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Of Studies

by Francis Bacon (1625) [500 words]

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 humor 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 a 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 maketh 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 that he doth not. Histories make men wise; poets witty; the mathematics subtle; natural philosophy deep; moral grave; logic and rhetoric able to contend. *Abeunt studia in mores* [Studies pass into and influence manners]. Nay, there is no stound 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 reins; shooting for the lungs and breast; gentle walking for the stomach; riding for the head; and the like. So if a man's wit 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 *cymini sectores* [splitters of hairs]. If he be not apt to beat over matters, and to call up one thing to prove and illustrate another, let him study the lawyers' cases. So every defect of the mind may have a special receipt.

On Studies

by Samuel Johnson (1753) [1700 words]

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It is observed by Bacon, that "reading makes a full man, conversation a ready man, and writing an exact man."

As Bacon attained to degrees of knowledge scarcely ever attained by any other man, the directions which he gives for study have certainly a just claim to our regard; for who can teach an art with so great authority, as he that has practised it with undisputed success?

Under the protection of so great a name, I shall, therefore, venture to inculcate to my ingenious contemporaries, the necessity of reading, the fitness of consulting other understandings than their own, and of considering the sentiments and opinions of those who, however neglected in the present age, had in their own times, and many of them a long time afterwards, such reputation for knowledge and acuteness as will scarcely ever be attained by those that despise them.

An opinion has of late been, I know not how, propagated among us, that libraries are filled only with useless lumber; that men of parts stand in need of no assistance; and that to spend life in poring upon books is only to imbibe prejudices, to obstruct and embarrass the powers of nature, to cultivate memory at the expense of judgment, and to bury reason under a chaos of indigested learning.

Such is the talk of many who think themselves wise, and of some who are thought wise by others; of whom part probably believe their own tenets, and part may be justly suspected of endeavouring to shelter their ignorance in multitudes, and of wishing to destroy that reputation which they have no hopes to share. It will, I believe, be found invariably true, that learning was never decried by any learned man; and what credit can be given to those, who venture to condemn that which they do not know?

If reason has the power ascribed to it by its advocates, if so much is to be discovered by attention and meditation, it is hard to believe, that so many millions, equally participating of the bounties of nature with ourselves, have been for ages upon ages meditating in vain: if the wits of the present time expect the regard of posterity, which will then inherit the reason which is now thought superior to instruction, surely they may allow themselves to be instructed by the reason of former generations. When, therefore, an author declares that he has been able to learn nothing from the writings of his predecessors, and such a declaration has been lately made, nothing but a degree of arrogance unpardonable in the greatest human understanding, can hinder him from perceiving that he is raising prejudices against his performance; for with what hopes of success can he attempt that in which greater abilities have hitherto miscarried? Or with what peculiar force does he suppose himself invigorated, that difficulties hitherto invincible should give way before him.

Of those whom Providence has qualified to make any additions to human knowledge, the number is extremely small; and what can be added by each single mind even of this superior class, is very little: the greatest part of mankind must owe all their knowledge, and all must owe far the larger part of it, to the information of others. To understand the works of celebrated authors, to comprehend their systems, and retain their reasonings is a task more than equal to common intellects; and he is by no means to be accounted useless or idle who has stored his mind with acquired knowledge, and can detail it occasionally to others who have less leisure or weaker abilities.

Persius has justly observed that knowledge is nothing to him who is not known by others to possess it: to the scholar himself it is nothing with respect either to honour or advantage, for the world cannot reward those qualities which are concealed from it; with respect to others it is nothing, because it affords no help to ignorance or error.

It is with justice, therefore, that in an accomplished character, Horace unites just sentiments with the power of expressing them; and he that has once accumulated learning is next to consider how he shall most widely diffuse and most agreeably impart it.

A ready man is made by conversation. He that buries himself among his manuscripts *besprent*, as Pope expresses it, *with learned dust*, and wears out his days and nights in perpetual research and solitary meditation, is too apt to lose in his elocution what he adds to his wisdom, and when he comes into the world, to appear overloaded with his own notions, like a man armed with weapons which he cannot wield. He has no facility of inculcating his speculations, of adapting himself to the various degrees of intellect which the accidents of conversation will present; but will talk to most unintelligibly, and to all unpleasantly.

I was once present at the lectures of a profound philosopher, a man really skilled in the science which he professed, who having occasion to explain the terms *opacum* and *pellucidum*, told us, after some hesitation, that *opacum* was, as one might say *opaque*, and that *pellucidum* signified *pellucid*. Such was the dexterity with which this learned reader facilitated to his auditors the intricacies of science; and so true is it that a man may know what he cannot teach.

Boerhaave complains that the writers who have treated of chemistry before him are useless to the greater part of students; because they presuppose their readers to have such degrees of skill as are not often to be found. Into the same error are all men apt to fall who have familiarized any subject to themselves in solitude: they discourse as if they thought every other man had been employed in the same inquiries; and expect that short hints and obscure allusions will produce in others the same train of ideas which they excite in themselves.

Nor is this the only inconvenience which the man of study suffers from a recluse life. When he meets with an opinion that pleases him, he catches it up with eagerness; looks only after such arguments as tend to his confirmation; or spares himself the trouble of discussion, and adopts it with very little proof; indulges it long without suspicion, and in time unites it to the general body of his knowledge, and treasures it up among incontestible truths: but when he comes into the world among men who, arguing upon dissimilar principles, have been led to different conclusions, and being placed in various situations view the same object on many sides, he finds his darling position attacked, and himself in no condition to defend it: having thought always in one train, he is in the state of a man who having fenced with the same master, is perplexed and amazed by a new posture of his antagonist; he is entangled in unexpected difficulties, he is harassed by sudden objections, he is unprovided with solutions or replies; his surprise impedes his natural powers of reasoning, his thoughts are scattered and confounded, and he gratifies the pride of airy petulance with an easy victory.

It is difficult to imagine with what obstinacy truths which one mind perceives almost by intuition will be rejected by another; and how many artifices must be practised to procure admission for the most evident propositions into understandings frightened by their novelty, or hardened against them by accidental prejudice; it can scarcely be conceived how frequently in these extemporaneous controversies the dull will be subtle, and the acute absurd; how often stupidity will elude the force of argument, by involving itself in its own gloom; and mistaken ingenuity will weave artful fallacies, which reason can scarcely find means to disentangle.

In these encounters the learning of the recluse usually fails him: nothing but long habit and frequent experiments can confer the power of changing a position into various forms, presenting it in different points of view, connecting it with known and granted truths, fortifying it with intelligible arguments, and illustrating it by apt similitudes; and he, therefore, that has collected his knowledge in solitude, must learn its application by mixing with mankind.

But while the various opportunities of conversation invite us to try every mode of argument, and every art of recommending our sentiments, we are frequently betrayed to the use of such as are not in themselves strictly defensible: a man heated in talk, and eager of victory, takes advantage of the mistakes or ignorance of his

adversary, lays hold of concessions to which he knows he has no right, and urges proofs likely to prevail on his opponent, though he knows himself that they have no force: thus the severity of reason is relaxed, many topics are accumulated, but without just arrangement or distinction; we learn to satisfy ourselves with such ratiocination as silences others; and seldom recall to a close examination that discourse which has gratified our vanity with victory and applause.

Some caution, therefore, must be used, lest copiousness and facility be made less valuable by inaccuracy and confusion. To fix the thoughts by writing, and subject them to frequent examinations and reviews, is the best method of enabling the mind to detect its own sophisms, and keep it on guard against the fallacies which it practises on others: in conversation we naturally diffuse our thoughts, and in writing we contract them; method is the excellence of writing, and unconstraint the grace of conversation.

To read, write, and converse in due proportions is, therefore, the business of a man of letters. For all these there is not often equal opportunity; excellence, therefore, is not often attainable: and most men fail in one or other of the ends proposed, and are full without readiness, or ready without exactness. Some deficiency must be forgiven all, because all are men; and more must be allowed to pass uncensured in the greater part of the world, because none can confer upon himself abilities, and few have the choice of situations proper for the improvement of those which nature has bestowed: it is, however, reasonable, to have perfection in our eye; that we may always advance towards it, though we know it never can be reached.