LONDON SCHOOL OF MEDICINE FOR WOMEN,

30 HENRIETTA STREET, BRUNSWICK SQUARE, W.C.

Inaugural Address

DELIVERED BY

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THE object which the authorities of this and other Medical Schools have in view in beginning each fresh year with an Introductory Address is, I presume, to afford to some older student (for we are all students at one stage or another) an opportunity of giving the advantage of his experience to those just preparing to launch into medical studies. Having himself reached the end of this preliminary stage, he may, perhaps, after reviewing his own course hitherto, and looking back regretfully, as he must do, upon time wasted through want of method and want of knowledge as to how best to attack a subject, or how far to dive into sciences akin to that of medicine, be able to warn those coming after him against the distractions and snares which beset himself. The object of the address, in short, is so far as possible, to draw out a plan or map for the guidance and direction of the starting travellers, and to give a word of encouragement and caution to the various classes and types of student.

Now I think I may take for granted, considering present circumstances, the difficulties with which this School has had to contend, and the fact that as yet the medical woman can hardly be said to be a popular person ;—considering all these things, I say, I think I may safely take for granted that all present are *bonâ fide* students, with a strong interest, so far as they can at present judge, in the profession of medicine ; and that they are all here of their own free will and consent, and by their own direct and responsible choice—that there are no unwilling daughters driven here much against the grain by the commands of inexorable fathers to learn a profession, who must be admonished upon the duty and necessity of fitting themselves to earn an honest livelihood, and who must be warned against the distractions of beer and billiards. There is no need, then, to remind you that the choice of a profession brings with it a solemn responsibility both with regard to yourself and others, for you have probably weighed the pros and cons repeatedly and carefully before taking your places here to-day as enrolled students of this School. And it is well you should feel this responsibility now at the outset, that it may serve as a goad and incentive to earnest study, so that when the anxieties of professional practice come upon you, they may find you prepared to meet them with a well-founded confidence in your own powers, and an honest determination to do your best. And let me remind you for your comfort, that though the responsibility which the practice of medicine brings with it is great, it is as nothing compared to the

still greater responsibility of doing nothing with your lives,

> "For—bear in mind—each action—nay, each thought
> Of man, works like a mason on the blocks,
> Shaping, or else defacing. 'Tis his doom;
> He cannot fly responsibility." *

Goethe says "a useless life is an early death,"—then to elect idleness is a moral suicide.

Amongst earnest medical students one recognises always, I think, two classes or types of mind. There are—

1. Those who have been drawn to the study of medicine by the interest they feel in the sciences with which it is allied and surrounded. For these the great problems, biological, chemical, physical, and psychical which environ the study of the phenomena of man's life in health and disease, possess a peculiar attraction. They are bent, too, on finding out the why and the wherefore, the origin and the pathology of disease. They are to be found in the dissecting-room, the post-mortem theatre, and the laboratories.

2. The other class are attracted by what is popularly called "the love of doctoring"—the immediate hope of mitigating and curing disease. They live in hopes of finding a specific for every malady. Science in the abstract has little attraction for them, but they are quick at observing, anxious to get through their classes as quickly as possible, and to pass on to the

* "A Character," by Lily Moresby. Macmillan, August, 1878.

hospital, where they are found diligent attenders at the elinique, aspirants for clinical clerkships and dresserships, willing to brave all the disagreeables of outdoor dispensary work, in order to have themselves the pleasure of preseribing and watehing the effects of drugs. They will oeeasionally, for lack of other matcrial, make of themselves the *corpus vile* upon which their experiments with drugs are made. A student once assured me that he had tried upon himself the effeet of every drug in the Pharmaeopœia. I partly belicved him, because from that date his health seemed to be permanently impaired.

These two elasses or types seem to me to be the modern representatives of the two ancient sects of the Dogmatists and Empirics. You remember the Dogmatists endeavoured to found medical practice upon a knowledge of science, meagre as this was in those days. For this reason they practised dissection, first upon animals and then upon the human subject, and, so far as was possible, pursued the study of physiology. The scanty appliances for scientific research at that time, however, gave rise to many falsc conelusions—from insufficient and faulty data they built up ineorreet theories, upon which they proceeded to base their practice, and in this way often fell into error. The Empirics, on the other hand, maintained that experience alone was sufficient to enable a man to practise medicine; they professedly rejeeted all reasoning in physic, especially deelared against the employment of theory, and even went so far as to ridicule the study of anatomy. This latter was, no doubt, a piece of

policy not quite unfamiliar to us in the present day, a shrewd concession, in fact, to the popular superstitious horror of anatomical studies. They laid the foundation of practice upon what they termed the Tripod of Medicine—namely, Observation, History, and Analogy. The futility of this empiric plan is sufficiently proved by the fact that we have no knowledge of any improvement having been made by its followers in the practice of physic, whilst the names of note which have been handed down to us are those of the upholders of the dogmatic system. But you will say, "Were not the Empirics right in insisting upon the necessity of observing and comparing diseases and studying their history? Is it not specially important that the physician and surgeon should do the like?" Certainly I think it is; but what I am anxious to impress upon you is that these alone are not sufficient, and that your empiricism must be based upon a broad and intelligent acquaintance with the sciences taught in this school. If Hippocrates and Galen—or even Hunter and Cullen, and the other teachers of last century—could advocate the importance of an intimate knowledge of science in their days, how much more may we impress upon you the same necessity now in the latter end of the nineteenth century, an age which has seen the birth of not a few sciences, and which has witnessed the rapid development of others from childhood to adolescence.

A glance backward will show the rapid strides made of late years. In the Middle Ages the introduction of printing had, no doubt, a most important influence upon medical science, as it had upon all science and

literature in general. The first book was printed in the middle of the fifteenth century, but the art did not of course at once come into general use. Early in the following century the system of Galen, which had held its ground for no less than 1400 years, received a shock from the sect known as Chemists, with Paracelsus at their head. This extraordinary man, who seems in many respects to have been no better than a quack, obtained great fame and influence in his day, chiefly by the introduction of mercury and laudanum, the use of which he had picked up in his travels. He was appointed Professor in the University of Basel, and had the books of Galen publicly burnt. He was unable, however, to form any system to replace that of Galen, and things might have reverted to their former state had it not been for the anatomical researches of Vesalius about the same time. In the same century appeared Servetus and Cæsalpinus, who led the way to, if they did not anticipate, Harvey's discovery of the circulation of the blood, which was made known in 1628. And while the labours of the anatomists overthrew the authority of Galen, the philosophy of Bacon replaced that of Aristotle, whose system, coupled with that of Galen, had held supreme authority in medicine for so many centuries.

Medical science was now placed upon a firm footing, with full liberty to advance, and with the printing-press to aid in the dissemination of every new discovery. Nevertheless little progress was made before another century, especially in this country. Lecky, in his "History of England in the Eighteenth Century," remarks :—"Medical science had been somewhat im-

proved, but the practice of lowering the constitution by excessive bleedings was so general that it may be questioned whether it did not kill more than it cured." In another place he observes how much the backward state of medicine was due to the popular prejudice against dissection, just as we know how in our own day advance is barred by the existing prejudice against post-mortem examinations. Towards the end of last century matters began to improve, and, indeed, if we turn to the history of any branch of medical science, the great names appear chiefly within the last hundred years. In anatomy I need only mention Bichat, who died in 1802; and the familiar names of Cuvier, of Ferrein, Rolando, and Meckel all belong to the latter half of last century. In physiology Spallanzani's book on the Circulation appeared in 1773, and later we have the works of Haller, Sœmmering, the two Hunters, and Magendie. Pathological anatomy was founded by Morgagni, whose investigations were published in 1761, but the microscopical research, which forms so important a branch of pathological study now, began, as it were, only yesterday. The compound microscope was invented in the seventeenth century, and Malpighi, in 1661, completed and supplemented Harvey's discovery of the circulation of the blood by demonstrating the passage of this fluid from the arterial to the venous system through the capillaries, by the microscopic investigation of the web of the frog's foot. After his time, however, the microscope seems to have fallen into disuse, and Goethe complains of the neglect shown to it in the beginning of this (the nine-

teenth) century.* About 1816, however, Fraunhofer discovered the art of making achromatic lenses. In 1823 the first achromatic microscope in France was presented to the Institute by M. Selligue, and since then each year has seen the publication of the most brilliant researches in normal and pathological histology. Chemistry, as a science, may surely be said to date from the discovery of oxygen by Priestley and Scheele in 1774, whilst De Candolle, the author of the Natural System of the Classification of Plants, was born in 1778, the same year in which Linnæus, the framer of the old artificial method, died. Goethe's philosophical contribution to the Science of Botany, his paper upon the Metamorphosis of Plants, appeared in 1790. With regard to the Materia Medica, one can only come to the conclusion, in looking over the Herbals of last century, that the end aimed at by the compilers of the London Dispensatory was that of getting as many ingredients as possible in each compound,† whilst the accuracy of the therapeutical knowledge of that day may be judged of by reading in the works of a physician of that period that the balsam of tolu is equally efficacious in asthma, consumption, palsy, dyspepsia, weakness of the spleen, swellings under the ears, the king's evil, and, when

* Sprüche in Prosa. Ueber naturwissenschaft.

† See Pechey's "Herbal," London, 1707, pp. 218, 318, *et passim*. The Magisterial Water of Worms of the London Dispensatory, contained eighteen ingredients, including worms and snails (!), whilst another preparation, Diasatyrion, was compounded of twenty-nine different drugs.

applied to a wound, for drawing forth the splinters of broken bones.*

It is with feelings of satisfaction, then, that we turn to our own day, and remember that in bidding you lay the foundations of practice in science, we are offering no insecure prop, but a broad and solid basis upon which to raise your superstructure. And perhaps a few minutes may be profitably spent in reviewing the different subjects which enter into the medical curriculum of the present time, and in pointing out in what way they bear upon medical learning and are likely to be of service to you in the study of disease. And without spending time in suggesting improvements in the curriculum prescribed by Examining Boards, or finding fault with examinations as at present conducted, we will obediently turn to the existing regulations, and make the best of them. I will suppose you are all working for the degree of the London University which is now open to you. In that case you have already passed the preliminary examination in Arts, and I need say nothing with reference to it. To have gone through this successfully is a proof that your previous education has been such, that you are, intellectually, in a position to follow up the study of medicine with credit to yourselves and your teachers. But now, having passed the required test of your knowledge of arts and literature, do not turn your back upon them as if you had done with them altogether. I would strongly advise all medical students to keep up some artistic or literary pursuit,

* Pechey's "Herbal," pp. 215, 216.

not only because it will prove a source of pleasure and relaxation to turn the mind into a totally different channel after the hard work of the class-room, but also because it will tend to obviate that one-sidedness of intellect, that narrowness of view, which is apt to be engendered by keeping the mind constantly bent in one direction. Indeed, I do not hesitate to express my opinion that the prejudice which has offered so many obstacles to the admission of women to our profession has been in great measure due to the deplorable want amongst its members of what Matthew Arnold calls *culture*. So much has this been impressed upon my mind, that in the various endeavours which have been made in this movement, I have always expected help, almost as a matter of course, from men who had M.A. after their names, and I do not remember being disappointed in a single instance. And this School is a striking illustration of the truth of my remark, for has it not all along been supported and worked by men whose mental attainments and breadth of intellect have deservedly placed them at the head of our profession? So I trust you will try to imitate their example, and that whilst following your professional studies with all diligence and zeal, you will still find room for other interests and other pursuits, so that every mental faculty may come in for its share of development.

The subjects which the University expects you next to take in hand do not belong to medicine proper, but are introductory to it. They are Chemistry, Experimental Physics, Botany, and Zoology. Now, how do these bear upon strictly medical studies? I imagine

you are not expected to make any great advance in these sciences. Time would not permit of that. You will have gained all that is necessary for your purpose if you get a broad and intelligent view of the principles of each. Such elementary knowledge need not and should not be what is called a smattering or a cram. A little knowledge is by no means a dangerous thing if it consists in acquaintance with broad principles, not a parrot-like retention of minute and isolated details. And unless you have such a general idea of these sciences, you will hardly find yourselves able to understand the medical books which will afterwards be put into your hands, and still less will you be capable of reasoning out the morbid processes which are going on in your patients, and of applying a rational treatment in each case.

Take Experimental Physics for example: without some acquaintance with the laws which govern the movements of fluids and which regulate their pressure, you cannot rightly understand the hydraulic principles of the circulation of the blood in the body, the variations in the heart's beat and in the arterial tension, and all the more important phenomena of the pulse; indeed, you would find yourself sadly puzzled over your text-book of physiology, or even with such a practical work as Balfour's admirable monograph on the Diseases of the Heart. Then, for a long time, physiologists were in the dark as to how the digested food could be absorbed into the lacteals—those little rootlets whose blind ends hang down in the small intestine and are bathed by the chyle as it passes along. The same difficulty was felt with regard to

the passage of the fresh and effete materials of the tissues to and from the blood-vessels, and the absorption of water through the spongioles of the roots of plants, seeing that these, too, are closed tubes. But these processes were all rendered intelligible when Dutrochet and Graham published the results of their researches upon Osmosis, by which they showed that when two liquids of a different nature are separated by a membrane, there is a constant passage from one side to the other through the membrane of the more soluble to the less soluble of the fluids. The laws relating to the diffusion of gases through membranes help us to understand the process of purification or oxydation of the blood in the lungs, where the capillaries, being exposed to the air in their course through the walls of the alveoli, absorb oxygen and give up carbonic acid in such a manner that a constant process of taking in of oxygen and giving out of carbonic acid is going on in the body. In studying physics, too, you will learn the great principles of the conservation of energy and the correlation of the physical forces, *i.e.*, that the whole amount of energy in the universe cannot undergo either increase or diminution; and though any particular form of energy may be destroyed, it is only on condition of an equivalent amount of energy in some other shape coming into existence. Thus motion will produce heat or electricity; and electricity will produce magnetism, or light, as, for instance, in the electric spark. So in an engine, by the combustion or oxydation of the fuel, heat is produced, and in its turn this is used up in the mechanical work of turning the

wheels, the quantity of heat destroyed being equivalent to the work performed. Only in this way can we satisfactorily explain the souree of energy in the human body. A certain amount of foree is stored up in the food we eat, and is developed by means of its union with the oxygen which is absorbed into the blood through the lungs; and this force is partly transformed into animal heat and partly used up in the performance of meehanical work. So that every time you move your hand, or take a walk, in respiration, in the circulation, nay, all the time you live and move and have your being, you afford an illustration of these great principles of the eonservation of energy and the eorrelation of forees.

Again, by the application of electricity to physiological research, very curious and interesting phenomena have been observed with regard to the contraction of muscles and the stimuli eonveyed by nerves, as also with respect to the relations between normal nerve-currents and the galvanic current. And, to come to more praetical matters, the increasing use of the various forms of electricity in paralysis and diseases of the nervous system renders it imperative upon medieal practitioners to have some intelligent and practical knowledge of the laws of electricity, galvanism, and magnetism, with their applications and their neeessary apparatus. And when you open your Text-book of Physiology, be it Dr. Michael Foster's or any other of the Manuals intended for medical students, you will be thankful to the University of London for having required of you some aequaintanee with opties and aeousties.

So, too, with chemistry. It is not at all necessary that a medical practitioner should be able to perform intricate chemical analyses—in this country we wisely leave that to experts; nor need we know all the odds and ends and eccentricities of the science; and I hope none of you will fall victims to the hobbies of examiners with special views of their own as to the vagaries of hydrochloric acid in its action upon other compounds, or as to the importance of doctors being well versed in the art of smelting metals and the manufacture of glass, porcelain, and earthenware. But having once grasped the general principles of chemistry, the atomic theory, the laws of combination, of substitution, and so on, and having made acquaintance with the principal chemical elements and their combinations, you will be in a position to understand the various chemical processes which are concerned in digestion, respiration, the production of animal heat, and the repair of the body, so far as they are at present known; while a short practical course will teach you all you require hereafter in practice for testing and investigating the various secretions and excretions of the body. However, I do not know that I need apologise in any way for the introduction of chemistry into the curriculum, for that delightful sequence of events which goes to make up the student's chemical experiment—a mess, a smell, and an explosion—conduces to make it one of the most popular subjects of study. Perhaps a less favourite one is Botany; and, indeed, the popular idea attached to the word only a few years back—that, namely, of pulling flowers to pieces to see to what order they belonged—

certainly savoured of monotony and clashed with one's æsthetic feelings. But, now, if you take up one of the best authorities, such, say, as Sach's Text-book of Botany, you find but a comparatively small space occupied with classification, whilst the remaining much larger number of pages are filled with delightfully interesting facts as to the development of the various parts of the plants, the laws of growth, the various processes of assimilation, respiration, and transpiration, the movements of water and gases in plants, together with the phenomena dependent upon heat, light, and electricity, and those observed in the curious class which we call sensitive plants. All these, and many other subjects, now form the special interest of botany; and, in reading them in connection with animal physiology, it is remarkable how the one science often elucidates the other, and how we find analogies between the two which tend to draw the phenomena of plant-life and animal-life into much closer relation than was once dreamt of. Indeed, recent observations lead us more than ever to the conclusion that Nature has established no very clear line of demarcation between the two kingdoms. The Volvocineæ and Diatomaceæ are at length suffered to to take their place amongst plants, but the Vibriones still go on oscillating from one side to the other of the border-line. Cellulose, which was once looked upon as peculiarly a vegetable product, has been found in the tunics of ascidians, and chlorophyll grains are to be seen imbedded in the cells of the *Hydra viridis*, a fresh-water polype. It was formerly considered that the power of assimilating ready-formed protein matter

was peculiar to the animal kingdom, but now it is known that the sundew and Venus's fly-trap, not content with the simple nourishment supplied by the air and earth, ensnare and digest insects in their hairy leaves like the most voraeious of web-spinners. The presenee of eleetrie eurrents has been demonstrated in the latter plant, and Dr. Burdon Sanderson has shown that they are snbjeet, in all respects, so far as they have been as yet investigated, to the same laws as those of animal musele and nerve.* Reeent researehes have shown that the phenomena of eontraetility and sensibility, onee supposed charaeteristic of animals alone, are exhibited also by plants. "By a series of numerous well-devised experiments, Cohn found that in the stamen of the *Centaurea*, a tissue exists whieh is exeitable by the same stimula as musele is, and whieh reacts like musele, deseribing a similar eurve when exeited, and, after reaehing its maximum, relaxing. Like the muscle it may be rendered tetanie."† The tissue eonsists of elongated eells, presenting longitudinal striæ when in repose: these eells eontract under the influenee of eertain exeitants, of eleetricity amongst others, and then show well-marked transverse striæ, whieh give them a eertain resemblanee to striated museular fibres.‡ "The amount to whieh the irritated filaments eontraet was determined by Cohn from the mean of a number of measurements in the ease of *Centaurea macrocephala* and *americana*, at 12 per eent. of the maximum length; but he eonsiders

* Sach's "Text Book of Botany," Eng. Translation, p. 689.

† Lewes, "Physical Basis of Mind," p. 128, footnote.

‡ Vulpian, "Physiologie générale et comparée du Système Nerveux," p. 33.

this estimate too low. Unger, whose measurements, seem to be more exact, gives the proportion at 26 per cent."* A muscle, during severe tetanus, will contract as much as three-fifths of its length, or 60 per cent., but in the living body, with the ordinary stimulus, the contraction is not nearly so great, probably not much greater than that of the filaments of *Centaurea*. The peculiar phenomena observable in the sensitive plants are familiar to you. There is no doubt, therefore, that we must widen our conceptions of the physiological capabilities of plants, and that our study of biology will be incomplete unless it includes the vegetable as well as the animal kingdom. To turn to matters having, as you may think, a more practical bearing on medicine, we are reminded that Von Mohl, Schleiden, and Schwann, in those researches into the nature, formation, and development of the cell, which have had so important an influence upon pathological investigations, were indebted for many of their facts to their observations, in the first place, upon the more simple vegetable cell, whilst a more intimate acquaintance with the microscopical aspect of vegetable cells has enabled us to assign the cause of various skin diseases to the presence of microscopic spores.

Then if we turn to Zoology, we shall soon find that the study of the lower grades of animal life throws a wonderful amount of light upon the structure and functions of the human organism. Many permanent forms in the lower animals are found as transition stages to something higher and more complete in man.

* Sachs, p. 797.

I give one instance only, taken from Mr. Darwin's book on the "Origin of Species" (p. 225, 5th edition). He points out that "even in the most highly organised division of the animal kingdom—namely, the vertebrata—we can start from an eye so simple, that it consists, as in the lancelet, of a little sack of transparent skin, furnished with a nerve and lined with pigment, but destitute of any other apparatus. It is a significant fact," he adds, "that even in man, according to the high authority of Virchow, the beautiful crystalline lens is formed in the embryo by an accumulation of epidermic cells, lying in a sack-like fold of the skin; and the vitreous body is formed from embryonic subcutaneous tissue." A knowledge of comparative anatomy will often conduce to a right understanding of abnormalities and congenital deformities which will be recognised as stunted or incomplete growths. In many ways, too, the observation of structure and function in animals has led to the elucidation of corresponding chapters in human anatomy and physiology, as in the instance I have already mentioned, in which the microscopical investigation of the capillaries in the frog's web enabled Malpighi to complete the demonstration of the circulation of the blood. The mention of the circulation of the blood calls to mind a curious similarity between one of the lowest types of the animal kingdom and a structure met with in the human body. On examining a drop of blood under the microscope, a proceeding doubtless familiar to all of you, you distinguish between the so-called red corpuscles which run together and form into rouleaux, and a smaller number of larger irregular bodies seen here and there

in the meshes of the rolls, and known as colourless corpuscles. If one of these bodies be carefully watched it will be seen to assume a constant variety of shapes, every portion in its turn undergoing contraction, and giving rise to processes standing out from the surface. If the blood is kept at the temperature of the body the movements continue to be very active, but if it is heated much beyond that point they cease, nor are they resumed when it is allowed to cool ; their vitality is therefore destroyed by a high temperature. If colouring matter is added to the fluid it is absorbed by these corpuscles, the nucleus being most intensely coloured. Now, if instead of a drop of blood, you place a drop of stagnant water under your microscope, in all probability you will see a number of clear colourless organisms wonderfully resembling the colourless corpuscles of the blood, presenting like them constant and rapid changes of form and thrusting out prolongations similar to the processes noticed in the latter. The small organisms which serve them for food, embraced by these processes, pass through the outer layer of the body, which then closes up and repairs the rent so formed. They absorb colouring matter like the blood corpuscles, and like them lose the power of movement when heated to 40° or 50° C. These minute organisms are the Amœbæ or Proteus animalcules, and it is, to say the least of it, highly interesting to find so many points of resemblance between an animal of so simple a type, leading an independent existence, and an organism found in so highly complex a fluid as the blood, and unable to carry on a separate existence apart from it. But per-

haps no portion of Biology has a more important and practical bearing upon medicine than that which treats of the Comparative Anatomy and Physiology of the Nervous System. You can easily understand what light must thereby be thrown upon the localisation of function and of the intellectual faculties, and hence of the site of lesion in diseases of the nervous system. The student begins with those animals in which as yet no traces of nerves have been discovered; studies their life history, learns of what movements and functions they are capable. He then proceeds to the next group, in which traces of a very simple arrangement of nerve fibres and ganglia are recognisable, and detects in what way they are in advance of the former class, and so on up the scale till he arrives at his own complicated nervous system. I do not mean that in this way we could obtain an infallible demonstration of the connection between a special faculty and a given portion of the nervous system, as there is no doubt that in a simple organism one organ has to perform a number of functions which in a higher grade would be apportioned among several organs—just as we find that in a simple community one individual will carry on numerous avocations which a more civilised society divides amongst several workers. Still, taken in connection with the pathological anatomy of nervous diseases, it is certain that such studies will prove of immense advantage. There could be no better introduction, for instance, to the study of such works as Professor Charcot's on the Diseases of the Nervous System, and his lectures upon the localisation of such diseases, than Professor Vulpian's Lessons on the

Physiology, general and comparative, of the Nervous System; and it is certain that to comparative anatomists as well as to pathologists is due something of the enormous advance in our knowledge of the causes of nervous diseases and their improved treatment, which has been made during this century; an advance which you will fully appreciate if, after reading what is to be found on the subject in the works, say of Cullen, or of Good, you turn to the perusal of Charcot, Hammond, or Wilks.

Now I hope that as soon as you have studied these introductory subjects of Chemistry, Biology, and Experimental Physics, you will go up for the Preliminary Scientific Examination of the London University, because you will find it a great help to take examinations as you take the subjects, in their proper sequence, and you will experience, too, a great relief as each of these times of ordeal is translated from the future into the past, and you feel that you can devote your undivided attention to the subjects which come next to hand. And the classes next in order are as difficult as they are necessary. There is nothing in the whole curriculum which puts such a strain upon the memory as Anatomy, nothing which is acquired with so much difficulty, nor which slips out of the mind with such provoking facility. It is only by continuous plodding that you will master the multitudinous details of the origin and insertion of muscles, the course, the branches, and anastomoses of arteries, and the intricacies of the nervous system. Perhaps a better motto could not be inscribed over your anatomical class-room than the somewhat expressive one of Giles Hoggett in the "Last

Chronieles of Barset," "It's dogged as does it." Of the importanee of a thorough aequaintanee with Anatomy and Physiology as the only sure groundwork of medieal praetiee I need hardly speak. As well might you take your watch to a tailor to be mended, or expeet a chimney-sweep to be able to put a locomotive in repair, as call in a person ignorant of anatomy and physiology to attempt the eure of disease. How ean you have any idea of what is wrong unless you have studied the structure and funetion of the meehanism? And before you ean do any good with either medieine or surgery, you must have studied thoroughly the structure of the human body, that is its anatomy, and the funetions of eaeh organ, that is its physiology. Side by side with these we put materia medica and therapeutics, whieh treat of the aetion of drugs, and the effeets produced by the use of eertain remedies in eertain diseases—the preliminary to treatment then, as anatomy and physiology are to diagnosis.

From these you pass on to Morbid Anatomy and Pathology, whieh treat of structure and funetion as altered and modified by disease, and all this while I advise you to devote as mueh time as possible to praetieal work, first in the disseeting-room and the physiological laboratory, and afterwards in the post-mortem theatre and pathologieal work-room, making good use of your mieroseopes. And now that your pathologieal studies bring you to the elinieal work of the hospital, you will start fair, and not follow the lecturer round the wards understanding only half the explanations he gives from ignorance of first principles. Arrived at this stage, I hope you will make use of the very useful "Pocket

Index" which Mrs. Anderson drew up with a special view to your benefit last year, and which will be a reminder to you to study each case thoroughly and carefully. By this time I trust you will have passed your first M.B. examination, but for all that you will need to refresh your memory as to your anatomy. Suppose, for instance, you are studying a medical case, say some hepatic disease. Begin at the very beginning, by reading up the anatomy of the liver in Quain or some other text-book; its Histology in Frey; its Pathological Anatomy in the given disease in Rindfleisch; and lastly, its Pathology in your Text-book of Medicine. With regard to the latter, I may say that though you will find concise text-books of the Practice of Medicine very useful in studying for an examination, you will derive much more benefit when studying on your own account from the perusal of monographs. For instance, in this case I should advise you to read in Murchison the chapter relating to the subject in question. You will find it more interesting, and therefore more easily remembered, and you have the advantage also of the opinion of one who has given special attention to that class of maladies. Now is the time for the second class of students to follow the full bent of their inclination; to make use, if they will, of the Tripod of the Empirics; to put their powers of observation to the test, to follow out the history of disease, and to trace out analogies in maladies and in methods of treatment. And the other class of students must leave their laboratories for the bedside and the dispensary, and learn to record symptoms and note changes, and watch the effect of drugs with as much patience as they have shown under the

repeated failures of a chemieal experiment, or in the microseopical investigation of the lymphaties or nerve tissue. Of the remaining subjects of study there is no time to speak. You will at once pereeive the great importance to yourselves of a thorough acquaintance with the theory and praetice of Obstetric Medicine and the Diseases of Women and Children, the class amongst whieh your praetice will lie. Forensic medicine is in some respects a recapitulation of what you will have already learnt in the lectures on chemistry and the materia mediea, but in addition you will be taught the method of legal procedure in regard to medical cases as praetised in this country. In these times, when women on all hands are having their claims conceded to them, Æsculapius also has had to yield to his goddess daughter Hygeia some portion of the divine honours hitherto monopolised by himself; so that now the divinity can make herself heard, and that lecture-ships are being founded in her name in most medical schools, we will hope that the first article in the creed of her votaries—"Prevention is better than cure"—will be not only inculcated, but acted upon, by the rising generation of medical men and women. I see, too, that you have the advantage, not to be found in every school, of special courses on Ophthalmic Surgery and Mental Pathology, by lecturers of the highest note in those subjects. In every respeet I think you have reason to thank the Executive Committee for the excellent arrangements they have made on your behalf both in the School and in the Hospital. It only remains with you now to do the best for yourselves by steady application and honest work.

Hitherto I have addressed myself to two classes of students, both intensely interested in the study of medicine, but of different types of mind. It is possible there may be another class represented here, who study not from any special taste for medical pursuits, but as a means to an end; in order, namely, that they may be more useful in the future they have planned for themselves. I refer to medical missionaries. And if there are any such here, may I be permitted to hope that you are all working for the degree of the London University.* Go out with the best credentials possible, and as you belong to two professions, see that you serve both faithfully. I confess that I have been somewhat horrified to hear occasionally remarks from the supporters of medical missions, to the effect that a diploma is not necessary, that a full curriculum is superfluous—in fact, that a mere smattering is sufficient for such students. I cannot believe that such sentiments are held by the students themselves, and if there are any here to-day, I beg of you not for one moment to give way to this idea.† Is

* I make this remark not because I consider the examination of the London University a better one than that of the College of Physicians of Ireland, but the curriculum is wider. Also the possession of the title of Doctor and the association with London carry more weight with the people of other countries, and with our fellow-subjects in India.

† If these words can in any way strengthen the hands of those missionary students now at the School, who I believe feel as strongly as I do in this matter, and who have resolutely taken the full curriculum, in spite of any temptation or encouragement to do otherwise, I shall indeed be glad. Some of the most distinguished students at the School, whose names appear constantly in the prize lists, are training as medical missionaries.

human life worth less in other lands, amongst people of another faith—or do such persons imagine that disease there is of a simpler nature, and that the heathen, like the wicked, are "not in trouble as other men?" It is true that the English, with their luxurious habits, have brought down a heap of troubles upon themselves, and that amongst nations with a simpler mode of life you will find less material for the study of the indigestions and the nervous ailments which form so large a part of the doctor's practice in this country. Yet, though the enemy wear a different face, he will still have to be fought, and the struggle will require as much science and skill there as here. Therefore be well prepared, and do your work well. "Christian England" is renowned in every land for her adulterated goods; let it not be said that under the very guise of Christianity the medical help she sends out is also an inferior article. Let it not be said of you hereafter, as was said of some medical missionaries more than one hundred years ago, "The usual introduction and security of these missionaries is the pretence to the practice of physic, that in destroying bodies they may save souls,"* but let your practice prove you a worthy member of the profession by saving life, or, where that is impossible, by lessening pain and smoothing the passage to the grave. Remember, too, that you have an additional incentive to the study of the auxiliary sciences of biology and botany, in view of the exceptionally advantageous position in which you are likely to be placed for their pursuit; and that it may be in

* "Discourse on Inoculation," by La Condamine. Preface by Translator (Maty). 1755.

your power to benefit mankind by additions to our knowledge of these sciences, if you undergo a training here which will enable you to take advantage of the resources open to you in the Fauna and Flora of countries hitherto little explored.

. . . . .

In beginning any undertaking, we naturally look forward and hope for success. But to different minds success conveys various meanings. What meaning have you attached to it? What success are you looking forward to? Is it that of a large practice with a large income? Well, that is one kind of success, certainly, and what the world understands when it speaks of a "successful physician." It is an end, too, which I fancy is not very difficult of attainment. The medical profession holds out no great prizes, certainly, in the way of appointments, least of all to women; still there is a constant need of intelligent practitioners, and, so far as I can judge, an increasing desire and need for properly-qualified women. So that any of you, working steadily with this end in view, might very probably find yourselves at the end of ten or twelve years in possession of a large and lucrative practice. But is that not rather a low form of success? Would it not be better to aim at something higher, even at the risk of failure?

> "For we know
> How far high failure overleaps the bound
> Of low successes."

I would rather believe that you are all animated

with the desire of leaving the world better and richer and wiser for your presence in it; and that, looking round upon the domain of medical science, and perceiving how, in spite of the immense strides of late years, our knowledge is infinitesimal in comparison of our ignorance, you will each one set to work to clear up, if may be, some of the mists with which that ignorance enshrouds us, that you will endeavour to carry the light of truth into dark places, and to do what in you lies, in however humble and small a way, to further the prevention and cure of disease. Sydenham, in the preface to his writings, says, "But how great soever others' endeavours have been, I always thought I liv'd in vain, unless I, being of the same employment, contributed something, how small soever, to the Treasury of Physick."* Animated by such feelings, he so busied himself in his calling, that he was enabled to leave us those wonderfully graphic descriptions of the various epidemics of his time, which form an epoch in the history of medicine; and the modern appreciation of his labours to promote the art of healing is testified by the existence of the Society which bears his name, by whose means the most valuable additions to foreign medical literature are made intelligible to English-speaking nations. Beginning with such a modest estimate of his own powers, but with such a high aim, he gave an impetus to the study of medicine which is felt even to the present day, and which may well urge us to look to him as an example for our imitation. Following the

* Sydenham's Works. Translation by John Pechey, Tenth Edition, 1734.

same aim, we may be pretty confident that we, too, shall not have lived in vain.

A reviewer once said of Thackeray that the highest aim and desire he had for his readers was conveyed in the words, "Be each, pray God, a gentleman!" To my mind, a very high and noble desire; nor do I see that I can, in conclusion, take leave of you more appropriately than with a similar wish, "Be each, pray God, a gentlewoman!" There is no profession which calls more urgently than does that of medicine for the exercise of those qualities summed up in the words, Gentleman, Gentlewoman.—Gentleness towards the weak, forbearance towards those whom sickness and trouble have made forgetful of the little courtesies of life, that genuine self-respect which is not always standing upon its own dignity, infinite patience with the young and the ignorant, a willingness to confess yourself in the dark or in the wrong—all these virtues should characterise your conduct towards your patients. And to your brothers and sisters in the profession, I trust you will always show that consideration for another's feelings which we owe to all our fellows with whom we may come in contact, and that temperance and courtesy towards those who may differ from you in opinion (however firmly convinced you may be of their error), which comes from an honest endeavour to look fairly at both sides of a question, and without which discussion becomes useless, and controversy sinks from the platform of argument to the low level of invective. And now I wish you a happy and prosperous Session!

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