On clinical instruction : a lecture introductory to the first course of clinical medicine in connection with the Edinburgh School of Medicine for Women : delivered at Leith Hospital, on 18th October 1887 / by J. Allan Gray.

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CLINICAL INSTRUCTION.

A LECTURE

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IN CONNECTION WITH

THE EDINBURGH SCHOOL OF MEDICINE FOR WOMEN.

DELIVERED AT LEITH HOSPITAL,

ON 18TH OCTOBER 1887.

BY

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STUDENTS OF MEDICINE,

"He who has made a beginning has done half the work," *Dimidium facti qui cœpit habet*, is surely a cheering precept for beginners. But did the old Roman who wrote these words simply expound on the difficulty of beginnings in general? I think not. Rather do I feel that with prophetic vision the sly old man foresaw the labour of preparing an introductory lecture, and the infliction of listening to one, and concluded accordingly that for teacher and for taught alike the first day of the session was as bad as all the rest of the term put together. Be that as it may, however, we are meet together this afternoon to introduce ourselves to that department of professional study—Clinical Medicine—which is to be the subject of our consideration during the coming winter.

Clinical Medicine, then, is just the practice of medicine as conducted at the bedside. It deals with the art of applying to the sick the special laws which the science of medicine has formulated, and it has thus naturally both a practical and a scientific aspect.

In the beginning of time, medicine was of course, empirical,—an art founded on observation and experience, but an art unattended by and uncontrolled by any scientific principle. Theories of some kind there must have been even then, since it is hardly possible to conceive of men using methods without holding some view of how these methods were to operate, and how the result which they desired was to be obtained. But these early theories were altogether unscientific. They had as their basis the religion or philosophy of the time, for the earlier medicine-men were priests as well as physicians, and the temples of gods were the houses of healing.

Hippocrates himself, the father of rational medicine and the earliest writer on the subject, was an Æsculapian priest in the temple of Cos, more than 400 years before the birth of Christ. For many centuries thereafter this union of religion and medicine was maintained, and in uncivilised countries, it continues still. In early Christian times, the saints had possibly some knowledge of the healing art, and so acquired their reputation as miracle workers. In the middle ages, the religious orders united the priestly and the healing functions, and the religious houses, in which they dwelt, were the analogues of the Asclepia or Grecian temples of old, and thus were the churches and hospitals of the land. Recognition of this union of religion and physic is easily to be found in our popular nomenclature. We speak still of "St Vitus' Dance," "St Anthony's Fire," "Friars' Balsam," and the "Jesuit's Bark," while the name given to our most important ambulance association is a courteous acknowledgment of the world's indebtedness to the well-known Knights of St John. For the 2000 years and more during which this union lasted, many theories of medicine rose and fell, but all of them were consistently fantastic or crude. At first all diseases were ascribed to the gods and all therapeutic triumphs to their benevolence. Even Hippocrates, with whom began Rational Empiricism, and to whom we owe the recognition of the grand principle that all scientific advance and rational treatment must spring from careful observation, was himself in theory a humoral pathologist—a believer, therefore, in a doctrine which is now completely abandoned. By some of the physicians of the middle ages it was held that each organ in the human body was presided over by a certain spirit, and that disease was caused by the temporary ill-humour of some specially malicious demon, or as the outcome of a general contention among the spiritual presidents. It is easy to see that these attempted explanations of facts sprung from the inner consciousness of the men who maintained them, and were not evolved, as the best of the latter-day theories are, from a reasoned consideration of facts.

Time, however, passed on, and with the re-awakening of learning in general, came a return to the methods inculcated by the father of medicine—a return to the careful observation

of phenomena and to the treatment founded thereon. In the hands of Sydenham, the great English physician, this resurrection began, and many have been the comments on the points of resemblance between his methods and those of Hippocrates. Suffice it however to say, that from those days to the present time, the careful observation of phenomena has been the rule, and that from the first of this time, as the results of experience became multiplied, explanations of these results were attempted, rational theories formed, and so the scientific side of our profession began. Yet for long the practical side maintained its lead. Methods of precision were awanting to support or refute the conclusions of the unaided senses; and theory, which could neither collect facts for itself, nor recognise them as such when found, was often at fault in its hasty generalisations, and so fell into disrepute. Empiricism, on the other hand, though working in the midst of a like uncertainty, was able to teach it followers many isolated data (though unable to explain their causation), and thus it came about that the deeds of our medical forefathers were often superior to the faith that was in them.

But with the growth of natural science, and its application to medicine, the relations between theory and practice changed. They are no longer what they were. During the past fifty years, medicine, as a science, has progressed at a rate with which medicine as an art has been unable to keep pace. No doubt our art has in that time advanced much, as I shall be able to point out to you when we come to speak of the question of treatment, but our science has meanwhile advanced more. Unquestionably, it had more leeway to recover. But so quick has been its progress since the introduction of more precise methods of investigation—such as the microscope, the stethoscope, and the like—that we seem now-a-days in danger of allowing the scientific side of our profession to altogether overshadow the practical. That this should happen would be a great misfortune, since the ultimate purpose of all our special study and training is the prevention and treatment of disease. This view of our purpose should never be lost sight of; indeed, it cannot be too strongly insisted upon. We may be scientific men, but we must be practical physicians. Very fascinating is

it to the scientific man, armed with his many instruments of research, to have set before him any particular case, and after more or less of investigation, to be able to tell the patient precisely what his ailment is, to explain to him its causation, to trace for him its past progress, and to forecast for him its future course. Very fascinating to the investigator, no doubt, is all this, and highly productive of respect and confidence from the patient, but what after all does the latter care for this, if he receives no alleviation of his pain, nor removal of the cause of his physical discomfort. That we should be cultured and thoroughly trained is well, that we should be scientific and capable of explaining the phenomena of health and disease is well, that we should be learned in all the learning of the later-day priests of philosophy and physic is well, but it is better that we should be good practitioners.

Yet it is by no means impossible to combine science and art in medicine; rather, indeed, is it rare to find them completely separated. For such is the natural action, and reaction, of science and its practical application, that no one can be a thoroughly good and reliable practitioner, who has not an ample knowledge of the theory which underlies sound practice, and who does not possess a well-trained intellect. Thus it comes about that in the healing art, as in other applied arts, theory and practice are alike necessary, and that the typical physician must be a cultured scientist as well as a practical adept. Furthermore, it is in the healthy rivalry between the theoretical and practical aspects of medicine that there lies the certainty of continued advance in methods of treatment.

Clinical instruction, as I have said, is the teaching of our art as practised at the bedside. It deals with the individual sick man as he presents himself to us, and it is the final training given by the teacher to the medical student before the latter embarks in practice. Its importance is therefore very great. The more perfectly this instruction is given on the one hand, and the more thoroughly its lessons are learned on the other, the better fitted will the student be for the life-work which is to follow. Clinical instruction has been given in many ways, and each period of time has had its own fashion. How it was

managed in prehippocratic days we do not know, but from those days downwards it has occupied a more or less conspicuous place. Some 50 years ago, however, its position in the medical curriculum was far from satisfactory, and it is due in great measure to the recognition of that fact by the Edinburgh Medical School, that clinical instruction now occupies the altogether prominent place which it deserves.

Until a comparatively recent date every doctor had his pupil or pupils, whom he trained in the technicalities of his art. These were lads fresh from school, and altogether innocent of any scientific knowledge. They received their first lessons in medicine and surgery from the hands of their master, and those lessons consisted chiefly and most importantly of clinical education. Both by precept, and example, they were taught in such matters as bleeding and blistering, clystering and setoning; besides which they were instructed how to prepare potions, make up boluses, and, generally speaking, to acquire that knowledge of the "Ruddimans" which Japhet's friend found so irksome. Their further trials consisted of attendance on a few theoretical classes, a brief time of walking the hospitals, an examination, and the presentation of a thesis—more or less original in its matter and latinity—and that was all. But, however excellent this arrangement was in the days when the knowledge of scientific medicine was scanty and practical physic was all important, it would certainly be a most inconvenient method now. For, students, you will find that the more you have of theoretic knowledge, the more you will benefit by what you see in the wards, and by what you are taught there. Now-a-days, we try to make the *ipse dixits* as few as possible and the explanations as full as may be. Thus it happens that clinical instruction—the special department of our profession which formed the elementary training of our forefathers—becomes the final training of the later-day men. And of so great moment is this clinical teaching, though so little time is there left for it now at college, thanks to the preponderance of the scientific classes in our curriculum, that teachers, almost without exception, advise the fledgling M.D. to obtain, after graduation, an hospital appointment, or become an assistant to a good class practitioner for, at least, twelve months.

Upon the importance of clinical teaching I feel I cannot dilate to much. It is in this course that the student first begins to fully understand the purpose of all the preliminary training. Here is seen the application of the dry details found often so flat and uninteresting in the theoretic courses. Here are picked up, and attached, the little threads of deduction from those big general laws, which appeared very great and imposing when looked at as scientific truths, but which seemed altogether too grand to descend to the level of every day practice. The work which you will learn to do in hospital is really the end and aim of all the previous training, though the culture which that previous training gives, constitutes one important plea for the retention in our course of medical study of those extra-scientific subjects which bear but remotely on medicine pure and proper. The scope of our subject is very wide. It is necessarily as great as the whole range of the healing art. In the teaching at the bedside there is, on the one hand, no law in medicine or surgery which may not have to be noticed, and its application explained, and on the other *ex ungue leonem* no detail of symptomatology too trivial to be pointed out. To the bedside-teaching, therefore, the student should bring a mind well trained, and a memory stored with the laws and facts of science. All the chemistry, anatomy physiology, and pathology which can be learned in theoretic and practical courses devoted to these, will from time to time be laid under demand in the diagnosis and explanation of disease, while all the pharmacological knowledge, which a growing Materia Medica can give, will be pressed to do service in the treatment.

It is, then, with the aspect of Medicine as an art that we have here to deal. And first, what does this art embrace? What have I got to teach you here? To that question the answer is the diagnosis, causation, prognosis, and treatment of disease; and in doing this, I have to draw your attention alike to all that rational empiricism (the result of experience) as well as scientific culture (theoretic explanations and forecasts) can teach.

For *diagnosis* two things are necessary — (1) Detection of facts; and (2) Reasoning therefrom. This is the whole matter

in a nutshell. But to get at facts is not always an easy thing. To this end education is necessary, and education in a certain direction. Let us take an example: A russet coloured leaf is shown to half-a-dozen boys, and they are asked to say what tint it has. Each thinks the matter over for a time, and then with some hesitation gives his answer more or less in accordance with his idea of the predominating hue, but none of the lads specifies exactly the colour. The same leaf is then shown to a like number of artists, who at once agree in declaring what the exact hue is, though some may find the tint to differ a little from what they regard as a typical russet colour. So it is with facts in medicine. Learners hesitate and stumble at first, until they have trained their senses to recognise phenomena as these are presented to them. The masters of our profession, on the other hand, almost without exception, agree on the major peculiarities of a case, though they may differ enough on the details to warrant still the old reproach regarding doctors' differences. To recognise phenomena, then, for what they are, is to recognise facts. Each of the children in our example, no doubt, looked at the leaf, possibly even handled it, but his training did not enable him to say what colour it had,

> "A primrose by the river's brim
> A yellow primrose was to him,
> And it was nothing more."

But to us it must be something more. Learn, then, to educate your senses. The better you can see, hear, smell, and feel, the more likely are you to develop into correct appreciators of facts. Note all small differences, for it is on these that at times so much depends in diagnosis. But on the other hand, note what small differences are of moment, and what are unimportant. Nothing redounds to one's credit more than to diagnose a case correctly from trivial circumstances, but nothing makes one look more foolish than to magnify these trivial circumstances unnaturally.

How then are your senses to be educated in medicine? Just in the same way as you have been educating them all your lives, by experience—by making your eyes see, your ears hear, and your fingers feel, by having pointed out to you, and by noting for yourselves, the characteristics of the matters with which you

come in contact, especially all the differences between things that have any resemblance, and further by realising these differences so that you can recognise them again when they come before you. Think what our medical forefathers were able to do by the employment of their unaided senses. Look at the written records which Hippocrates and Galen were able to leave behind them. Think of these, and remember that of instruments of precision they possessed none, and you will be as much struck with wonder at the magnitude and the correctness of their results in practical medicine, as you will be at the grandeur of the engineering projects of the ancients, when you gaze on the pyramids of Egypt, or the aqueducts of Rome. Teach, then, these senses of yours, for on the correctness and extent of this teaching (if you are of a conscientious mind) will depend your mental comfort and your medical usefulness. Unaided by instruments, your trained senses will teach you much. You are called, let us say, to a case of typhus fever. You enter the room, and as you do so, your nostrils are assailed by an odour whose acquaintance you made in the fever wards. You advance towards the bed, and on it see lying a patient with dusky face, with eyes half open but visionless, with lips and teeth clad with sordes. You stand for a few seconds observant; you see his hands move about in purposeless search; you hear his dry lips muttering in low delirium; you note his rapid breathing; and you hear the mucus rattling in his chest. Now, you lay your hand upon his wrist. You remark the pungent warmth of his skin, and the small, weak, frequent pulse. You raise his half closed eyelids, and note the suffused conjunctiva and the contracted pupil. What more is necessary to confirm your diagnosis than to bare the patient's chest and find there the mottled rash of typhus? All the facts that were needed for the diagnosis in this case were gathered by the unaided senses—a matter such as any ordinary well-skilled nurse could have done.

Then, students, when you have exhausted the information which your unaided senses can give you, we will place in your hands instruments of precision—the stethoscope, to conduct to your ears the sound of chest and abdomen; the sphygmograph and cardiograph, to tell you the special characteristics of the beats of the pulse and

heart; the laryngoscope, to show you the interior of the larynx; the ophthalmoscope, to reveal the secret recesses of the eye; the hæmoglobinometer, to tell you the tint of your patient's blood; the hæmocytometer, to number his blood corpuscles; and, above all and beyond all, the microscope, to disclose to you its wide world of wonders.

Now, with trained senses and armed with instruments, how do you proceed to gather your facts for diagnosis? Here method comes to the rescue. It is well known to all that the human mechanism consists of several parts which, though mutually dependent, may yet be regarded as individually separate. These are the so-called systems—nervous, circulatory, respiratory, integumentary, and the like. Taking advantage of this natural division, methods of case-taking have been drawn up which enable the student, by asking questions of the patient, and by examining the patient's person, to obtain all the information which it is possible to get regarding the nature and state of the ailment. The mode of using this method correctly and efficiently will be shown you in the wards.

In all diagnosis, as I have said, there are two things to be noted: the detection of facts, and the reasoning therefrom. To the former of these I have hitherto directed most attention, since when the facts are collected the reasoning is not so difficult of application. In the class of practice of physic, you were told that a certain disease had certain signs and symptoms. Here you have the reverse process. Now, the problem is—given certain signs and symptoms, what is the disease? In this, your education in the practice of physic class helps. What always appears to me to render diagnosis more difficult is that you do not emphasize certain signs enough. Every case and every ailment have some definite points, and though all points are far from being of equal value, the good diagnostician soon learns on which signs to lay greatest stress. As a conclusion to what I have to say on diagnosis, and as an instance of acuteness in reading signs worthy of a place in every practitioner's mind, I may cite to you a paragraph which was copied into a medical paper some five years ago: "About two miles from town he suddenly checked his horse, gazed intently on the ground, and said, 'Some fellow has lost his

saddle horse here this morning.' There was no advertisement on any of the trees offering a reward for a lost horse, and as there was no lost horse in sight, we failed to understand how, if a horse was lost, our friend could know so much about it. The Doctor inquired, 'How do you know that the horse is lost?' 'I see his tracks.' 'Are there not hundreds of horses pasturing on the prairie, and how do you know that this is not the track of one of them?' 'Because he is shod, and the horses herding on the prairie do not wear shoes.' 'How do you know that he is a saddle horse and is lost?' I see a rope track alongside his trail; the horse has a saddle on, and the rope hangs from the horn of the saddle.' 'But why may he not be a horse that some one has ridden over this way this morning, and why do you insist that he is lost?' 'Because if a man had been on his back he would have ridden him on a straight course; but this horse has moved from side to side of the road as he strolled along, and that is a plain sign that he grazed as he went and that he had no rider.' 'After that it would not surprise me,' said the Doctor, 'if you were to tell us the age of the horse and the name of the owner.' 'Well that would not be very hard to do. There are signs that have told me the owner's name, and there are signs that, if I had time to examine, would tell me his age. I know he is one of old man Pendergrast's horses. Pendergrast has a large bunch of horses down in the bottom, and an old nigger down there does all his shoeing, and shoes no other horses except his. So we know his shoe-track, just the same as we know his brand.'"

Causation is at present the weakest part of medicine, though one which is likely to make great progress in the future. Our knowledge of the etiology (or causation) of disease has in recent times received considerable additions from bacteriological investigation, and no reference to this part of the subject would be complete without mention being made of Pasteur's great hypothesis, the germ theory, and Koch's brilliant discovery the bacillus of phthisis. But, besides this method of increasing our knowledge of the causation of disease by experiment, of which the illustrations just mentioned are splendid examples, and which is what falls to be taught you in the laboratory, there is that of increasing it by careful observation of isolated facts and

of statistics. This is what we have to teach you here. Edward Jenner noted that the dairymaids who had become inoculated with cowpox, escaped taking smallpox, and deduced therefrom his remarkable discovery of vaccination. It cannot be given to all to make such a grand discovery, but we can all at least make notes in mind or book of what comes before us. For instance, I have no doubt many of the Leith doctors, like myself, have noted the comparative rarity of cases of consumption here, and the comparative frequency of cancer. But it was given to Dr Haviland to point out, from a consideration of the British mortality returns for many years, that what had been noted in regard to Leith was common to the whole of Britain—namely, that the deaths from phthisis and cancer were always in the inverse ratio to one another—and that where the mortality from the one was proportionately high, that from the other was proportionately low. Further, in reference to Leith, I have remarked the great absence of enteric fever. It is now about nine years since I commenced practice here, and though during that time I have treated a good many cases of that ailment, I believe I am quite within the mark if I say that I don't remember seeing one case whose origin could not be satisfactorily traced to contamination elsewhere. I need hardly say I do not use the term enteric fever as a *regnum protisticum* unto which all undiagnosed cases should be relegated. It may be a coincidence that I have failed to get my fair proportion of Leith-begot typhoid; but if not, then it speaks much for the sewerage arrangements of our town. There is another disease of which we see little in this region—namely, true rheumatic fever. Ordinary chronic rheumatism, and rheumatoid arthritis, both of gouty and other origin, we have in plenty, "sat et parcere," but of true rheumatic fever very little. These, and such like matters as these, are the considerations which fall to be shown you under the head of causation.

Prognosis is so essentially depended on diagnosis, that when taught the one you cannot fail to be taught the other. If you know the usual course of the ailment from which your patient suffers, and if you have ascertained its origin and course in the patient, and his present state, you will be in a good position to determine its future progress, that is, provided you give due

regard to all the modifying circumstances. It falls to your teacher to show you these modifying conditions, and to point out how considerations of age and sex, climate and race, habits and occupations, and such like affect the course of disease. Further, you must be shown that certain diseases have a certain known mortality—for example, that of all who take typhus fever, 20 per cent., or 1 in 5 die, but that the distribution of this mortality is so variable as to range from a little over 2 per cent. in cases occurring in patients of from 10 to 15 years of age to over 50 per cent. in cases of over 50 years. To this question of prognosis, Hippocrates devoted much attention, and in connection with it he developed his theory of critical days, of which I shall have something to say in the wards later, but since his time I know of no book devoted solely to this subject. As an excellent example of empirical prognosis, where a series of facts are strung together without any effort being made to explain them, take the following Hippocratic Aphorism:—"In a fever, not of the intermittent type, if a lip, an eyebrow, an eye, or the nose be distorted, or if there be loss of sight or of hearing, and the patient be in a weak state—whatever of these symptoms occur, death is at hand." Regarding this, criticism is superfluous, the accuracy of the observation is above question. Prognosis then, like the rest of the medical art, is founded on a base work of experience, but more than all the rest put together does it depend on the just result of the balance of probabilities. It is invariably the outcome of a clear head and a rich experience.

Now we come to *Treatment*—the ultimate aim of practical medicine. This we have to consider in the twofold aspect of *preventive* and *curative.* Preventive medicine is closely associated with the causation of disease, and, as our knowledge of the latter increases, our ability in regard to the former will correspondingly grow. From the results of bacteriological research we have much to expect. But, meanwhile, we must not neglect to take advantage of what knowledge we have already obtained. For example, we know that an outbreak of typhus fever is always associated with the presence of overcrowding and destitution, that enteric fever is connected with sewerage contamination, that scarlatina is often carried by

milk, that ague is caught by sleeping on the ground in malarial countries, and so on. Knowing these facts, we must take steps to counteract their action, and in this respect hygienic medicine has already done much.

In curative treatment, the first consideration which meets us is that of the *vis medicatrix naturæ* — the curative power of nature herself. Many diseases tend towards cure unaided, and in computing the amount of the good done by our therapeutics we must not leave this consideration out of account. Celsus gave as a maxim:— *Optima medicina est non uti medicina*—"The best medicine is not to use any"—and, assuredly, he was right in cases where nature unaided can effect a cure. But we must avoid deducing from the expectant treatment a scepticism regarding drugs, just as we must avoid the opposite error of a slavish belief in them. Here, as elsewhere, observe the golden mean. Whoso doubts the efficacy of drugs as physiological agents in health, let that man drink a draught containing tartar emetic, or take a pinch of white hellebore as snuff, or inject into his arm a dose of pilocarpine, and his scepticism will receive a rude awakening. Whoso doubts the efficacy of drugs in disease, let him look upon the action of quinine in ague, upon that of the salicylates in acute rheumatism, or of cocain in photophobia, and be at once converted. Of these actions there can, in the mind of the unprejudiced man, be no reasonable doubt.

"Has the practice of medicine made a single step since Hippocrates?" asked Sir William Hamilton, somewhat contemptuously, in 1832, and to him, in 1875, the late Dr Warburton Begbie made answer, calling attention to the discovery of vaccination, to the introduction of sulphuric ether and chloroform as anæsthetics, as well as to our scientific understanding of diseases. These might have been sufficient reply, but Begbie went further, and showed that for some of the most potent ails the ancient knew, and for which their treatment could do nothing, we have now some curative means to offer. In this connection he singled out the employment of the bromides in epilepsy, of gurjun oil in leprosy, of cod liver oil in phthisis, and of iodide of potassium in aneurism. To this

same question of advance Professor Gairdner, of Glasgow, set himself two months ago to reply, and his answer virtually is, that since Begbie spoke in 1875 we have progressed greatly in science, less so, but quite as surely, in our art; and that for both the future is full of hope. Yes, surely, we of medicine have advanced,—aye, advanced as much since the days when Job scraped himself with his potsherd, as our surgical brethren have since their barber forefathers lopped off limbs with red-hot knives, and stayed the bleeding with boiling pitch.

But, on the other hand, we must have no blind dependence on drugs, Nature ever tends towards cure, and her we must assist. Too often, however, though this phrase is on our lips, it seems to be forgotten in our practice,—possibly owing to the narrowing effect of a too great devotion to minutæ. For, just as we are apt to examine our cases now, so as to ascertain the physical signs down to the narrowest detail, and forget, meanwhile, the more important symptoms, so we are apt to prescribe drugs, whose actions, no doubt, refer to the diseased organs, but omit at the same time to rehabilitate the broken down general system. In the words of the flippant, we cure the ailment while we let the patient die.

In treatment we have yet much to learn, but the future is full of promise. The greatest discoveries in medicine, like most of the great discoveries in science, have been accidental. Hints may come from unexpected quarters. The salicine treatment in rheumatism is but eleven years old in Britain, though for centuries the Hottentots have given willow bark decoctions which contain salicine, to their rheumatic sick. May there not be many similar usages in our own, or other countries, worthy of an examination which will yield a rich harvest to the investigator? As an illustration of how facts are known and yet not used, take the case of cocain, one of the latest important additions to Materia Medica. The coca leaf has been from time immemorial employed as a nerve stimulant by the natives of Peru and Bolivia, and its action in that respect was the subject of investigation in our own country many years ago. As far back as 1860, Niemann separated the alkaloid and showed it to be a local anæsthetic, at least when applied to the tongue. But it was not until three years ago

that Dr Koller of Vienna, who seems to have long known that cocain was a local anæsthetic to the larynx, first showed its like action on the conjunctiva, and so made to our armamentarium one of the greatest additions of recent years.

Yet when all is learned and all is done, there are cases which our art is valueless to cure, and where all we can do is but to alleviate. These are no reproach to medicine, they but serve to make us exceeding humble as to what we know and what we can do. Do not despise this class of case as one unlikely to yield good results, as is too often the custom of the student. Rather learn from it all you may, do for it all you can. Do not falter in your efforts though you are brought face to face with the grim inflexibility of laws, whose working you cannot control. Do not yourselves be crushed though the juggernaut car of relentless Force grind your doings to powder. Rather endeavour that by your industry and patient search, medicine may be furthered, and that each growing year shall see ail upon ail rescued from the present list of incurable diseases.

Now, in conclusion, students, you all desire to be doctors, and I trust, if it be for your good, that you may attain the fulfilment of that desire. But remember there are two meanings in the word "doctor"—the one, the original and derivative which dubs the possessor of the title "a learned man," and the other, the acquired, which mark him as "a healer." Which of the two meanings you wish to have as the equivalent of your title I do not know, but I do know that in so far as you combine the two meanings, in so far will you approach to the ideal of a perfect physician, one who may be described as the possessor of a quick perception, a fine intellect, a kind heart, a dexterous hand, and a firm will—in fact, the human embodiment of a resolute, cultured, courteous, polished power, and one capable withal of bending to the necessities of the sick, all the learning of science, and the training of art.