The training of the mind for the study of medicine : an introductory address, delivered at St. George's Hospital, on the opening of the medical session, 1873-74 / by Robert Brudenell Carter.

7.

THE TRAINING OF THE MIND

FOR THE

STUDY OF MEDICINE.

An Introductory Address,

DELIVERED AT

ST. GEORGE'S HOSPITAL,

ON THE OPENING OF THE MEDICAL SESSION, 1873-74.

BY

ROBERT BRUDENELL CARTER, F.R.C.S.,

OPHTHALMIC SURGEON TO THE HOSPITAL.

[PUBLISHED BY REQUEST.]

London:
BAILLIÈRE, TINDALL, AND COX,
King William Street, Strand.
[PARIS—MADRID.]

1873.

Price One Shilling.

THE TRAINING OF THE MIND FOR THE STUDY OF MEDICINE.

PREFACE.

THE gentlemen before whom the following Address was delivered have done me the honour of asking me to publish it. I have therefore endeavoured, although fully aware that a composition which pleases the ear may not always bear the closer criticism incidental to perusal, to reproduce exactly what I said. I have added a few sentences which, although they formed part of the original plan, were omitted in speaking for the sake of brevity; and I have appended a note for the more complete expression of my meaning.

R. BRUDENELL CARTER.

69, WIMPOLE STREET,
November, 1873.

ADDRESS.

We meet here to-day, gentlemen, in pursuance of a custom honoured by time and sanctioned by experience, to inaugurate, with something of the nature of a ceremony, the commencement of another medical session. We live in an age in which the plea of ancient usage is of itself considered to have little weight; and you are aware that the utility of this custom has of late years often been called in question, and that the practice of following it has, at least in one instance, been abandoned. My presence and office here will suffice to prove my own preference for the ancient ways; and to that evidence by implication I would add whatever force may reside in direct and willing testimony. On the very lowest ground, the proceedings of the day are useful, because they serve to promote the punctual arrival of students, and thus to prevent the beginning of the session from being to some extent wasted, and the first lectures of the courses from being delivered to comparatively empty benches. The coming together of the medical staff of the hospital, and of many of its oldest and most valued friends, for the purpose of welcoming the new and the returning students, has grown, I think, into an institution of no small value, which, under the mere veil of a formality, at once expresses and maintains the warmest and most kindly feelings, on the part of those who are already bearing the burden and heat of the day, towards the generation that, in the inevitable sequence of events, must succeed to our opportunities and to

our work. On this occasion, by the favour of my colleagues, the pleasant duty of giving utterance to their welcome devolves upon me; and, if it seems that anything is lacking in its cordiality, I must beg you to believe that such a fault can be due only to the feebleness of the representative. Another use of the introductory address springs from the certainty that those who, not ceasing to be students, have become also practitioners and teachers of medicine or of surgery, must be able to bring from their experience something that will be useful to those who as yet are students only—something that will assist them to work more systematically, more accurately, more profitably, than they might do otherwise; with clearer perception of the goal at which they should aim, and of the paths by which that goal may be attained. Lastly, the address furnishes almost the only occasion on which the members of the medical profession speak directly to the public, not only as represented by the parents and friends of students, and by students who are present in a school of medicine for the first time, but also, and often widely, through the medium of the press. It affords, therefore, an opportunity, which may be used in due season, and which should not lightly be suffered to fall into abeyance, of correcting some popular errors, of contending against some popular prejudices, and of setting forth the relation which the practitioners of the healing art should bear to society in general. Under these various heads the topics which suggest themselves are so numerous that it will be possible for me even to touch only a few of them; and I must therefore endeavour to select those which now stand out most prominently from the rest, and which, at the present time and under present circumstances, may be said to force themselves upon our consideration.

Assuming, gentlemen, that your aim in coming here is to qualify yourselves thoroughly for the work of preserving the health of the community, and of curing or alleviating the

maladies which afflict its individual members, the topic first in place seems to be the right use of the opportunities that await you. And herein it is my wish to speak of education in the sense of Paley's definition, as comprising every preparation that is made in our youth for the sequel of our lives. Among these preparations, the storing up of knowledge concerning our allotted tasks is important, or even essential; but it should not be suffered to divert our thoughts from that other preparation which is more important still, and which consists in the due and harmonious training of the faculties by which our knowledge is to be applied. To you it will come to attempt the solution of the most difficult, because the most complicated, problems that are presented to the human intellect; and it will avail you little to have filled your memories with learning, unless you have at the same time cultivated the power of observing with accuracy, and the power of judging with discrimination. For the purposes of this cultivation you enjoy many advantages that were denied to your predecessors in former generations; especially the great advantage of being required to bring, to the work that lies before you, minds exercised and strengthened by liberal education. I am desirous, however, that you should not take it for granted that this liberal education has done all for you, in the way even of preliminary training, that your minds require or can profit by; and I am going to ask you to examine yourselves, and to consider how far you are indeed prepared for the studies on which you are about to enter; so that, if the preparation has been in any way defective, its deficiencies may be made good by the help of these studies themselves. Hence it does not seem irrelevant briefly to consider what the preparation ought to be, and what are the results that it should produce. As regards mere acquirements, modern instructors may at least be safely trusted not to teach too little or too few of them; and the only question is whether

their instruction has been of a kind to develop the intelligence as well as to fill the memory. As a rule, the leading idea of much modern school teaching appears to me to spring from a belief, which I cannot share, that the introduction of compressed facts will mechanically expand the intellect,—as if learning were a species of sponge tent! There is a prevailing tendency—greatly, I think, to be deplored, but which is fostered by too many examining bodies to be soon or readily overcome—to call upon the young for an universality of knowledge which places a difficulty, always formidable and often insurmountable, in the way of real education, and which can only be obtained by a sacrifice of thoroughness, and of some of the chief objects of teaching, in regard of everything that is said to be taught. School-work may, of course, be so guided as to be pre-eminently valuable as a means; but, excepting in the limited education of the lower classes, it is, to a very great extent, valueless as an end. The proper object of construing is not only to impart the knowledge that certain Latin or Greek sounds represent certain English ones; but also, and in a far higher degree, to produce and cultivate a habit of careful attention to the meaning of words. The proper object of mathematics is not only to impress the memory with the fact that the square of the hypothenuse is equal to the squares of the sides that contain the right-angle, but also, and in a far higher degree, to accustom the mind to a high standard and to a certain kind of reasoning, and so to render it distrustful of inaccuracy or incompleteness. The proper object of arithmetic is not only to confer the power of working sums in the Rule of Three, but also to lead to the comprehension of the principles of proportion. To attain these proper objects requires much time and practice; much sacrifice of seeming, but frequently unreal, progress; and more knowledge and observation of the true character of mental acts than either parents or teachers commonly possess or exercise. The show pupils, who

furnish marvellous answers to a multiplicity of questions, on a multiplicity of subjects, in response to the demands of various preliminary or matriculation examinations, remind me of nothing so much as of the wooden cannon which artillerymen call "Quakers"; which require for their production, in unlimited numbers, besides the blocks of wood, nothing but a turning lathe and a paint brush; and which are mounted, to deceive an enemy, in embrasures that would otherwise be vacant. There is, however, one flaw in the analogy, and that a grievous one. The results of the prevailing cramming do indeed bear to the results of education a relation like that which the aforesaid "Quakers" bear to the guns by which battles are fought and won; but our "competition wallahs," instead of being used to deceive an enemy, have been used chiefly to deceive ourselves. It is perhaps not too much to hope that the rage for producing them has reached its culminating point; for we have lately heard much controversy concerning the character of the studies by which mental training can be best promoted, and even on the question whether the Greek language should be regarded as an essential preliminary to medical education. We might as well inquire what article of food is the most nourishing, or whether some particular tonic is essential to recovery from debility; for the value of a study depends less upon its essential nature than upon the manner and spirit in which it is pursued. At present, unfortunately, our notions of education are almost entirely empirical; but surely we shall some day arrive at a science of mental culture, and, if we do so, that science will as surely be founded upon physiology, that is to say, upon an acquaintance with the structure and functions of those portions of the nervous centres which are subservient to the attainment and the application of knowledge. We are, at most, only at the commencement of investigations which may lead to such a goal, and it would be

premature, even if it were possible, to speculate upon their ultimate results.* At present, in seeking the best attainable preliminary education for the profession of medicine, we can only use the means which lie ready to our hands, such as the dead and living languages, and of all language the English language, in which our ideas are formed, and in which, chiefly, they must be imparted, mathematics and physical science, together with the indirect culture to be obtained from the topics of the day, from the personal tastes, and from the floating information of the domestic and social circles. The results to which all these should lead are of a far higher character than any fleeting or superficial proficiency in the studies or pursuits themselves. The aim should not even be to make profound scholars, or great geometricians, or deeply learned physicists; but to use scholarship, and geometry, and physics, as steps towards becoming good doctors; or, in other words, as agencies for the development of the powers and qualities of mind that will be most useful to the medical student, and that will best qualify him to tread his appointed path with diligence and with success. These may, I

---

* Our knowledge of psychology and mental physiology, although not as yet sufficient to afford much positive guidance in the conduct of education, is fully sufficient to warn us against errors into which teachers are apt to fall; not so much because they share the beliefs on which those errors are founded, as in consequence of a demand from the public, unwisely stimulated by some who should know better, for a great range of superficial acquirement. There is abundant evidence to support the opinion, even if not enough to justify the conclusion, that a great range of acquirement in the young is not merely equivalent to a sacrifice of thoroughness in each subject, but that it is the result of a kind of mental activity distinctly different from, and lower than, that by which thoroughness is obtained: so that the highly-crammed schoolboy is taught to supersede the action of the higher faculties of the mind by the action of the sensorium, and is thus subjected to a training which must, to some extent, diminish his power of performing truly intellectual operations hereafter. There was once a village schoolmaster who told his pupils, when in reading aloud they came to a word of more than three syllables, to "call it Nebuchadnezzar and go on." This represents the principle on which all cramming is founded. A child who meets with a difficulty naturally strives

think, be stated somewhat in the following order. First, the power of careful observation, the power of searching for and recognizing facts, so as to obtain materials for the operations of the judgment. Secondly, the faculty of imagination, by which to link together the known and the unknown. Thirdly, the power to maintain a suspended judgment whenever certainty is unattainable, the power to say to oneself, and, if necessary, to others, "I don't know"; the confession of ignorance being the first step towards the attainment of knowledge. Fourthly, and perhaps pre-eminently, blending with all the others and controlling them, the love of truth. No man can rightly discharge the duties which a medical practitioner owes to society, unless the love of truth be conspicuous among the qualities of his moral character, or the duties which he owes to science, unless it be equally conspicuous among the qualities of his intellect.

In the foregoing enumeration I have given the first place

---

to understand it; and an educator, by guiding and assisting his endeavour, cultivates habits of observation and reflection, and stimulates the instinctive *besoin de comprendre*. But this takes time; and a crammer, as distinguished from an educator, has no time to spare. He wants the child to be "learning" something else; and tells him to call his difficulty Nebuchadnezzar, and to go on. The child soon ceases to care about his difficulties, and is content with knowing what they are to be called; until when the period comes at which he should put away childish things, it is painfully manifest that his sense-perceptions and his memory have been quickened at the expense of his intellect, and that his reasoning powers have remained dormant, or have been suffered to decay. There are academic titles which may be likened to the yellow hair that some ladies display in conjunction with dark eyebrows. Both equally suggest that the owners have been subjected to an artificial process, which is destructive of true brilliancy; although the titles may possibly indicate an unlimited capacity for winning further distinctions at examinations analogous to those by which they were themselves obtained. I cannot refrain from calling attention to an admirable letter from Dr. Latham, published in the *Lancet* for October 18th, 1873, in which he carries my main argument a step further than I have done, and points out the evils of attempting to teach too great an extent of professional knowledge during the four years of hospital study.

to the faculty of observation; not only because it supplies the basis of all knowledge, but also because, as a matter of fact, most of the mistakes into which medical men fall in early life are dependent upon imperfection in this respect. When I was a student, we used to hear a great deal of the extraordinary rapidity of diagnosis by which an eminent surgeon, now many years deceased, was distinguished above his contemporaries. Well, some of us were unwise enough to set him up as a standard for imitation in this particular. We did not see that he had acquired the art of rapid diagnosis by the patient care and thoroughness with which, for many years, he had investigated every detail of every case presented to him; and we aimed at a similar result by neglecting everything that did not lie upon the surface of the cases presented to us. We cultivated, in short, a faculty of jumping quickly at erroneous conclusions; and, when we became practitioners, our sins were not slow to find us out. By neglecting to examine the pelvic openings, we overlooked strangulated hernia in patients whom we treated for vomiting and constipation. By neglecting auscultation, we overlooked insidious pneumonia. By neglecting the systematic analysis of urine, we overlooked the early stages of diabetes or of Bright's disease. We discovered a fracture of the shaft of a bone, without discovering an attendant dislocation; or we treated an acute inflammation of the eye, without discovering that a foreign substance was lodged beneath the upper lid. The errors which we committed, may serve to indicate the directions in which you also will be liable to fall; the more liable, I venture to say, the less you recognise the liability. Let me hope, therefore, that, in the case of each one of you, the preliminary training you have received has been such as to cultivate this faculty of observation; by which I mean the power of noticing and remembering, not only the salient, but also the seemingly subordinate features of everything to which

your attention is directed; and the power and habit of looking again, to make sure that nothing has been overlooked in the first instance. You must not be too much discouraged if you find that you are often wrong in your inferences; but you must take yourselves to task, very seriously indeed, if you often fail to see, until it is pointed out to you, something that is lying under your eyes. In such a case there are two branches of study which you will find especially useful, and which come into the early part of the curriculum; namely, osteology and botany. The labour of many generations of anatomists has constructed a description of the human skeleton from which no single particular has been omitted; and, when you first hear or read an account of one of even the simpler bones, you will be astonished to find how much there is about it to be noticed and remembered. Botanists, in like manner, have described the plants of our native flora, not only in their chief and manifest peculiarities, but also to the structure of their stipules and to the reticulation of their pollen grains. The tendency of the natural man is to regard this minuteness as redundancy; but you must rather regard it as furnishing standards by which your own powers of observation may be tested. To take a bone, or an indigenous plant, without previous minute knowledge of it, to write the best and most careful description of it that you can compass, and then to compare your work with the description given in some text-book, is a most useful, but generally a somewhat humiliating exercise. The more humiliating you find it, the more your account falls short of what has been done by others, the more reason you will have to be dissatisfied with your own powers of observation; and, being dissatisfied, to cultivate them assiduously, and to test them often. But osteology and botany are only examples, by which you may learn how carefully and how minutely the whole body should be studied in health, how carefully and how minutely it should be examined for the

changes which constitute disease. As the first step hereto, you learn anatomy; not only the comparatively coarse anatomy of the relations and distribution of parts, but also the fine anatomy of structure. To a knowledge of anatomy, of the inert machine, you strive to add, by means of physiology and chemistry, a knowledge of the machine in motion, of the functions to which the several organs are subservient, of the degrees in which they are dependent upon each other, of the mechanical and chemical changes which are produced by their activity. In this way you are led to the art of physical diagnosis; which enables you to discover alterations in the physical conditions of parts that are naturally concealed from view. Your first steps in this direction will be made in the comparatively simple domain of surgery, by the assistance of sight, touch, and hearing; and by-and-bye, more especially when you commence attendance upon the practice of the physicians, you will be aided by contrivances which enlarge the domain of these senses, as well as by others which measure and record movement and temperature. You will be able to discover, with a minuteness and certainty which even a few years ago were absolutely unhoped for, the way in which internal organs are doing their work, and the degree and manner in which their performances depart from the healthy standard. In such investigations it will be your safest course, at first, to limit yourselves to observation, to finding out facts, and to leave inferences to a more advanced period of your career. In other words, it is best to do one thing at a time. Your temptation, hearing that a patient has some given malady, will be to associate, as a mere act of memory, a changed physical condition with the morbid state by which such a change is usually wrought, and to learn by rote what you may conceive to be the physical signs of particular diseases. In the degree in which you do this you will render yourselves inaccurate observers, and will

waste valuable opportunities of education. A physical sign should at first be looked upon only as the exponent of a physical condition; although the presence of that physical condition may afterwards lead you to reflect upon what it may denote. In the practice of auscultation, for instance, you will every now and then find that the sounds commonly associated with particular diseases may be brought about by other states, —by states which have produced certain physical conditions, although different from those by which the conditions in question are produced in the ordinary way. So, if you begin by thinking of fine crepitation only as a sign of pneumonia, or of coarse crepitation only as a sign of bronchitis, or of ægophony only as a sign of pleurisy, you will be permitting yourselves to jump at conclusions instead of reasoning them out, and you will thus not only neglect the cultivation of the judgment, but you will also fall into an error of diagnosis whenever an ordinary chest sound is produced in an unusual manner. Your first care, in dealing with sounds, should be to know all the facts about them; as, for instance, where and within what limits they are audible, and what relations, in point of time, character, and frequency, they bear to the normal sounds of the same region. Next, you should endeavour to refer every sound to the physical conditions— that is, to the relations between air, fluid, and tissue, which may produce it; and only lastly should you consider how these conditions have come to be fulfilled in the particular case before you. To take an example from another sense, and from another region of the body, when you have acquired the use of the ophthalmoscope, you will sometimes meet with instances in which there is a visible pulse in the larger retinal arteries; the blood entering them in waves, instead of flowing in an even and continuous stream. Such a pulse may be dependent upon an affection of the eye which we call glaucoma, or upon certain changes in the valves or orifices

of the heart, or upon increased tension of the arterial system generally; and, to a skilled observer, it might at once declare the presence of one or other of these conditions. But its immediate cause, in every case, is a disturbance of the due balance between the force with which blood is propelled into the eye, and the resistance which is opposed to its entrance by the tissues. The force may be diminished, as in heart disease, or the resistance may be increased, as in glaucoma; but, in some way, the balance is disturbed. Before you think of heart-disease or of glaucoma you must learn to think first of a resistance to the entrance of blood which the propelling power cannot altogether overcome. You must say: Here is a certain physical condition; and only afterwards must you look farther, to find out the explanation of its occurrence; thinking out your way, from a fact which you can ascertain, to any inferences which that and its related facts will justify. In no other manner can you arrange symptoms and diseases in an orderly sequence, or preserve yourselves from errors of diagnosis in the presence of exceptional conditions.

In the formation of inferences, however—that is to say, on the very threshold of the clinical study of cases, as distinguished from the clinical study of facts, you will find the necessity of the faculty of mind which I have put in the second place, the faculty of imagination. If you have paid that attention to the meaning of words which I have already stated to be one of the chief fruits of classical study, you will require from me no definition of imagination; but, in any case, I can give you none more suggestive than that of Shakspeare, that it "bodies forth the forms of things unknown." The scientific uses of imagination have been very clearly described by a writer now too much neglected, Dugald Stewart, and have lately been made the subject of an eloquent discourse by Professor Tyndall. They depend upon the fact that actual knowledge, on every subject, whether it be human knowledge in the aggregate, or the

knowledge of any individual, is separated from the darkness of the unknown by an intermediate region, so to speak, into which some light has penetrated. It is this intermediate region which is the province of the imagination, or, if you like the phrase better, of disciplined and rational conjecture; and it is only by means of such conjecture that the boundaries of exact knowledge are extended, and that the intermediate region itself is pushed farther and farther into the unknown. Our minds, in this respect, may be likened to the explorers of a strange country, who are fully acquainted only with those portions that they have actually traversed, but who have obtained such general notions, of the belt separating them from the horizon, as will enable them to determine the directions in which they will endeavour to make further progress. As soon as we have possessed ourselves of certain facts, we call upon the imagination to account for their occurrence, and it furnishes us with some suggestion upon the subject. This suggestion is a hypothesis, which may or may not be verified by further examination. Its proper use is to determine the direction in which we shall pursue our inquiry; and we should hold ourselves ready to adopt or to abandon it, according to the results which such inquiry may produce. It once happened, I have been told, in this hospital, that two students examined, in succession, the same patient, in order to compete for a clinical prize. The first of them, on removing some of the clothing, observed a remarkable discoloration of a large portion of the surface of the body. This student possessed great powers of observation; but his imaginative faculty was for the moment dormant. He accepted the presence of the discoloration as an ultimate fact, and carefully described it in his account of the case. He made a sketch of its very irregular outline, and took careful measurements of its principal dimensions. The second student, when he came to the bedside, also saw the discoloration; but he was more imaginative than his pre-

decessor, and his imagination led him to frame the hypothesis that the phenomenon was due to the presence of dirt. He tested the accuracy of this hypothesis by means of a sponge and warm water; and established it by washing the stain away. The incident itself is trivial; but it is none the less instructive; and it may well serve to teach the attitude of mind in which we should approach the investigation of disease. As soon as we have possessed ourselves of the chief facts of a case, we form some hypothesis about its nature, and this hypothesis is then to be made the subject of inquiry. It serves to economise our time, to keep our attention within definite limits, and, under many circumstances, it saves suffering to the patient. Take, for example, the case of some distortion of a limb produced by injury. We start with a knowledge of the natural shape and relations of the injured parts. We endeavour to ascertain what was the position of the limb when the injury was received, and what was the direction in which the injurious force was exerted. We notice the character of any obvious departure from the normal outline; and on these data we frame a hypothesis as to the probable character of the hurt. We then consider how we can test the accuracy of our hypothesis; in what directions, supposing it to be true, mobility will be increased or diminished; by what movement crepitus will be produced, and by what extension the natural shape of the limb will be restored. We do not manipulate the limb in a vague and objectless way, but only in such a manner as to test our hypothesis; and, if we find something inconsistent with the hypothesis, we modify it before we pursue the inquiry. By this course the patient is spared rough or prolonged manipulation; and the mind of the surgeon anticipates and guides his hands. Proceeding to a less simple example, let us suppose that a man comes to you professing to be blind, but whose eyes present no evidence of disease. Your first conjecture may be that his blindness is

due to causes lying deeper than the eyes,—to disease of the brain, for example; and when, on inquiry into his history, you find that he has been "shaken" in a railway collision, your second conjecture may be that he is an impostor. You cannot act upon either of these conjectures until you have carefully examined into its probability. You would first ask yourselves, supposing either to be true, what other truths would it involve; and you would call upon your imagination for the symptoms that would be likely to attend upon a disease of the brain capable of causing blindness, and for the peculiarities of conduct that would be likely to attend the simulation of blindness by a cheat. If the manifest conditions of the problem were not sufficient for its solution, you would strive to vary and enlarge them by experiment; and, after all, you would perhaps arrive at the conclusion that neither of your conjectures could be sustained. The care which you would bestow upon such a case would be measured, probably, by the magnitude of the interests at stake, and by the amount of injury that an erroneous decision might inflict upon yourselves or others. But the temper of mind which these considerations would call forth is that in which all conjectures about the unknown should be regarded; and the caution which would be dictated by the special circumstances of the case supposed should be equally observed, on all occasions, for the sake of maintaining a high standard of mental activity for ourselves. It is manifest that, the more we cultivate the faculty of imagination, the more definite and clear will be the hypotheses that it will enable us to frame, and the more easy will it be to bring these hypotheses to such tests as the circumstances before us may require.

Notwithstanding our best efforts, however, we shall constantly find ourselves confronted by questions concerning which certainty is not attainable. The facts, as far as they are known to us, may baffle conjecture absolutely, or they

may appear to admit of two explanations, between which it is not possible immediately to decide. Such positions will be further complicated by this, that we are not merely philosophers, seekers after truth, but emphatically men of action; who are called upon to know whenever knowledge is attainable, but always, and under all circumstances, to do. Now it is only the philosophical mind, which, as a rule, means the trained mind, that can consciously preserve an attitude of intellectual uncertainty, receptive of all fresh evidence by which that uncertainty can be lightened or removed, while, at the same time, it is prepared to act with promptitude and decision upon the balance of probabilities. The vulgar mind is constrained, generally speaking, to assume the truth of some conjecture before it can go out in action at all; and it remains bewildered, and helpless for practical purposes, until the conjecture, whether it be true or false, has been fixed upon and adopted. We may sometimes see that a practitioner who starts with an erroneous diagnosis will continue in error to the end, notwithstanding the daily pressure of evidence that ought to undeceive him, because, in order to act upon his first conjecture, he has been obliged to assume its correctness, and thus to close his mind against the entrance of considerations which would be opposed to it. Hence the light so often thrown upon a case by a consultant, who is said to regard it from a fresh point of view; but who, in reality, only brings an unbiassed judgment to bear upon the data. It is manifest that the first attendant, if only he avoids the premature adoption of a hypothesis, should be enabled, by his more complete and exact knowledge of the facts, to correct others, instead of being liable to be corrected himself. In these considerations you may find a clue to the worth of what is called experience; which is invaluable when it is used to train the mind, deceptive and misleading when it encourages imperfect methods of investigation or faulty habits of thought.

The power of maintaining a suspended judgment, of knowing when the data present will not justify the formation of an intellectual conclusion, and hence of being prepared to examine all fresh data as they arise, and to range them on the side of the conclusion towards which they tend, is one that is absolutely essential to the philosophical inquirer, and that may perhaps be best cultivated by practical work in the domain of physical science—work which should always, I think, be based upon some knowledge of the principles of mathematics. Sir William Hamilton once objected to mathematics as an instrument of education, on the ground of its supposed tendency to render the student dissatisfied with anything short of demonstration, whereas, in life, demonstration is rarely attainable, and the course of ordinary conduct is necessarily determined by the existence of high probability. I fail to see why the mind that can appreciate the force of demonstration should on that account be less able to appreciate the value of probability; but I see abundant reason why the mind that has never realised demonstration should be misled by probability, and should mistake it for certainty. There is a homely Devonshire saying which well expresses this kind of error, which testifies to its frequency, and which attaches it to one of those elderly members of the other sex, for whose judgment proverbial wisdom has shown so little respect. The small town of Crediton, or, in the local language, "Kirton," has a fine old collegiate church, prominent above the buildings of its single street, as the cathedral towers over the buildings of Exeter. And the saying is, "That's Exeter! as the old 'ooman said,—when her seed Kirton." You, gentlemen, must be careful not thus to take the presence of Exeter for granted. In other words, you must habitually analyze your impressions, must endeavour to separate your knowledge from your conjecture, and must inquire what additional evidence would entitle you to accept your con-

jecture as knowledge. It is only in this way, by examination of your own mental acts and attitudes, that you can attain to certainty that you are using your opportunities in the manner most conducive to the full development of your powers.

For all these acts of mind, for careful observation, for disciplined imagination, and for the maintenance, when necessary, of a suspended judgment, the love of truth is, as I have already said, one of the first and most essential conditions; and the love of truth is pre-eminently a result of careful mental training. It is an error to think that truthfulness is something easy and natural; for, in fact, and in its widest sense, it is one of the last attainments of the disciplined and cultivated intellect. Children, and servants, and uneducated people generally, are as little able to adhere strictly to truth as you or I would be to walk along a tight rope. Even when they have no disposition to deceive, they have still no power of being accurate. Among the classes who are said to be educated, you will find, when you come to sift the narratives of patients, how little these narratives are to be trusted, and how much the truth that they contain will often be overlaid or distorted by a variety of erroneous impressions. If you look round at society in general, you will not fail to perceive how much more active is the desire to know what is said than the desire to know what is true. But it is only the desire to know what is true that will furnish you with an adequate motive for the careful investigation of disease, or that will enable you to resist the temptation of floating easily along the current of the fashionable doctrine of the day. If you are careless about truth, you will adopt whatever medical superstition may for the time be prevalent among the profession, or acceptable to the public. You will, for example, extol alcohol as a panacea, or you will denounce it as a poison. You will perhaps frame some new hypothesis about some common malady; and will employ all your powers in sustaining and in

defending it, before you have subjected it to any real or searching investigation. But it is characteristic of the philosopher to love truth better than his system; and, if you wish to do work that will live after you, and that will place your names among those honoured by future generations, the love of truth must be cultivated during the period of your studies, and the attainment of truth must be ever present before you, throughout your whole lives, asone of the chief ends to be desired.

If you have followed me through the foregoing observations, you will have perceived that I have assumed a certain separateness and distinctness of acts of mind which, in our daily conduct, are usually so connected or blended that we scarcely realize their original individuality. We see a fact, we form a conjecture about its cause, and our judgment becomes satisfied of the correctness of the conjecture, with, as we say, the speed of thought; and it is only seldom that we are conscious of the essential differences between the three consecutive operations. It may appear to you, at first sight, that you will be likely to form your conclusions about medical problems in this same rapid and unconscious way; and so, at some future time, I hope you will. But the analogy afforded by complex physical acts throws great light upon the manner in which we perform complex acts of mind. In the former—as, for example, in learning to play upon a musical instrument—the rapidity and skill ultimately attained are the results of the combination of separate movements, originally distinct, and each needing to be separately acquired and perfected. It is not too much to say that the skill of the musician will depend almost wholly upon the pains that he has taken to arrive at perfection in the single movements that he afterwards learns to blend; and if he slurs over these single movements, as beneath his notice and unworthy of his ambition, his performance will never attain the highest excellence. Precisely the same principle will apply to acts of mind. You

come here to learn a new mental accomplishment, or a new kind of mental activity. If you first learn to observe, and then to conjecture, and then to judge, and if you scrutinize narrowly the nature and quality of your own performances in each of these different ways, learning much from mistakes and failures, tracing them to their original sources in your own minds, and trying to guard in future against the recurrence of similar errors, forcing yourselves, as a rule, to do with especial care that which you find you are most prone to neglect, then, by-and-bye, you will reap a rich reward of your labours, and will attain to that unity and rapidity of mental action which, when they are combined with accuracy, constitute the highest perfection of skill. On the other hand, if you slur over the elementary acts, and strive to combine them prematurely, you will lay the foundation of vicious habits of mind, from which it will be very difficult, even if possible, that you should ever completely wean yourselves. The student who so misuses his opportunities may be compared, when he enters into life, to borrow a delicious simile from Bishop Earle, to "a bird not yet fledged, that hath hopped out of his nest to be chirping on a hedge, and will be straggling abroad at what peril soever." He may have read many books, and may retain a fair recollection of their contents. He may have gained prizes by the aid of memory; and may have testimonials enough to clothe himself. He may talk like an angel about the latest views of the most advanced scientific inquirers. Notwithstanding all this, when he begins to treat the sick he will make blunders, and his blunders will presently declare themselves. The saying I have already quoted, "That's Exeter!" might fitly be inscribed as an epitaph over the ashes of his intellectual failure.

In the time remaining at my disposal it would not be possible for me to speak with advantage on the general subject of the proper order and the relative values of the many different kinds of study to which your attention will be

directed. But, considering the office that I hold, I think you will expect me to say something of the relation, educationally regarded, which the special departments of practice bear to the work of the hospital as a whole. As regards the work of life, the relation is simple enough, being only one of convenience, rendered necessary by the shortness of time and the multiplicity of detail. The specialist should differ from the general practitioner by having a more exact knowledge of the details of a single subject; and he may be excused if his knowledge of the whole field of detail is in some respects deficient, so long as the deficiencies do not impair the quality of his own proper work. But his knowledge of principles must be co-extensive with that of the general practitioner; just as a lawyer would equally require to know the laws of his country, whether he practised in Kent or in Middlesex, and whether he was an advocate or a conveyancer. He who practises a single branch of the profession, without a general knowledge of the whole, is not a specialist, but a charlatan; and he who possesses the general knowledge is manifestly entitled to limit his practice within any bounds that his tastes or his opportunities may suggest. For a student, I should think it a fatal mistake to cultivate a special branch of practice to the neglect of others; but I would point out that some of the special branches offer remarkable facilities, far too little employed, for acquiring knowledge that is of general application. The diseases of the eye, and the diseases of the skin, for example, afford storehouses of facts, patent to common observation, such as are hardly furnished by maladies of any other kinds; and I cannot too strongly urge upon you a diligent attendance, as early as the other requirements of the curriculum will permit, upon the out-patient practice of these two departments: not so much for the purpose of learning ophthalmology or dermatology, as for as the purpose of learning to observe and recognise the physical changes that are wrought

by morbid action. At a more advanced period you will find that the diseases peculiar to women are often enveloped by circumstances which produce obscurity and doubt, and hence that they afford unusual opportunities for the cultivation of the judgment. Of these opportunities you should of course avail yourselves to the utmost; always remembering that they must be sought. It is the disadvantage of special departments that it is so easy to neglect them, and that they take certain kinds of disease entirely out of the general wards, to rooms where only the diligent will follow. You will not go far wrong if you remember that your treatment of a special case, when you first enter into practice, may do much to make or mar your reputation; and if you observe the rule of never neglecting any department, merely on the ground that you do not expect to practise in it. As you grow in knowledge you will find that each throws light upon all the rest; and that some acquaintance with each is indispensable to the right pursuit of any. Until this conviction comes home to your own minds, try and take it upon trust from me; and rely upon it that, whatever may be your future aims, you will best qualify yourselves to succeed in them by becoming general practitioners in the most comprehensive sense, and by leaving differentiation to be accomplished in the future.

There is, however, a branch of special study to which I must call your attention, and which I must advise you diligently to pursue. In books and lectures you will learn how to treat, and sometimes how to cure, diseases; but in the wards you may learn what is even more important, and that is, how to treat patients. The good physician must be a student of human nature, and must know how to adapt himself to its peculiarities and its requirements. It is his business to draw forth the reticent, to see through the duplicitous, to cheer the desponding, to obtain obedience from the wilful, to impress the careless, to check expectations that would end in disappoint-

ment, and generally to win the confidence of all. For the aitainment of these ends, the first thing necessary is to learn to look at illness from the patient's point of view as well as from one's own; and therefore, as a matter of course, to study the patient's character by the light of any indications that may be available for the purpose. I think it was Lady Mary Wortley Montagu who wrote that in her travels she had found only two sorts of people, men and women; and although there are many types of human character, these types are to be found in every class of life, and certainly in every hospital. The influence of education and refinement renders the men and women more obviously sympathetic, more receptive of impressions, and more responsive to them, than they would be in the absence of these advantages; but such differences often form only a thin covering to the human nature beneath; and one, moreover, that is very prone to break to pieces in the presence of disease. If we look at the matter by the light of physiology, we come to see that the deeper influences of education, of refinement, and of positions of command, require generations for their production, and that, when they are produced, generations must elapse before they fade. This being so, in the state of English society, where there is no distinction of ranks, where the children of the gentleman may sink into the proletariat, where the children of the labourer may rise not only to opulence, but also to social station, and where the members of the mercantile and trading communities are exposed to great vicissitudes, we find that these deeper influences of education are far more widely diffused than the education itself; and we also find that they are sometimes absent where at first we should expect to meet with them. Among the very poor,—among club patients, and parish patients, and hospital patients,—I have witnessed fortitude in the sufferers, and self-denial and kindness in those around them, such as could not have been surpassed in any rank of

life; and I have before now seen some local magnate, "in fair round belly, with good capon lined," who was revealed as a shivering and miserable coward, by anxiety about the prolongation of his own life, or the preservation of his own skin. But then, among club and parish patients, I have met with members of historic families that have been submerged by the waves of political change; among others, with persons claiming to be descendants of John Pym, and with persons claiming to be descendants of that Lord Stafford who was beheaded on Tower Hill, the last victim of Oates' perjuries; while, as you all know, a local magnate is sometimes but an ephemeral phenomenon. The moral I would append is that the hospital will furnish you with as much human nature as you have any need to study, in whatever class of life you may hereafter be called upon to practise; aud that, when you become clinical clerks and dressers, and are thus brought into personal relations with the patients, you should think not only of their maladies, but also of their mental characteristics, and of the way in which these should influence and guide your manner of dealing with them. You will find it possible to use the mind of almost every patient as an instrument for promoting the recovery of his body; and you will sometimes administer a moral tonic or stimulant with as much confidence as you can ever feel in a material one. There are some patients with whom you may institute a sort of intellectual partnership, and with whom you can hardly go too far in the way of explaining what you want them to do, and why you want them to do it; while there are others with whom it best to assume a tone of simple direction, telling them that this or that must be done. There are some who like to understand, as far as they are able, the meaning of their own symptoms, and who will render intelligent assistance in observing or analysing them; while there are others who would be bewildered or unnerved by the endeavour, who would spend

their time in attending to every sensation that they could suppose to be of evil import, and who require to be restrained, as much as possible, from dwelling upon themselves at all. There are some whom it is desirable to warn of probably impending dissolution; there are others to whom such a warning would be itself a death-blow. You have most of you heard of the brave sergeant, who was desperately wounded in the Crimean war, and was sent, as it was supposed, to die, to one of the hospitals on the Bosphorus. His doctor told him that he must abandon all hope of recovery; but, when next the doctor came his round, the sergeant said that he had been thinking about the matter, and had made up his mind that he would not die, but would recover, for the sake of his wife and family. He was as good as his word. Conversely, I remember the case of a young man of seventeen, whose dead parents had left him considerable wealth, but with it a sickly body, an ill-conditioned temper, and a feeble brain, and who became the subject of incipient phthisis. He was under the charge of a tutor, who took him to a physician. The physician took the tutor aside, and told him the whole truth. "He has the seeds of fatal disease, and the end is inevitable. But he will live three or four years if you take care of him, if you give him every advantage of climate and of surrounding circumstances, and if you preserve him from anxiety about himself." The tutor, either from some uncomfortable form of perverted conscientiousness, or perhaps merely from the leakiness of his mind, at once repeated the confidential communication to his pupil; and the pupil took to his bed, refused his food, and died within a week. Many years ago, when I commenced practice, I had a patient who was also a dear friend, and whose health had been broken down by repeated and severe attacks of gout. After one of these attacks, he failed to show his usual rallying power, and I expressed to his relatives my fear that he might not recover.

I did not recognise the existence of any immediate danger, and expected only the gradual ebbing away of life. What I said was communicated to him indiscreetly, and startled him. He sent for me at ten o'clock at night. I found him sitting up in bed, talking calmly to members of his family, and he desired every one but myself to withdraw, so that we were left alone together. He then said to me, "I hear you think I am not likely to recover; and I want you, as between friends, to tell me the exact truth." I replied that he had heard rightly. "How long shall I live?" he asked. I replied that I could not tell. He said, "Yes, but you have some idea upon the subject; and, if you were speaking about me to an indifferent person, you would say days, or weeks, or months. I want you to say the same to me." I said, "I think I should speak of weeks." My patient was a gentleman, and a brave soldier; and he had strung himself to bear calmly whatever he might hear; but the tension was too much for him. He smiled, apologised for having disturbed me, thanked me for my candour, and held out his hand, saying, "Good-night; it was too bad of me to bring you——" and he died instantly, with his hand in mine, and with the unfinished sentence upon his lips. You see, therefore, that there are some people to whom the anticipation of death is a shock followed by reaction, and others to whom it is a crushing blow; and the difference is only a coarse illustration of analogous differences which you may see every day in their finer shades, and which you must learn to recognise as data for your guidance. The apostle said of his own work,—"Even as I please all men in all things, not seeking mine own profit, but the profit of many, that they may be saved;" and we must be actuated by the same spirit, if we would heal the infirmities of our brethren. For this purpose we must cultivate sympathy with the sick and suffering; because it is only by sympathy that we can place ourselves, as I have said, in their point of view, and

can discover what is the help that their minds require from ours. We sometimes hear a medical man say that it is a mistake to pursue this or that course with patients,—that they require so and so, as if all patients were alike. The one thing that they do require is to be individually studied, and to be advised or directed in a manner suited to their personal peculiarities. Those who fail to see this are mostly egotists, and an egotist is too much absorbed in self-contemplation to be able to consider others, or to render himself acceptable to any with whom his ego is not in harmony; while, if you inquire into the secret of the success of men who, having very large practices, are conspicuous for the influence they obtain over persons of widely differing temperament, you will find, I think, that it is in great measure due to their power of discovering, and of quickly striking, the key-note of the character of each of those with whom they deal. In this respect women are by nature more gifted than the generality of men; and, if women should ever hereafter obtain an assured footing in the profession, their plasticity and adaptiveness of mind will hardly fail to compensate, in a certain degree, for the many disadvantages under which they would labour. But the same qualities are given in some measure to us of the coarser sex; and we may cultivate them to a very high degree, if we will systematically think of our patients before we think of ourselves; if we will regard them, not as morbid specimens, or mere aggregations of phenomena, but with a kindly human interest; if we will seek to acquaint ourselves with what is passing in their minds; if we will try to sympathise with their sufferings and their cares; and if we will encourage in ourselves habitual solicitude about their welfare.

I think it need hardly, perhaps, be said that the calling in which such preparations can contribute to success, must in its essential nature be a noble one. The work of the physician, abstractedly considered, is, indeed, in many respects the

highest to which the human intellect can be devoted; but, in the concrete, it has been debased by various accidental conditions, as well as by the human infirmities of some of those who have undertaken it. The imperfect education of the great body of practitioners, together with the imperfection of their art, tended, during several centuries, to render them of small account; and, having neither high culture nor high social consideration, they naturally gravitated towards the habits, and the modes of thought, of inferior persons, and, as naturally, their ranks were recruited from classes inferior to themselves. Hence, I think, arose traditions against which we have still to strive; and hence the origin of the unsatisfactory position which we still hold with regard to public questions, and especially with regard to questions on which our voices ought to sway the councils of the nation. Of late years, however, we have made great strides towards higher education, both general and professional; and, as individuals, we cannot complain of our position in the world. To be a doctor does not, indeed, confer any social status; but, on the other hand, it presents no impediment to the occupancy of any status to which the personal claims of the individual may entitle him. Concerning public affairs, signs of improvement are not wanting; for whereas, twenty or thirty years ago, medical men shrank, with what seems to us to have been an unwise timidity, from engaging in them, they are now showing a laudable disposition to fight the battles of science against ignorance and jobbery, and to form organisations which in time no politician will venture to neglect. In so large a body there must of necessity be some whose conduct we are compelled to deplore, either because of ignorance or carelessness, or because they prostitute their powers to the use of unworthy means, or to the attainment of unworthy ends; but in both these respects our ranks will not lose by comparison with those of any other vocation. And we must all remember

that the estimation in which a profession is held is like the structure of a coral reef,—it is the result of the lives of numbers of comparatively insignificant individuals. Each one of us holds in trust the honour of our calling, to sully or to increase its brightness; and, if I may venture to warn you against the tendency by which, in the present day, that honour is most imperilled, I should say that it is the tendency of some amongst us to measure our work by a standard of commercial value, and to degrade our skill to the level of merchandise. Skill is a gift, which it is our bounden duty to cultivate and improve, and by which we are permitted to live and prosper; but which it is also our duty to impart freely, "as good stewards of the manifold grace of God." The gift of healing, as you know, was bestowed upon the Church at her foundation; and as, in the physiological development of an organism, the fact most to be remarked is the progressive differentiation of function, so, in the development of society, we see an analogous phenomenon in the division of labour. We no longer call upon the elders to lay hands upon the sick; but neither should we lose sight of the source from which all healing springs. For my own part, therefore, I repudiate the counsel of those who tell me that I may blamelessly give away advice to a patient who has twelve shillings a week, but that I must withhold it, except in exchange for money, from him who has thirteen. I say that I will give my skill to all who ask for it, accepting thankfully such recompense as it may bring, but never turning my face from any poor man. Upon this point, which I mention because it has of late been the subject of so much discussion, every one must be a law to himself, and none should presume to dictate to the conscience of another. However widely we may differ concerning it, I think we shall at least agree in this,—that our profession constantly calls upon us to disregard those considerations which, in no opprobrious sense, I can only describe as

mercenary. Mr. Prescott Hewett will forgive me, I am sure, for repeating in his own language an observation which he once made to me, and which no other language could express so well. He said: "It is not enough for a doctor to be honest—he must be chivalrous." If we all act upon this precept in our daily work, if we never neglect our duties for the sake of ease, nor abuse our opportunities for the sake of gain, if we all determine to be honest, and all strive to be chivalrous, we shall not only elevate our profession in the estimation of mankind, but we shall have no need to guard our interests from being injured by what it is the fashion to call "indiscriminate charity." If we maintain the nobility of our calling, and take *Noblesse Oblige* for our motto, we shall at least come to resemble the House of Lords in this, that whilst we do our duties, we may safely leave our privileges to take care of themselves.

And now, gentlemen, there is above me a silent monitor, warning me that I have already trespassed too long upon your time and your indulgence, and that I must hasten to conclude. The life on which you are about to enter is one of labour and self-denial, and, save in rare cases, the rewards which attend it are hardly of a kind to impress vividly the imaginations of the young. Fame, wealth, and honour fall indeed upon a few men in our profession; and the paths which lead to them are open to all. But the vast majority must turn away from these paths, and must set themselves to work diligently under circumstances that almost preclude the attainment of distinction. We sometimes hear, therefore, that the profession is not worth following; and we are told that more money can be made by less labour in other pursuits.

> "So think the vulgar—Life and time
> Ring all their joys in one dull chime
> Of luxury and ease."

For my own part I would tell you that there is no enjoy-

ment superior to that of the harmonious and systematic exercise of the faculties of the mind; no satisfaction greater than that which is afforded by the fulfilment of duty; and that there are no lives happier, I verily believe, than those of the great majority of the members of our calling. If you ask me for the sources of their happiness, I can best reply by the aid of one of the greatest writers of fiction that ever lived; whose greatness was mainly due to his profound and accurate study of realities; and who, I think on that account, has rendered us more justice than we have received from many of his weaker brethren. Charles Dickens placed his story of Bleak House in the mouth of a heroine who becomes a doctor's wife, and who thus concludes her narrative:—

"We are not rich in the bank, but we have always prospered, and we have quite enough. I never walk out with my husband but I hear the people bless him. I never go into a house of any degree but I hear his praises, or see them in grateful eyes. I never lie down at night but that I know that in the course of that day he has alleviated pain, and soothed some fellow-creature in the time of need. I know that from the beds of those who were past recovery, thanks have often, often gone up, in the last hour, for his patient ministration. Is not this to be rich?"

I have here placed before you a picture by a master hand; and I will only observe concerning it that it is given to each one of us, if we will, to realize this picture for ourselves. It would ill become me to mar its effectiveness by any further words of mine.*

---

* Subsequently to the delivery of this address, a friend called my attention to the resemblance between its concluding paragraph, and that of an article on a similar subject, which appeared in a medical journal several years ago. I would have avoided the resemblance if I had remembered it; but, lest it should be made the foundation of a charge of plagiarism, I may mention that I was the writer also of the article.

NEW WORKS AND NEW EDITIONS FOR STUDENTS.

Royal 8vo., Illustrated, price 10s. 6d.

TEXT-BOOK OF HYGIENE AND MILITARY SURGERY. By Surgeon-General GORDON, M.D., C.B., President of the St. Andrew's Graduates' Association; Officier de la Légion d'Honneur; late on Special Service for Her Majesty's Government during the Franco-Prussian War.

"Has already attained a high character in medico-military literature."—*Boston Medical and Surgical Journal.*

New Edition, 113 Plates; Price, plain 21s., hand-coloured 42s.

THE STUDENT'S TEXT-BOOK OF ANATOMICAL PLATES. Designed under the direction of Professor MASSE, with Descriptive Text by E. BELLAMY, F.R.C.S. (Exam.), Senior Assistant-Surgeon to Charing-Cross Hospital.

"It is *the* book adopted by the Council of Instruction in France; and as a handy book, we have seen nothing to equal it for the use of students in this country."—*Medical Press.*

Demy 8vo., 40 pp., 1s.

ON THE TRAINING OF THE MIND FOR THE STUDY OF MEDICINE. A Lecture delivered at St. George's Hospital, at the opening of the Medical Sessions 1873-74, by ROBERT BRUDENELL CARTER, F.R.C.S., Professor of Ophthalmic Surgery in the Hospital.

"A remarkable address."—*Lancet.*

Fcap. 8vo., 32 pp., 1s.

ON THE PROGRESS OF MEDICINE. A Lecture delivered at the London Hospital, at the opening of the Medical Sessions 1873-74, by M. PROSSER JAMES, M.D., M.R.C.P., London, Professor of Materia Medica and Therapeutics in the College; Physician to the Hospital for Diseases of the Throat, etc.

In the Press.

LESSONS IN LARYNGOSCOPY. Designed as a guide for Students and Practitioners, by M. PROSSER JAMES, M.D., M.R.C.P. The work will be most elaborately illustrated with woodcuts and hand-coloured plates.

Crown 8vo., cloth, 2s. 6d.

NOTES ON THE PHARMACOPŒIAL PREPARATIONS. Specially arranged for the use of Students preparing for Examinations, and as a book for General Practitioners. By HANDSEL GRIFFITHS, Ph.D., L.R.C.P., etc., Librarian to the Royal College of Surgeons.

"The notes are faithful, and will be found useful to students."—*The Lancet.*

By the same Author, price 1s.

POSOLOGICAL TABLES.—A Chart for every Surgery. The Second Edition, dedicated by permission to Sir Robert Christison, Bart., is now ready.

"The best we have seen; a great boon to practitioners and students."—*Guy's Hospital Gazette.*

Demy 8vo., price 1s. 6d.

A SYSTEM OF BOTANICAL ANALYSIS, applied to the Diagnosis of British Natural Orders, for the Use of Beginners. By W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P., L.R.C.L. Edin., Librarian to the Royal College of Surgeons in Ireland.

LONDON:

BAILLIERE, TINDALL, & COX,

KING WILLIAM STREET, STRAND.

NEW WORKS AND NEW EDITIONS FOR STUDENTS.

Crown 8vo., with plate, price 2s. 6d.

SKIN DISEASES: An Inquiry into their Parasitic Origin and their Connection with Eye Affections. The Fungoid Theory of Cholera. By JABEZ HOGG, Surgeon to the Royal Westminster Ophthalmic Hospital; President of the Medical Microscopical Society of London, etc.

"We have much pleasure in recommending this little book."—*The Doctor*.

Demy 8vo., with Woodcuts and Lithographed Tables, 7s.

EXPERIMENTAL RESEARCHES ON THE CAUSES AND NATURE OF HAY FEVER. By CHARLES H. BLACKLEY, M.R.C.S., England.

"It is a piece of real honest work, original and instructive, and will well repay perusal."—*The Lancet*.

Second Edition, considerably Enlarged, price 5s.

ON FOOD: Its Chemical Composition, Nutritive Value, Adulterations, etc. By HENRY LETHEBY, M.B., M.A., Ph.D., etc., Professor of Chemistry at London Hospital, Food Analyst and Medical Officer of Health to the City of London.

"The present edition of Dr. Letheby's Lectures is practically a new book, and we confidently predict for it an enormous sale."—*Medical Press and Circular*.

Crown 8vo., price 4s. 6d.

THE SEWAGE QUESTION PRACTICALLY AND SCIENTIFICALLY CONSIDERED. Being a Series of Reports from the Sewage Farms of the United Kingdom. With Numerous Analyses, etc. By HENRY LETHEBY, M.B., M.A., Ph.D.

Fcap. 8vo., price 1s.

ON OVER-WORK AND PREMATURE MENTAL DECAY. By C. H. F. ROUTH, M.D., Lond., M.B., M.R.C.P., Consulting Physician to the North London Consumption Hospital, the Samaritan Hospital for Women, etc., etc.

Demy 8vo., price 2s.

RESPONSIBILITY AND DISEASE. A medico-legal Essay on legal questions about which the practitioner is frequently called to give evidence.

Demy 8vo., Second Edition, price 4s. 6d.

SYPHILIS: ITS NATURE AND TREATMENT. By CHARLES R. DRYSDALE, M.D., F.R.C.S., Physician to the Metropolitan Free Hospital; late Secretary, Harveian Medical Society's Committee for the Prevention of Venereal Diseases.

"We bespeak a cordial welcome for this new work, which contains, in a moderate compass, the conclusions of an industrious, painstaking syphilographer."—*Medical Press*.

Demy 8vo., Second Thousand, price 5s., with plain and coloured Illustrations.

PRACTICAL LESSONS IN THE NATURE AND TREATMENT OF SYPHILIS. Illustrated. By JOHN MORGAN, M.D., F.R.C.S., Professor of Surgical Anatomy, Royal College of Surgeons of Ireland.

"Contains much that is original and of practical importance."—*The Lancet*.

NOTICE—FOREIGN MEDICAL, SURGICAL, AND SCIENTIFIC WORKS.

MESSRS. BAILLIERE, TINDALL, AND COX, *beg to inform the Profession that they have the largest stock of these Works in London, and that they receive a* WEEKLY *case from Paris, containing the latest Continental writings, so that Works not in Stock can be supplied at the shortest possible notice.*

LONDON:

BAILLIERE, TINDALL, & COX,

KING WILLIAM STREET, STRAND.

Publishers to Charing Cross Hospital.

[PARIS AND MADRID.]