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### GENERAL KNOWLEDGE.

A LECTURE DELIVERED BEFORE THE HALIFAX MECHANICS' INSTITUTE, DURING LAST SESSION.

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(Concluded.)

A quotation from the father of modern philosophy, Lord Bacon, will need no apology.

"Studies serve for delight, for ornament, and for ability. Their chief use for delight is in privateness and retiring; for ornament, is in discourse; and for ability, is in the judgment and disposition of business; for expert men can execute, and perhaps judge of particulars, one by one; but the general counsels, and the plots and marshalling of affairs, come best from those that are learned. To spend too much time in studies, is sloth; to use them too much for ornament, is affectation; to make judgment wholly by their rules, is the humour of a scholar; they perfect nature, and are perfected by experience: for natural abilities are like natural plants, that need pruning by study; and studies themselves do give forth directions, too much at large, except they be bounded in by experience.

"Crafty men condemn studies, simple men admire them, and wise men use them: for they teach not their own use; but that is wisdom without them, and above them, won by observation. Read not to contradict and confute, nor to believe and take for granted, nor to find talk and discourse, but to weigh and consider.

"Some books are to be tasted, others to be swallowed, and some few to be chewed and digested; that is, some books are to be read only in parts; others to be read, but not curiously; and some few to be read wholly, and with diligence and attention. Some books also may be read by deputy, and extracts made of them by others; but that would be only in the less important arguments, and the meaner sort of books; else distilled books are, like common distilled waters, flashy things.

"Reading makes a full man; conference a ready man; and writing an exact man; and therefore if a man write little, he had need have a great memory; if he confer little, he had need have a present wit; and if he read little, he had need have much cunning, to seem to know what he does not.

"Histories make men wise; poets witty; the mathematician subtle; natural philosophy deep; morals grave; logic and rhetoric, able to contend; "Abent studia in mores;" nay, there is no stand or impediment in the wit, but may be wrought out by fit studies: like as diseases of the body may have appropriate exercises; bowling is good for the stone and veins, shooting for the lungs and breast, gentle walking for the stomach, riding for the head, and the like; so, if a man's wits be wandering, let him study the mathematics; for in demonstrations, if his wit be called away never so little, he must begin again; if his wit be not apt to distinguish, or find differences, let him study the schoolmen; for they are "Cumini secutores;" if he be not apt to beat over matters, and to call upon one thing to prove and illustrate another, let him study the lawyer's uses; so every defect of the mind may have a special receipt."

Now, whether from books, or other means of study, from lecture, conversation, or experience, knowledge, when gained, is both profitable and pleasurable. And as we, the more we know, are better acquainted with the utilities that belong to knowledge; and so much more realize the maxim of the above great man, that "knowledge is power," a power of utility, a power of doing good in our sphere; moreover of enlarging it, it is impossible but that our virtuous pleasures should so increase with our mental advancement, as to recompense our severest toils of acquirement.

Even the gratitude with which we naturally reflect on our fathers and instructors in the path of science; inasmuch as it is virtuous, so it is a delightful feeling. We delight ourselves with their works, and are ambitious of their company; and therefore aspire with renovated zeal after, not only their knowledge and their fame, but after those abodes of immortality where we may wear in their company the amaranthine crown. Apollonius, eulogizing the philosophic emperor Marcus Aurelius, says: "Aurelius marked as one of the most fortunate days of his life, that day of his boyhood in which he first heard of Cato. He preserved with gratitude the names of those who had made him, in like manner, acquainted with the names of Brutus and Thraseas. He thanked the gods that he had had an opportunity of reading the maxims of Epictetus."

Nor will it satisfy the benevolent mind to enjoy knowledge, it will consider itself as the channel, no less than the recipient, of this intelligent power. Hence arise those institutions and associations, for the diffusion of useful knowledge, which have operated as a proximate cause of our present advancement; in all that constitutes, cements, and adorns, the social state of man. We have a right to believe that the time has come, prophesied of

by Daniel; twenty-two centuries since, when "many should run to and fro in the earth, and knowledge be increased." Under the beneficent jurisdiction of heaven itself, or rather the divinity that sits enthroned there, a new creation is arising to view, and through the benign influence of knowledge, the beast is giving place to the man; who is "renewed in knowledge in the image of him that created him." Man is formed for knowledge, and kind nature has endowed him with the power and capacity for that which constitutes when realized, his pleasure and his praise.

Says Akenside, in his Pleasures of Imagination

Witness the sprightly joy, when aught unknown  
Strikes the quick sense, and wakes each active power  
To brisker measures; witness the neglect  
Of all familiar objects, though beheld  
With transport once, the fond attentive gaze  
Of young astonishment, the sober zeal  
Of age, commenting on prodigious things.  
For such the bounteous providence of Heaven  
In every breast, implanting this desire  
Of subjects new and strange to urge us on,  
With unremitting labour, to pursue  
Those sacred stores that wait the ripening soul,  
In truth's exhaustless bosom. What need words  
To paint its power?"

In this pursuit ancient Scotia's sons have been among the foremost. Labouring originally under the weight of numerous disadvantages, they have yet surmounted them all, and set an example to their more favoured neighbours, of a community not only gifted with a love, but also with the acquisition, of a useful and general knowledge. I have understood that they have a sort of national motto, "Learning makes the man," while England undertakes to say that "Money makes the man." Truth it is, that both are in a sense true; but which will make the better man, remains to be seen by the average of their literature, their inventions, and their learned institutions. Sure I am, that I would wish to see England excel; but only as she ought, by overtaking and surpassing her sister land, not by any declension or retrogradation on its own part. The rewards of knowledge, direct and indirect, are manifold and weighty; and perhaps never better paid than at present. The pioneers in the path of science had to labour more, and were worse paid, than those who have entered into their labours; but through those labours knowledge has become more esteemed and diffused, and in proportion as it is so, will its treasury be augmented; and then, by a very natural process, will those labours be yet more increased, till it becomes paramount.

Scientific men, and those who were aspiring to become such, have ever found that they could act to most advantage when associated. In this condition, a single library, as before remarked, a single apparatus, museum, &c. would answer the purpose of all, and the reciprocation of notions and discoveries would, of course, occasion quicker progress and accumulation of improvements.

From these considerations, associations or societies of art have arisen, and scientific institutions which have devolved into colleges and universities. So proud a destination may be the ultimate lot of the present Institute. If its patrons and abettors are learned, and persevering, it must rise entirely above its present level, and the future university of Nova Scotia; its members, and its archives, may look back to the lowly beginning of this present institute, as its own original.

By all means, the parties connected herewith should contemplate its growing importance and utility, and lend their best energies to stimulate it into mature existence. Towards which I would respectfully suggest, a public call for lectures on the most requisite topics, so as to furnish, without loss of time, the species of instruction which is most needed; and without the repetition of such as are of subordinate interest; the issuing of transferrable tickets, at a given price, by which a much greater number of families, and individuals, would become sharers of its fund of instruction, and of course interested in its welfare; and the publication of an annual report of proceedings, which might serve to register improvements, and to inform and interest the whole community.

It is also a desideratum, that we should have a medical society and library in Halifax, which might speedily remove the jealousies and incondite views of practitioners in this department, stimulate their studies, and originate enlarged and appropriate pathological views.

I would not recommend, as some have done, a habit of extracting from the books in use, in order the better to attain information, or fix it in the memory, although it has certain advantages; and writing anything undoubtedly helps to fix on the memory; writing an essay, or review of the subject, embodying our own views, and the acquirements made from the book we have been perusing, will better evidence our progress, the value of our attainments, and the capabilities of our own powers of conception and composition.

But, as Bacon has said, "writing maketh an exact (that is, an accurate) man;" and we never are convinced how much or how little we know of any subject, till we come to pen our thoughts relevant to it. Lectures are then of use, not merely to those who hear, but to those who speak; those who thus "water others shall be watered themselves;" and while we communicate, we augment our stores.

I have said at the commencement of this discourse, that "our knowledge ought to be general as well as particular;" and for this reason, every science stands connected with every science, and the exact demarcation of any one is often difficult to be traced; so naturally do they blend with and delineate into one another. Each particular branch, then, both borrows and radiates light upon every other; and so, while the divided, I had almost said dissipated attention of some men prevents them rising professionally, it is equally clear that others, by perpetually poring over one subject, dull and blunt their faculties; and through the want of variety, fatigue their minds into a state of hebetude. Such persons, of course, are not eminent. They may be compared to those experimenters who have attempted to live on some solitary article of diet, and found, as the result, that they could no more live without thriving, than they could thrive without living.

To my juniors I would recommend, in order that they may arrive at a just estimate of these important matters, and many accessory considerations connected herewith, a thoughtful perusal of Locke's Essay on the Human Understanding, Watts's Improvement of the Mind, Isaac Taylor's Elements of Thought, Brown's Philosophy of the Human Mind, and Herschell's Preliminary course on Natural Philosophy, treating of the Pleasures of science in Lardner's Cabinet Cyclopaedia. In these the mind and its operations are subjected to a minute and careful analysis, and they will be found, not only very assistant to the student, but to contain reference to the best authors, both late and living, on related topics.

In all times, feel anxious to persuade any attentive auditor, the ladies of course inclusive, to the practice of interrogating the lecturer concerning any point of his discussion. And to remove painful and injurious modesty, would suggest, that all proposing a question is not at all considered as evidence that the enquirer is ignorant of the appropriate answer. The best informed persons will most see the necessity of instilling instruction into the less tutored mind, one method for accomplishing which is, to dissect, as it were, a lecture into a number of members, and to exercise a little conversation relevant to each, in which any one may share, while all listen. All present will thus have some part to act, and every formality that might serve to impede the wheels of our intellectual locomotive be excluded.

Before we close, let us briefly consider how many questions and subjects the fair field of general knowledge presents. Grammar informs us of the power of words, and the nature of language; Rhetoric, or Oratory, how to dispose of its numerous stores. Arithmetic, and the rest of the Mathematics, the power of numbers, and the nature of quantity. Geometry, the properties of superficies and solids. Mechanics, of the motive powers, and their adaptation to the forces to be overcome. Hydrostatics, and Pneumatics, the gravitation and motion of fluids. Geography, and Chorography, the description of the earth's surface, its climate, and regions. Geology, and Mineralogy, its interior stores. Chemistry, their elementary origin and properties. Astronomy, the number, magnitude, distances, and relations of the celestial orbs. Opticks, and Catoptricks, the means of expanding, condensing, and reflecting colours. Chromatics, their origin and circumstances. Acoustics and Dynamics, the origin and velocities of sound. Architecture, the design and proper effect of building. Agriculture, the means of rendering soils arable and productive. Anatomy, the parts and performances of the animal members. Physiology, the functions and purposes of life. Pathology, the nature and tendencies of disease. Therapeutics, the means of palliating, or overcoming it. Zoology, animal existences, and varieties. Botany, the original varieties and products of the vegetable world. Phytology, their modes of life, and function. Political Economy, and Jurisprudence, the principles of government, and legislation, and the claims of statutes, and parties. Philosophy, the doctrine of causes, effects, and relations. And, not to impose on our patience, Theology, informs us of Infinite Love, as the creator, and governor of all things; his attributes, directions, and promises; and the cheering truth, that is worth all knowledge besides, that He, in the highest heavens, is our father. And hence, as Cowper says, "He looks abroad into the varied fields of Nature, and though poor perhaps compared with those whose mansions glitter in his sight, calls the delightful scenery all his own. His are the mountains, and the valleys his."