On mental training and relaxation in the study of medicine.

Sir Wm Hamilton Bart
with Dr John Brown
Compts.

"*With BRAINS, Sir.*"

[FROM THE MONTHLY JOURNAL OF MEDICAL SCIENCE, FOR FEBRUARY 1851.]

ON

MENTAL TRAINING AND RELAXATION

IN THE

STUDY OF MEDICINE.

ARNAULD'S *Port-Royal Logic*. Translated by T. S. BAYNES.

THOMSON'S *Outlines of the Necessary Laws of Thought.*

DESCARTES *on the Method of Rightly Conducting the Reason, and Seeking Truth in the Sciences.*

COLERIDGE'S *Essay on Method.*

WHATELY'S *Logic and Rhetoric*. New and cheap edition.

MILL'S *Logic*. New and cheap edition.

DUGALD STEWART'S *Outlines.*

SIR JOHN HERSCHEL'S *Preliminary Dissertation.*

Quarterly Review, vol. lxviii.—Article upon Whewell's Philosophy of Inductive Sciences.

"PRAY, Mr Opie, may I ask what you mix your colours with?" said a brisk dilettante student to the great painter. "With *Brains*, Sir," was the gruff reply—and the right one. It did not give much of what we call information; it did not expound the principles and rules of the art; but, if the inquirer had the commodity referred to, it would awaken him—it would set him a-going, a-thinking, and a-painting to good purpose. If he had not, as was likely enough, the less he had to do with colours and their mixture the better. Many other artists, when asked such a question, would have either set about detailing the mechanical composition of such and such colours, in such and such proportions, rubbed up so and so; or perhaps they would (and so much the better, but not the best) have shewn him how they laid them on; but even this would leave him at the critical point. Opie preferred going to the quick, and the heart of the matter—"*Brains, Sir.*"

Sir Joshua Reynolds was taken by a friend to see a picture. He was anxious to admire it, and he looked it over with a keen and careful eye. "Capital composition—correct drawing—the

colour, tone, chiaroscuro excellent; but—but—it wants, hang it, it wants—*That*," snapping his fingers—and, wanting "that," though it had everything else, it was worth nothing.

Again, Etty was appointed teacher of the students of the Royal Academy, having been preceded by a clever, talkative, scientific expounder of æsthetics, who delighted to tell the young men *how* everything was done, how to copy this, and how to express that. One came up to the new master, "How should I do this, sir?" "Suppose you try." Another, "What does this mean, Mr Etty?" "Suppose you look." "But I have looked." "Suppose you look again." And they did try, and they did look; and they saw and achieved what they never could have done, had the how or the what (supposing this possible, which is not likely in its full and highest meaning) been told them, or done for them; in the one case sight and action were immediate, exact, intense, and secure; in the other, mediate, feeble, and lost as soon as gained. But what are "*Brains*;" what did Opie mean? and what is Sir Joshua's "*That*"? What is included in it? and what is the use, or the need of trying and trying, of missing often before you hit, when you can be told at once and be done with it; or of looking when you may be shown? Everything in medicine and in painting—practical arts—as means to ends, let their scientific enlargement be ever so rapid and immense, depends upon the right answers to these questions.

First of all, "brains," in the painter, are not diligence, knowledge, skill, sensibility, a strong will, or a high aim,—he may have all these, and never paint anything so truly good or effective as the rugged woodcut we must all remember of Apollyon bestriding the whole breadth of the way, and Christian girding at him like a man, in the old sixpenny "Pilgrim's Progress;" and a young medical student may have zeal, knowledge, ingenuity, attention, a good eye and a steady hand—he may be an accomplished anatomist, stethoscopist, histologist, and analyst; and yet, with all this, and all the lectures, and all the books, and all the sayings, and all the preparations, drawings, tables, and other helps of his teachers, crowded into his memory or his note-books, he may be beaten in treating a whitlow or a colic, by the nurse in the wards where he was clerk, or by the old country doctor who brought him into the world, and who listens with such humble wonder to his young friend's account, on his coming home after each session, of all he had seen and done, and of all the last astonishing discoveries and revolutions of the day. What the painter wants, in addition to, and as the complement of, all the other elements, is *genius and sense;* what the doctor needs to crown, and give worth and safety to his accomplishments, is *sense and genius:* in the first case, more of this, than of that; in the second, more of that, than of this. These are the "*Brains*" and the "*That*."

And what is genius? and what is sense? Genius is a peculiar native aptitude, or tendency, to any one calling or pursuit

over all others. A man may have a genius for governing, for killing, or for curing the greatest number of men, and in the best possible manner; a man may have a genius for the fiddle, or his mission may be for the tight-rope, or the Jew's harp, or it may be a natural turn for seeking, and finding, and teaching truth, and for doing the greatest possible good to mankind—or it may be a turn equally natural for seeking, and finding, and teaching a lie, and doing the *maximum* of mischief. It was as natural, as inevitable, for Wilkie to develop himself into a painter, and such a painter, as for an acorn when planted to grow up into an oak, a specific *quercus robur*. But *genius* is not enough, even for a painter, he must likewise have *sense;* and what is sense? *Sense* drives, or ought to drive, the coach; sense regulates, combines, restrains, commands, all the rest—even the genius; and sense implies exactness, soundness, power, and promptitude of mind.

Then for the young doctor, he must have as his main, his master faculty, SENSE—νους, justness of mind, because his subject-matter is one in which principle works, rather than impulse, as in painting; the understanding has first to do with it, however much it is worthy of the full exercise of the feelings, and the affections. But all will not do, if GENIUS is not there,—a real turn for the profession. It may not be a liking for it—some of the best of its practitioners never really liked it, at least, liked other things better; but there must be a fitness of faculty of body and mind for its full, constant, exact pursuit. This sense and this genius, such a special therapeutic gift, had Hippocrates, Sydenham, Pott, Pinel, John Hunter, Delpech, Dupuytren, Kellie, Cheyne, Baillie, and Abercrombie. We might, to pursue the subject, pick out painters who had great genius and little or no sense, and *vice versa;* and physicians and surgeons, who had sense without genius, and genius without sense, and some perhaps who had neither, and yet were noticeable, and, in their own sideways, useful men.

But one great object will be gained if we have given our young readers (and these remarks are addressed exclusively to students) any idea of what we mean, if we have made them think, and look inwards. The noble and sacred science you have entered on is large, difficult, and deep, beyond most others—it is every day getting more immense, more deep, and in many senses more difficult, more complicated and involved. It requires *more than the average* intellect, energy, attention, patience, and courage, and that singular but imperial quality, at once a gift and an acquirement, *presence of mind*—αγχινοια, or nearness of the νους, as the subtile Greeks called it, than almost any other department of human thought and action, except perhaps that of ruling men. Therefore it is, that we hold it to be of paramount importance that the parents, teachers, and friends of youths intended for medicine, and above all that those who examine them on their entering on their studies, should at least (we might safely go much further) satisfy themselves as far as they can, that

they are not below the average in intelligence; they may be deficient *quâ medici*, and yet, if taken in time, may make excellent men in many other useful and honourable callings.

But suppose we have got the requisite amount and specific kind of capacity, how are we to fill it with its means: how are we to make it effectual for its end? On this point we say nothing, except that the fear now a-days, is rather that the mind gets too much and too many things, than too little or too few. But this means of turning knowledge to action, making it what Bacon meant when he said it was power, invigorating the thinking substance, of giving tone, and you may call it muscle and nerve, blood and bone, to the mind—a firm gripe and a keen and sure eye: *that*, we think, is far too little considered or cared for at present, as if the mere act of filling in everything for ever into a poor lad's brain, would give him the ability to make anything of it, and above all the power to appropriate the small portions of true nutriment, and reject the dregs.

One comfort we have, that in the main, and in the last resort, there is really very little that *can* be done for any man by another. Begin with the sense and the genius—the keen appetite and the good digestion—and, amid all obstacles and hardships, the work goes on merrily and well; without these, we all know what a laborious affair, and a dismal, it is to make an incapable youth apply. Did any of you ever set yourselves to keep up artificial respiration, or to trudge about for a whole night with a soporised victim of opium, or transfuse blood (your own perhaps) into a poor, fainting, exanimate wretch? If so, you will have some idea of the heartless labour, and its generally vain and miserable result, to make a dull student apprehend—a debauched one interested, knowing, or active in anything beyond the base of his brain—a weak, etiolated intellect hearty, and worth anything; and yet how many such are dragged through their dreary *curricula*, and by some miraculous process of cramming, and equally miraculous power of turning their insides out, get through their examinations: and then—what then? providentially, in most cases, they find their level; the broad daylight of the world,—its shrewd and keen eye, its strong instinct of what can, and what cannot serve *its* purpose,—puts all, except the poor object himself, to rights; happy is it for him if he turns to some new and more congenial pursuit in time.

But it may be asked, how are the brains to be strengthened, the sense quickened, the genius awakened, the affections raised?—the whole man turned to the best account for the cure of his fellow-men? How are you, when physics and physiology are increasing so marvellously, and when the burden of knowledge, the quantity of transferable information, of registered facts, of current names—and such names!—is so infinite: how are you to enable a student to take all in, bear up under all, and use it as not abusing it, or being abused by it? You must invigorate the containing and sustaining mind, you must strengthen him from within, as well as fill him from without; you must

discipline, nourish, edify, relieve, and refresh his entire nature; and how? We have no time to go at large into this, but we will indicate what we mean:—encourage languages, especially French and German, at the early part of their studies; encourage, not merely the book knowledge, but the personal pursuit of natural history, of field botany, of geology, of zoology; give the young, fresh, unforgetting eye, exercise upon the infinite diversity and combination of natural colours, forms, substances, surfaces, weights, and sizes—everything, in a word, that will educate their eye or ear, their touch, taste, and smell, their sense of muscular resistance; encourage them by prizes to make skeletons, preparations, and collections of any natural objects; and, above all, try and get hold of their affections, and make them put their hearts into their work. Let them, if possible, have the advantage of a regulated *tutorial*, as well as the ordinary professorial system. Let there be no excess in the number of classes and frequency of lectures. Let them be drilled in composition—by this we mean the writing and spelling of correct, plain English (a matter not of every-day occurrence, and not on the increase),—let them be directed to the best books of the old masters in medicine, and *examined in them*,—let them be encouraged to a wholesome and manly literature. We do not mean popular, or even modern literature—such as Emerson, or Alison, or the trash of inferior periodicals or novels—fashion, vanity, and the spirit of the age, will attract them readily enough to all these; we refer to the treasures of our elder authors. If our young medical student would take our advice, and for an hour or two twice a-week take up a volume of Shakspeare, Don Quixote, Milton, Dryden, Pope, Cowper, Montaigne, Addison, Defoe, Goldsmith, Fielding, Scott, Charles Lamb, Macaulay, Jeffrey, Sydney Smith, Thackeray, &c., not to mention authors on deeper and more sacred subjects, they would have happier and healthier minds, and make none the worse doctors. If they, by good fortune—for the tide has set in strong against the *literæ humaniores*—have come off with some Greek or Latin, we would supplicate for an ode of Horace once a month, and a page of Xenophon. French and German should be mastered either before or during the first years of study. They will never afterwards be acquired so easily or so thoroughly, and the want of them may be felt when too late.

But one main help, we are persuaded, is to be found in studying, and by this we do not mean the mere reading, but the digging into and through, the energizing upon, and mastering, such books as we have mentioned above. These are not, of course, the only works we would recommend to those who wish to understand thoroughly, and to make up their minds, on these great subjects as wholes; but we all know too well that our art is long, broad, and deep, and time, opportunity, and our little hour, brief and uncertain, therefore, we would recommend those books as a sort of game of the mind, like cricket—a mental exercise, a gymnastic, a

clearing of their eyes of the mind as with euphrasy, a strengthening their power over particulars, a getting fresh, new views of worn out, old things, and, above all, a learning the right use of their reason, and by knowing their own ignorance and weakness, finding true knowledge and strength. Taking up a book like Arnauld, and reading a chapter of his lively, manly sense, is like throwing your manuals, and scalpels, and microscopes, and natural (most unnatural) orders out of your hand and mind, and taking a game at Sparks's, or a smart run to the top of Arthur's Seat. Exertion quickens your pulse, expands your lungs, makes your blood warmer and redder, fills your mouth with the pure waters of appetite, strengthens and supples your legs; and though at the top you may encounter rocks, and baffling debris, and gusts of fierce winds rushing out upon you from behind corners, just as in Arnauld, and all truly serious and honest books of the kind, you will find difficulties and puzzles, winds of doctrine, and deceitful mists; still you are rewarded at the top by the wide view. You see, as from a tower, the end of all. You look into the perfections and relations of things. You see the clouds, the bright lights, and the everlasting hills on the far horizon. You come down the hill a happier, a better, and a hungrier man. But, as we said, you must eat the book, you must crush it, and cut it with your teeth and swallow it; just as you must go up, and not be carried up the hill, much less merely imagine you are there, or look upon a picture of what you would see were you up, however accurately or artistically done: no—you your ownself must *do* both.

Philosophy, the love and the possession of wisdom, is divided into two things—science or knowledge; and a habit, or power of mind. He who has got the first is not truly wise unless his mind has transfigured it, unless he appropriates and can use it for his need.

The prime qualifications of a physician may be summed up in the words *Capax*, *Perspicax*, *Sagax*, *Efficax*. *Capax*—there must be room to receive, and arrange, and keep knowledge; *Perspicax*—senses and perceptions, keen, accurate, and immediate, to bring in materials from all sensible things; *Sagax*—a central power of knowing what is what, and what it is worth, of choosing and rejecting, of judging; and finally, *Efficax*—the will and the way—the power to turn all the other three—capacity, perspicacity, sagacity, to account to the performance of the thing in hand, and thus rendering back to the outer world, in a new and useful form, what you had received from it. These are the intellectual qualities which make up the physician, without any one of which he would be *mancus*, and would not deserve the name of a complete artsman, any more than proteine, would be proteine if any one of its four elements were amissing.

We have left ourselves no room to speak of the books we have named at the head of this paper. We recommend them all to our

young readers. Arnauld's famous and most excellent and entertaining "Art of Thinking" is, if only one be taken, probably the best. Thomson's little book is admirable, and is specially suited for a medical student, as its illustrations are drawn with great intelligence and exactness from chemistry and physiology. We know nothing more perfect than the analysis, at page 348, of Sir H. Davy's beautiful experiments, to account for the traces of an alkali he found when decomposing water by galvanism. It is quite exquisite, the hunt after and the unearthing of "*the residual cause.*" This book has the great advantage of a clear, lively, and strong style. We can only give some short extracts.

INDUCTION AND DEDUCTION.

"We may define the inductive method as the process of discovering laws and rules from facts, and causes from effects; and the deductive, as the method of deriving facts from laws, and effects from their causes."

There is a valuable paragraph on anticipation and its uses—there is a power and desire of the mind to project itself from the known to the unknown, in the hope of finding what it is in search of.

"This power of divination, this sagacity, which is the mother of all science, we may call anticipation. The intellect, with a dog-like instinct, will not hunt until it has found the scent. It must have some presage of the result before it will turn its energies to its attainment. The system of anatomy which has immortalised the name of Oken, is the consequence of a *flash of anticipation,* which glanced through his mind when he picked up in a chance walk, the skull of a deer, bleached by the weather, and exclaimed—'*It is a vertebral column!*'"

"The man of science possesses principles—the man of art, not the less nobly gifted, is possessed and carried away by them. The principles which art *involves,* science *evolves.* The truths on which the success of art depend lurk in the artist's mind in an undeveloped state, guiding his hand, stimulating his invention, balancing his judgment, but not appearing in regular propositions." "An art (that of medicine for instance) will of course admit into its limits, everything (*and nothing else*) which can conduce to the performance of *its own proper work*; it recognises no other principles of selection."

"He who reads a book on logic, probably thinks no better when he rises up than when he sat down, but if any of the principles there unfolded, cleave to his memory, and he afterwards, perhaps unconsciously, shapes and corrects his thoughts by them, no doubt the whole powers of his reasoning receive benefit. In a word, every art, from reasoning to riding and rowing, is learnt by assiduous practice, and if principles do any good, it is proportioned to the readiness with which they can be converted into rules, and the patient constancy with which they are applied in all our attempts at excellence."

"A *man can teach names to another man, but he cannot plant in another's mind that far higher gift—the power of naming.*"

"*Language is not only the vehicle of thought, it is a great and efficient instrument in thinking.*"

"The whole of every *science* may be made the subject of teaching. Not so with *art;* much of it is not teachable."

Coleridge's profound and brilliant, but unequal, and often somewhat nebulous "Essay on Method," is worth reading over, were it only as an exercitation, and to impress on the mind the meaning and value of *method.* Method is the road by which you attain, or hope to attain, a certain end; it is a process. It is the best direction for

the search after truth. System, again, which is often confounded with it, is a mapping out of knowledge, either already gained, or theoretically laid down as probable. Aristotle had a system which did much good, but also much mischief. Bacon was chiefly occupied in preparing and pointing out the way—the only way—of procuring knowledge. He left to others to systematise the knowledge after it was got; but the pride and indolence of the human spirit leads it constantly to build a system on imperfect knowledge. It has the trick of filling up out of its own fancy what it has not the diligence, the humility, and the honesty, to seek in nature; whose servant, and articulate voice, it ought to be.

Descartes' little tract on Method, is like everything the lively and deep-souled Breton did, full of original and bright thought.

Sir John Herschel's volume needs no praise. We know no work of the sort, fuller of the best moral worth, as well as the highest philosophy. We fear it is more talked of than read.

We would recommend the article in the "Quarterly Review" as first-rate, and written with great eloquence and grace.

SYDNEY SMITH'S *Sketches of Lectures on Moral Philosophy*. Second Edition.

SEDGWICK'S *Discourse on the Studies at Cambridge, with a Preface and Appendix*. Sixth Edition.

We have put these two worthies here, not because we had forgotten them,—much less, because we think less of them than the others, especially Sydney. But because we bring them in at the end of our entertainment, on the same principle as a liqueur—be it Curaçoa, Kimmel, or old Glenlivet—is introduced after dinner, and followed by the plum-pudding—that most English of realised ideas. Sydney Smith's book is one of rare excellence, and well worthy of the study of men and women, though perhaps not profound enough for our modern philosophers, male and female. It is really astonishing how much of the best of everything, from patriotism to nonsense, is to be found in this volume of sketches. You may read it through, if your sides can bear such an amount of cumulative laughter, with great benefit; and if you open it anywhere, you can't read three sentences without coming across some, it may be common thought, and often original enough, better expressed and *put* than you ever before saw it. The lectures on the Affections, the Passions, and the Desires, and on Study, we would have everybody to read and enjoy.

Sedgwick is a different, and, as a whole, an inferior man; but a *man* every inch of him, and an Englishman too, in his thoughts, and in his fine mother wit and tongue. He has, in the midst of all his confusion and passionateness, the true instinct of philosophy—the true venatic sense of objective truth. We know nothing better in the main, than his demolition of what is untrue, and his reduction of what is absurd, and his taking the wind out of what is

flatulent, in the famous "Vestiges;" we don't say he does justice to what is good in it; his mission is to do fell justice *upon it*, and he fulfils that. His remarks on Oken and Owen, and his quotations from Dr Clarke's admirable paper on the "Development of the Fœtus," in the "Cambridge Philosophical Transactions," we would recommend to our medical friends. The very confusion of Sedgwick, is the free outcome of a deep and racy mind; it puts us in mind of what happened, when an Englishman was looking with astonishment and disgust at a Scotchman eating a boiled sheep's head, and was asked by the eater what he thought of that dish? "Dish! sir, do you call that a dish?" "Dish or no dish," rejoined the Caledonian, "there's a deal o' fine confused feedin' aboot it, let me tell you," swallowing a finely confused eye, humours and all.

We conclude these rambling remarks, with a quotation from Arnauld, the friend of Pascal, and the intrepid antagonist of the Vatican and the Grand Monarque. One of the noblest, freest, most untiring and honest intellects, our world has ever seen. "Why don't you rest sometimes?" said his friend Nicole to him. "Rest! why should I rest? haven't I an eternity before me to rest in?" The following sentence from his "Port Royal Logic," so well introduced and translated by Mr Baynes, contains the gist of all we have been trying to say. It should be engraven on the tablets of every young student's heart—for the heart has to do with study as well as the head.

"There is nothing more desirable than *good sense and justness of mind*,—all other qualities of mind are of limited use, but exactness of judgment is of general utility in every part and in all employments of life.

"*We are too apt to employ reason merely as an instrument for acquiring the sciences, whereas we ought to avail ourselves of the sciences, as an instrument for perfecting our reason.* Justness of mind being infinitely more important than all the speculative knowledge which we can obtain by means of sciences the most solid. This ought to lead wise men to make their sciences *the exercise and not the occupation of their mental powers.* Men are not born to employ all their time in measuring lines, in considering the various movements of matter; their minds are too great, and their life too short, their time too precious, to be so engrossed; but they are born to be just, equitable, and prudent, in all their thoughts, their actions, their business, to these things they ought especially to train and discipline themselves."

So, young friends, bring *Brains* to your work, and mix everything with them, and them with everything. *Arma virumque*, tools and a man to use them. Stir up, direct, and give free scope to Sir Joshua's "*that*," and try again, and again; and look, *oculo intento, acie acerrimâ.* Looking is a voluntary act,—it is the man within coming to the window; seeing is a state,—passive and receptive, and, at the best, little more than registrative.

Since writing the above, we have read with great satisfaction Dr Forbes' Lecture delivered before the Chichester Literary Society and Mechanics' Institute, and published at their request. Its subject is, Happiness in its relation to Work and Knowledge. It

is worthy of its author, and is, we think, more largely and finely imbued with his personal character, than any one other of his works that we have met with. We could not wish a fitter present for a young man starting on the game of life. It is a wise, cheerful, manly, and warm-hearted discourse on the words of Bacon,—"He that is wise, let him pursue some desire or other: for he that doeth not affect some one thing in chief, unto him all things are distasteful and tedious." We will not spoil this little volume by giving any account of it. Let our readers get it, and read it. The extracts from his Thesis, "*De Mentis Exercitatione et Felicitate exinde derivanda*," are very curious—showing the native vigour and bent of his mind, and showing also, at once the identity and the growth of his thoughts during the lapse of thirty-three years.

We give the last paragraph, the sense and the filial affection of which are alike admirable. Having mentioned to his hearers that they saw in himself, a living illustration of the truth of his position, that happiness is a necessary result of knowledge and work, he thus concludes:—

"If you would further desire to know to what besides I am chiefly indebted for so enviable a lot, I would say:—1st. Because I had the good fortune to come into the world with a healthful frame, and with a sanguine temperament. 2d. Because I had no patrimony, and was therefore obliged to trust to my own exertions for a livelihood. 3. Because I was born in a land where instruction is greatly prized and readily accessible. 4th. Because I was brought up to a profession which not only compelled mental exercise, but supplied for its use materials of the most delightful and varied kind. *And lastly and principally, because the good man to whom I owe my existence, had the foresight to know what would be best for his children. He had the wisdom, and the courage, and the exceeding love, to bestow all that could be spared of his worldly means, to purchase for his sons, that which is beyond price,* EDUCATION; well-judging that the means so expended, if hoarded for future use, would be, if not valueless, certainly evanescent, while the precious treasure for which they were exchanged, a cultivated and instructed mind, would not only last through life, but might be the fruitful source of treasures far more precious than itself. So equipped, he sent them forth into the world to fight Life's battle, leaving the issue in the hand of God; confident, however, that though they might fail to achieve renown or to conquer Fortune, they possessed *that* which, if rightly used, could win for them the yet higher prize of HAPPINESS."

J. B.

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