we conclude that English is not to take the place of Latin and Greek in our education."

But if language must be studied in another tongue, in order to reap its full educating power, why not use for this purpose the modern continental languages, which have the prerogative of being easily acquired, of giving us access to the vast treasures of modern literature and science which they contain, and of being, particularly the French, as the Latin was before it, the great medium of commercial, social, political intercourse among the cultivated nations—advantages which confessedly do not belong to the dead languages of Greece and Rome? One answer to this is thus given by Mr. Mill, after urging the necessity of knowing French, and the importance of familiarity with German, to all well-instructed persons of this day. "But living languages are so much more easily acquired by intercourse with those who use them in daily life; a few months in the country itself, if properly employed, go so much farther than as many years of school lessons; that it is really waste of time for those to whom that easier mode is attainable, to labour at them with no help but that of books and masters; and it will in time be made attainable, through international schools and colleges, to many more than at present. Universities do enough to facilitate the study of modern languages, if they give a mastery over that ancient language which is the foundation of most of them, and the possession of which makes it easier to learn four or five of the continental languages, than it is to learn one of them without it." This view is confirmed by the highest living authority, Dr. Max Müller, who is quoted by Dr. Jones as saying: "In Latin we have the key to the Spanish, Portuguese, French, Italian. Any one who

desires to learn the modern Romance languages—Italian, Spanish, and French—will find that he actually has to spend less time if he learns Latin first, than if he had studied each of these modern dialects separately, and without this foreknowledge of their common parent." A doctrine to which even Prof. Youmans declares his adhesion, when, notwithstanding all his tirades against the ancient classics, he tells us: "The mastery of Latin reduces the labour of acquiring Italian, French, and Spanish, into which it largely enters." P. 18.

But while the most economical way of mastering the modern languages is through the previous mastery of the ancient classics, they cannot of themselves give that strong discipline and elegant culture which flow from classical studies, and belong to genuine liberal education. That they fall below the Latin and Greek classics in this respect appears from the following considerations, which we give in the words of Dr. Jones, while we should greatly prefer, if space permitted, to quote in full the richer, ampler, and stronger argument of Mr. Mill, with an occasional extract from which we may supplement and complete the former. Says Principal Jones:

(1.) "The very fact that modern languages can be so easily acquired, the very circumstance of their being living languages, and therefore capable of being learnt orally by a mere exercise of memory, without the laborious process by which alone a dead language can be mastered, makes them less suitable and efficient instruments of intellectual discipline; for intellectual development and culture are the results of intellectual effort; and, if you diminish the effort, you proportionally impede that development, and impair that culture.

(2.) "On the other hand, the fact that the classical are 'dead' languages, at the present time unused, and therefore unprogressive; that, consequently, we are able to study them in every stage of their progress, from a comparatively imperfect state to their highest point of perfection, and through their subsequent decline; that therefore there can be no difficulty in selecting from them the finest specimens of style, where the language is found in the greatest perfection (a matter most difficult of decision in the case of any living language, which is ever changing, whether improving or deteriorating, not being at

any given time ascertainable)—renders them more serviceable models for the study of language.

(3.) "Then, again, it must be borne in mind that Greek and Latin are in themselves more perfect languages, more logically accurate in the expression of ideas, with a more regular grammatical structure, and with grammatical details more easily traceable to general laws; and that, consequently, to adopt the conclusion of the *Quarterly Review* (July, 1864, p. 21), 'Latin,' to which we may add Greek in perhaps a greater degree, 'though not well taught and less well remembered, leaves behind it more knowledge of general grammar and etymology than the study of any modern language can convey.'

(4.) "To this we may add that they afford a standard of the principles of language and of grammar common to the whole civilized world. Now it is manifest that, in the study of philology, it is important that there should be some common basis of proceeding, and some standard of reference agreed upon by all. It would be plainly inconvenient that each nation should take for its standard its own or some other modern tongue, *e. g.*, that England should take French, Germany English, France German, or Italy any one of the three, or some other language; scholars could not thus compare their labours, and the variation in the point of view would probably produce hopeless discord as to the principles which are the ultimate object of research. Nor could it be expected that all modern nations would combine to elevate any one of their languages into the position of the one standard for them all. But Latin and Greek, being remote from national jealousies and the rivalries of modern life, standing out in the distant past the common heritage of all, to which all are equally entitled, and all are equally, or nearly so, indebted, form a ground of study open to every civilized man, from which the fundamental principles of all language can be educed, and upon which the philologists of every nation can work together and compare the results of their labours.

(5.) "And as they afford the most perfect specimens of language, so also they supply the finest literary models in poetry, history, and philosophy—models which have served as examples of thought and composition to all subsequent ages, and after

the fashion of which all modern literature has taken its form. And, in addition to this fact, observing also that classical, as compared with modern literature, which is practically speaking boundless in extent, affords a limited area for study, containing a few recognized models, upon which all can agree, whereas, to make a selection from modern authors for the same purpose is almost impossible,—we conclude that the literatures of Greece and Rome, no less than their languages, are more suitable for educational purposes than those of modern nations.

(6.) "Nor must this fact be forgotten. Modern literary productions abound in classical allusions, and in thoughts and sentiments either directly copied from the Greek and Latin classics, or framed on the model of similar passages in them. In evidence of this we may refer to the constant classical allusions in the speeches of our great statesmen—allusions which convey no meaning except to the classical scholar. And even in cases where this direct reference is not discernible, the classics have exercised so vast an influence on modern thought, and so many of our current ideas are traceable to that influence, that much of our modern literature cannot be thoroughly understood and appreciated without some classical knowledge.

(7.) "Another argument of considerable weight may be based on the circumstance that, in consequence of their remoteness from our own times, the classical authors are free from any reference to the controversies, religious, political, and social, which agitatate ourselves, and with which it is exceedingly undesirable to disturb the minds of the young before they are thoroughly competent to think for themselves, to discriminate between what is true and what is false, and to settle their own principles on the conviction of disciplined reason, and under the influence of sound and well-trained judgment.

(8.) "Further, it must be noted that the classical languages are, or at least the Latin is, as it were, the key to many of the most important modern languages, and that the acquisition of the former makes the acquisition, whenever necessary or desirable, of the latter a comparatively easy task—a fact the converse of which is by no means true.

(9.) "And, as a last argument—an argument, however, which is applicable only to our own times, and may ultimately cease

to be of any force—the classics have so long held possession of our leading seminaries of learning, that they, with mathematics, have secured a monopoly of the most highly trained and efficient masters, so that at present, and for some time to come, it would be difficult to procure a sufficient supply of competent masters of the modern languages.

"For all these reasons, we conclude that the modern languages, important as is the place which they ought to occupy in education, cannot be regarded as having the same educational value as those of Greece and Rome."

Says Mr. Mill: "The only languages, then, and the only literature to which I would allow a place in the ordinary curriculum, are those of the Greeks and Romans; and to these I would preserve the position in it which they at present occupy. That position is justified, by the great value, in education, of knowing some other cultivated language and literature than one's own, and by the peculiar value of those languages and literatures."

After showing with great cogency the importance of looking at things represented in other languages, in comparison with our own, in order to accurate knowledge; also of comparing ourselves, our views, methods, and achievements, with the standards presented by other nations and in other languages, Mr. Mill discourses in this wise:

"But if it be so useful, on this account, to know the language and literature of any other cultivated and civilized people, the most valuable of all to us, in this respect, are the language and literature of the ancients. No nations of modern and civilized Europe are so unlike one another, as the Greeks and Romans are unlike all of us; yet without being, as some remote Orientals are, so totally dissimilar, that the labour of a life is required to enable us to understand them. Were this the only gain to be derived from a knowledge of the ancients, it would already place the study of them in a high rank among enlightening and liberalizing pursuits. It is of no use saying we may know them through modern writings. We may know something of them in that way; which is much better than knowing nothing. But modern books do not teach us ancient thought; they teach some modern writer's notion of ancient

thought. Translations are scarcely better. When we want really to know what a person thinks or says, we seek it at first hand from himself." Mr. Mill proceeds to apply this principle to the study of ancient history, and to show that antiquity can only be truly known in the historians and authors through which it utters and portrays itself. "There is no portion of our knowledge which it is more useful to obtain at first hand—to go to the fountain head for—than our knowledge of history."

We cannot forbear to make another considerable extract, showing the incomparably superior educating power of the ancient over the modern languages. Keeping in view the extent to which their perfect grammatical inflections enable them to invert the order of thought, so that the student is under the necessity of tracing the meaning through a careful examination and comparison of the grammatical forms, inflections, syntactical relations, and other facts, the following passage is strongly to the point.

"Even as mere languages, no modern European language is so valuable a discipline to the intellect as those of Greece and Rome, on account of their regular and complicated structure. Consider for a moment what grammar is. It is the most elementary part of logic. It is the beginning of the analysis of the thinking process. The principles and rules of grammar are the means by which the forms of language are made to correspond with the universal forms of thought. The distinctions between the various parts of speech, between the cases of nouns, the moods and tenses of verbs, the functions of particles, are distinctions in thought, not merely in words. Single nouns and verbs express objects and events, many of which can be cognized by the senses, but the modes of putting nouns and verbs together, express the relations of objects and events, which can be cognized only by the intellect; and each different mode corresponds to a different relation. The structure of every sentence is a lesson in logic. The various rules of syntax oblige us to distinguish between the subject and predicate of a proposition, between the agent, the action, and the thing acted upon; to mark when an idea is intended to modify or qualify, or merely to unite with, some other idea; what asser-

tions are categorical, what only conditional; whether the intention is to express similarity or contrast, to make a plurality of assertions conjunctively or disjunctively; what portions of a sentence, though grammatically complete within themselves, are mere members or subordinate parts of the assertion made by the entire sentence. Such things form the subject-matter of universal grammar; and the languages which teach it best are those which have the most definite rules, and which provide distinct forms for the greatest number of distinctions in thought, so that if we fail to attend precisely and accurately to any of these, we cannot avoid committing a solecism in language. In these qualities the classical languages have an incomparable superiority over every modern language, and over all languages, dead and living, which have a literature worth being generally studied."

In addition to all this, Mr. Mill maintains with great cogency, "that the superior value of the literature itself, for purposes of education, is still more marked and decisive. Even in the substantial value of the matter of which it is the vehicle, it is very far from having been superseded." In scientific knowledge the moderns of course surpass them, but not in "the treasure they (the ancients) accumulated of what may be called the wisdom of life; the rich store of experience of human nature and conduct which the acute and observing minds of those ages, aided in their observations by the greater simplicity of manners and life, consigned to their writings, and most of which retains all its value. The speeches in Thucydides; the Rhetoric, Ethics, and Politics of Aristotle; the Dialogues of Plato; the Orations of Demosthenes; the Satires and especially the Epistles of Horace; all the writings of Tacitus; the great work of Quintilian, a repertory of the best thoughts of the ancient world on all subjects connected with education; and, in a less formal manner, all that is left to us of the ancient historians, orators, philosophers, and even dramatists, are replete with remarks and maxims of singular good sense and penetration, applicable both to political and private life; and the actual truths we find in them are even surpassed in value by the encouragement and help they give us in the pursuit of truth."

"In purely literary excellence—in perfection of form—the

preëminence of the ancients is not disputed. In every department which they attempted, and they attempted almost all, their composition, like their sculpture, has been to the greatest modern artists an example, to be looked up to with hopeless admiration, but of inappreciable value as a light on high, guiding their own endeavours. . . . . They show us at least what excellence is, and make us desire it, and strive to get as near to it as is within our reach. And this is the value to us of the ancient writers all the more emphatically, because their excellence does not admit of being copied or directly imitated. It does not consist in a trick which can be learned, but in the direct adaptation of means to ends. The secret of the style of the great Greek and Roman authors is, that it is the perfection of good sense. In the first place, they never use a word without a meaning, or which adds nothing to the meaning. They always (to begin with) had a meaning; they knew what they wanted to say; and their whole purpose was to say it with the highest degree of exactness and completeness, and bring it home to the mind with the greatest possible clearness and vividness. It never entered their thoughts to conceive of a piece of writing as beautiful in itself, abstractedly from what it had to express; its beauty must all be subservient to the most perfect expression of the sense. The *curiosa felicitas* which their critics ascribed in a preëminent degree to Horace, expresses the standard at which they all aimed. Their style is exactly described by Swift's definition: 'the right words in the right places.' . . . . These conditions being complied with, then indeed the intrinsic beauty of the means used was a source of additional effect, of which it behoved them to avail themselves, like rhythm and melody in versification. But these great writers knew that ornament for the sake of ornament, ornament which attracts attention to itself, and shines by its own beauties, only does so by calling off the mind from the main object, and thus not only interferes with the higher purpose of human discourse, which ought, and generally professes, to have some matter to communicate, apart from the mere excitement of the moment, but also spoils the perfection of the composition as a piece of fine art, by destroying the unity of the effect. This, then, is the first great lesson in composition to be learned from the classical

authors. The second is, not to be prolix. In a single paragraph Thucydides can give a clear and vivid representation of a battle, such as a reader who has once taken it into his mind can seldom forget." In the pressure of modern life, men who have anything to say, tend to prolixity, because they have not time enough to elaborate to the utmost brevity. "But they would do far worse than they do, if there had never been master-pieces, or if they had never known them. Early familiarity with the perfect, makes our most imperfect production far less bad than it otherwise would be. To have a high standard of excellence often makes the whole difference of rendering our work good when it would otherwise be mediocre."

The present position of the ancient classics in liberal education being thus vindicated, it remains that we look briefly at some of its other essential ingredients. Next to the languages, Latin and Greek, the Mathematics have had the preëminence among the branches of study conceded to lie at the foundation of a thorough liberal education, a place from which they will not easily or quickly be dislodged. They have an educational power for which there is no substitute. First, as they afford the calculus for the solution of problems involving number and quantity, which are indispensable in several leading departments of Physical Science, and essential to a due understanding of those sciences. This is an instrument, a tool, which every educated man should possess. But it is not so much for information as for discipline, that this study has value for the majority of students. It does a service for the reasoning powers which cannot otherwise be done. It not only trains the power of attention, close and continuous, to abstract and complex chains of thought, a power in which lies half the superiority of educated men; it accustoms the mind to reach certain truth by reasoning aright from right premises; it shows that this can be done and how it may be done; that it requires complete certainty and rigidly exact statement of the premises; the making sure of each succeeding step, in its order onward to the conclusion, which is thus indissolubly concatenated with the premises. It shows how vast bodies of truth can thus be established, and accustoms the student to the process of establishing them. It then trains him to make use of these

processes and results of reasoning as a prolific factor in the discovery of truth in physical science, the realms of actual being in Astronomy, Mechanics, Chemistry, and especially in Applied Science and the Arts. The conditions being once ascertained by observation and experiment which involve mathematical proportions, as the ratio of the resultant of two forces to their sum, of the force of gravity to the distance and mass of bodies, of the angles of incidence and reflection in the reflection of light, innumerable other conclusions can be certainly deduced by irrefragable mathematical reasoning.

But while mathematics exerts this high educating power upon the reasoning faculties, it needs to be supplemented by training in the ancient languages, in order to any adequate and balanced discipline of these faculties. The views which we have expressed in a former article on this point, are more than vindicated in the following quotation from Dr. Jones, which we make, barely remarking that we do not regard these studies as rivals or superiors, the one of the other, but as mutually supporting and complementary. Indeed, we should as soon think of asking whether animal or vegetable food were best for man, or whether he had better live on one to the exclusion of the other, as whether the reasoning powers were most strengthened by mathematical or classical studies, or by either exclusively of the other. Says Dr. Jones:

"Nor must we suppose that the mental discipline which mathematics effect can be accomplished through its instrumentality alone. Indeed, many have doubted whether mathematics is the best subject for training and developing the reason, and whether it is not inferior to the classics in this respect. For it has been urged against it, and with a great amount of force, that it is concerned only with number, quantity, and form, or the intuitions of time and space, and is thus limited to one sphere of existence, and therefore in no way applicable to the diversified phenomena of our intellectual life; and that, inasmuch as it is concerned with *necessary* matter, it incapacitates rather than trains the mind for dealing correctly with *contingent* matter, and so for forming accurate and sound conclusions in questions of common life, and of moral, political, philosophical, or religious truth, when abso-

lute certainty is unattainable, and probability, of greater or less degree of certainty, alone can be arrived at. But classical studies, they argue, while they are free from these defects as being engaged with *contingent* matter, and concerned with most of the problems which occupy the attention of the intellect, are yet a most effective means of cultivating the reason; for the accurate syntax and complex structure of the classical languages require on the part of the student a great exercise of the logical powers, to enable him to comprehend the purport of the language used; to determine which he has to trace out the connection between clause and clause, and sentence and sentence, to weigh conflicting probabilities as to the exact meaning of words and phrases, to apply rules and form conclusions; and all this involves direct processes of syllogistic reasoning, rapidly and almost intuitively gone through, but no less real and valid on that account." While it is thus clearly shown that the classics do for the reasoning powers, what mathematics cannot, we have shown above that the latter do a work in this behalf impossible to the former.

For reasons equally urgent, the Physical Sciences, in their great elements and outlines at least, have vindicated their claim to a place in liberal education beyond dispute; not indeed in derogation or exclusion of the classics, but concurrently with, and as supplementary to them. The study of them is enforced, in the first place, by the extent, variety, and importance of the information they afford in regard to the phenomena and laws of the Material Universe, of nature, and of man in his corporeal constitution, as well as of the affairs of practical life. Ignorance of the great outlines of these sciences is a disgrace to any educated man. Complete knowledge of any of them is impossible to any but experts and specialists therein. While all cultivated men may know something of the whole circle of sciences, seldom can any become masters of more than one or two. It is not the object of liberal education to make men lawyers, doctors, or clergymen, engineers, metallurgists, scientists, or even linguists in the higher sense; but to prepare them to enter with success upon the thorough mastery of any of these departments. At the same time, it is of the utmost moment that this broad, and symmetrical culture, giv-

ing insight into the leading features of all the great departments of physics, and metaphysics, thought and language, should precede professional or other special studies. Otherwise the liberal and learned professions will be filled with narrow and one-sided men. They will have keenness without breadth of vision; like the men who spend their lives in making the point of a needle; and if sharp like that minute instrument, like it also, in having but one eye and one point.

But if the Physical Sciences are essential for the information they give, they are none the less so for the peculiar discipline they afford. They, of course, train the powers of external observation, and of devising experiments for the ascertainment and verification of truth. They, no less than the languages, exercise the memory. They constantly exercise the student in classification and generalization. But still further, they bring the reasoning powers into play, in the due estimation of evidence, the detection of crucial tests, of uncertain criteria, of unproved hypotheses, and unwarrantable assumptions; in inductive reasoning from particular facts to general laws; in determining the conditions which warrant such universal conclusions from a few facts. In short, they accustom the mind to that sort of reasoning, with all its canons, cautions, and limitations, which has yielded such stupendous results in the realms of actual being; which enable us to foretell eclipses for centuries, with absolute accuracy and prophetic certainty; have harnessed the mighty but blind forces of nature into the service of man, and have given a progress to the civilized nations in half a century surpassing that of long preceding centuries. Many students have first had their powers of thought awakened, so as to think as they need to think in the actual world, by accomplished teachers of physical science. On all accounts, therefore, we assign them a high place in liberal education. Which of them shall be more prominently and largely taught, and which in mere rudimental outline, must of necessity vary in different institutions, according to their traditions and usages, and the power of the different professors to impress themselves or rather their departments on their pupils.

We should like to bring before our readers the whole of Mr. Mill's forcible passage on the value of the study of Logic in

educating the reasoning powers. But we want the room and must content ourselves with an extract.

"Of Logic I venture to say, even if limited to that of mere ratiocination, the theory of names, propositions, and the syllogism, that there is no part of intellectual education which is of greater value, or whose place can so ill be supplied by anything else. Its uses, it is true, are chiefly negative; its function is, not so much to teach us to go right, as to keep us from going wrong. But in the operations of the intellect it is so much easier to go wrong than right; it is so utterly impossible for the most vigorous mind to keep itself in the path but by maintaining a vigilant watch against all deviations, and noting all the by-ways by which it is possible to go astray—that the chief difference between one reasoner and another consists in their less or greater liability to be misled. Logic points out all the possible ways in which, starting from true premises, we may draw false conclusions. By its analysis of the reasoning process, and the forms it supplies for stating and setting forth our reasonings, it enables us to guard the points at which a fallacy is in danger of slipping in, or to lay our fingers upon the place where it has slipped in. When I consider how very simple the theory of reasoning is, and how short a time is sufficient for acquiring a thorough knowledge of its principles and rules, and even considerable expertness in applying them, I can find no excuse for omitting to study it on the part of any one who aspires to success in any intellectual pursuit. Logic is the great disperser of hazy and confused thinking; it clears up the fogs which hide from us our own ignorance, and make us believe that we understand a subject when we do not. . . . You will find abundance of people to tell you that logic is no help to thought, and that people cannot be taught to think by rules. Undoubtedly rules by themselves, without practice, go but a little way in teaching anything. But if the practice of thinking is not improved by rules, I venture to say it is the only difficult thing done by human beings that is not so. A man learns to saw wood principally by practice, but there are rules for doing it, grounded on the nature of the operation, and if he is not taught the rules, he will not saw well until he has discovered them for himself. . . . To those who think lightly of

the school logic, I say, take the trouble to learn it. You will easily do so in a few weeks, and you will see whether it is of no use to you in making your mind clear, and keeping you from stumbling in the dark over the most outrageous fallacies."

As we have shown that one great advantage of such careful study of language, as can only be ensured to young persons through the ancient classics, is the introduction which it gives to the knowledge of mind, or elementary Psychology and Logic, it may be added they perform a like service in behalf of Rhetoric and Belles-Lettres. Nor does anything more require to be said in behalf of either of these great departments of *literæ humaniores*, which, on account both of the knowledge and the training they impart, have established for themselves an undisputed place in liberal education.

We had prepared some observations on the true way of meeting the claims made by the ever-widening area of science upon liberal education without crowding out the ancient classics: also in regard to the most advantageous age for beginning the study of Latin and other branches. But we rest here for want of space.

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## ART. IV.—*Preaching to Sinners.*

THERE is a question of no little importance to the mind of the preacher, which he proposes to himself in attempting the work of leading impenitent souls to Christ. This question is one that asks—How shall sinners be most easily convinced of their need? By what teaching shall they be most easily turned to Jesus, and converted from the power of Satan unto God?

It is understood and felt, that the conversion and the regeneration of the soul is through the grace of God. God ever asserts his own power in this blessed work. They who receive Christ, and to whom is given power to become the sons of God, are born not of the will of man, but of God. The *grace* of God, which bringeth salvation, must ever be remembered, and