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THE TRAINING OF THE MEDICAL PRACTITIONER

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Medical education, like all other education, is a co-operative business. The idea that even the infant mind is a *tabula rasa*, a clean slate on which the parent, the teacher, environment in general, may write what it will, has long since been discarded. But even the infant mind, conditioned, as to the impressions that may be made upon it, by the biologically inherited number, character, and connexions of the brain cells, is not a passive instrument, but, at least after those first few months of extrauterine life of which we really know so little, progressively takes a larger and larger part in itself determining what impressions it will receive and how it will react to them. By the time adolescence is reached nature and nurture, especially the deliberate discipline of the schools, have produced or disclosed limitations, of a greater or less degree of severity, so that, with regard to all subsequent education, whether of a general or of a technical character, the contribution of the student is of at least equal importance to the contribution of the teacher. In medical education, as in other spheres, this is sometimes forgotten, or at least not always given its full emphasis, and it is by no means uncommon, when the result is not conspicuously successful, for the teaching to be blamed when the student is at fault, and vice versa. The consideration, therefore, of what these respective contributions ought to be should be of substantial value and importance. Though their formulation and definition is not easy, and though others might prefer to set them out quite differently, the attempt may be worth making. The contribution of the medical school may be considered first, and then the contribution of the student.

Guidance by the Medical School

The first function of a medical school or faculty is that of *guidance*. Its performance is sometimes lacking. It is true that in all medical schools a proportion of the students will have fathers or near relations who are themselves members of the medical profession and from whom it may be supposed that a considerable degree of guidance will have been, and will continue to be, forthcoming: but even in these cases the responsibility of the school is not removed, and in the case of those students who in this regard are not so fortunately placed, the lack of guidance may even, in greater or less degree, spoil a whole career.

The main guidance required, either at the beginning of studentship or at a later period, is, of course, as to the qualifying examinations which should ultimately be

taken; the order and proportionate emphasis which, in the case of each student, should be given to the various parts of the course leading up thereto; and the particular branch of professional work or post-graduate study upon which it seems most appropriate or advisable for the student to enter. This is a responsible task, and naturally requires close attention to individual characteristics and abilities. It may be held to be one of the most important duties of the dean of the school or faculty.

Another direction in which guidance may reasonably be expected from every teacher is in the prescription and supervision of private reading and of library and museum study. Further, the medical course is so full and at first so bewildering that the student requires to be given a sense of perspective. In the words of the Report of the British Medical Association on Medical Education,¹ he

"should not be left in the dark as to the plan which is being followed by a teacher of a subject, as to what are the outstanding problems with which a subject deals, and as to the place which these problems occupy in the general scheme of medical learning."

The Student's Objective

Guidance in these various directions cannot have its full value unless there is agreement as to the objective. To the generality of students this objective is the early entry upon general medical practice. For others, before the course is completed, it becomes definitely a preparation for further study leading to practice in some special field. For a few from the beginning this ultimate intention is a fixed goal. The second of these classes may require guidance with regard to some prolongation or modification of their years of clinical study; the third class may be directed in such prolongation or modification at an even earlier period. It is, however, generally held in this country that even for those who propose to engage in a special branch of practice, a common course of study intended primarily as an introduction to general practice, and even a relatively short experience of such practice, is the best of preparations.

This view is not universally accepted. In America and elsewhere, where a large proportion of the students have the avowed intention of work in a limited field, the medical schools have tended to adapt their courses to such ends. To-day, however, there is pronounced reaction from such undue specialization, both in practice and in education, and the members of the American Com-

¹ *British Medical Journal Supplement*, April 21st, 1934, p. 192.

mission on Medical Education unite in deprecating the fact that "a large proportion of recent graduates limit their practices to a specialty often without a sufficiently broad previous clinical experience." The objective of the ordinary medical course may, then, be accepted as being correctly stated in the initial paragraph of the British Medical Association's report:

"The primary object of the medical curriculum should be to produce on its completion a practitioner who has acquired a right attitude towards professional duties and responsibilities, an ability to deal reasonably in the early days of practice with such patients and conditions as may confront him, and such basic knowledge and mental training as will enable him to profit continuously by daily experience. It should at the same time constitute such a co-ordinated course of study as will, by its mental discipline, make the student a really educated person and not merely a skilled technician."

Lack of Co-ordination in Teaching

No doubt the main function of the medical school or faculty would be commonly stated as that of giving *instruction*. The difficulties in the way of its complete and perfect performance seem to arise from two facts. One of these is that the qualities necessary in a first-rate teacher are not invariably combined with those required from an expert in one particular subject or in a first-rate laboratory worker, research worker, or clinician; and it is for the possession of these latter qualities that many members of the staff of a medical school, or the hospital connected therewith, are primarily appointed. The other fact is the immensity of the field of knowledge that has to be covered and the impossibility of dealing with more than a relatively small portion of it in the time at disposal.

It is from these two facts, neither of which is completely remediable, that most of the recently expressed complaints as to the inadequacy of medical education arise. If the efficiency of the teaching of the various subjects of the curriculum is grossly unequal; if each subject is regarded as a largely independent section of study; if, as would then be natural, each teacher aims at imparting to the student as much knowledge of his own subject as is possible in a given time; then the student may, indeed, pick up a considerable amount of useful knowledge, and this may even be such as will enable him to pass the necessary examinations. Yet it is certainly not "a co-ordinated course of study," and must leave at least an appreciable number of the students very imperfectly equipped as medical practitioners capable of profiting fully and "continuously by daily experience." This truth is recognized by the authorities of every medical school: it does not everywhere find an application in the regulation of the actual teaching.

The remedy is to concentrate upon the general course and not upon particular subjects or sections of the curriculum; to bear in mind the limited nature of the immediate objective at which the course is aimed; to select the team of teachers with great care, and not to restrict each teacher too narrowly to some special portion of the curriculum, but to make use of him in any part thereof to which he can usefully contribute.

Need for a Widened Outlook

There is a rather different aspect in which the instruction given in some medical schools is said, not without some reason, to be wanting. Even if the teaching be uniformly excellent, fully co-ordinated, and purposefully restricted it is possible that it may be presented from a point of view which takes too limited a cognizance of certain conditions with which the student will be confronted almost from the moment that he enters upon practice. He will be concerned with human personalities, not merely with the cadaver or with bodies exhibiting

some pathological process; with the prevention of disease and the promotion of health, not merely with the cure of illness; and with man as a social unit in all sorts of untoward surroundings, not merely with a patient within the narrow bounds of a hospital. The public has become greatly exercised about these things. Hence arises the insistent demand, not yet fully met in any medical school, that teaching should be throughout more largely on the living body, and have regard to the mental as well as the physical; that the preventive and constructive aspects of medicine should permeate the whole course; and that medicine should be presented as a social agency taking its proper leading place among others.

Variety in Teaching Methods

This leads up to the methods of instruction, which need some consideration. Many methods are employed in all schools—lectures, demonstrations, dissection, laboratory work, discussions, controlled reading, supervised clinical duty, what is called (particularly in America and Germany) the "seminar," and so on. There is a tendency for one of these methods, associated with those others most closely allied to it, to become predominant in different countries. Thus Mr. H. S. Souttar, in the Educational Number of the *British Medical Journal* two years ago, writing with special reference to clinical instruction, describes the German method as demonstration; the French as attendance; and the English as apprenticeship. These differences, though real, are tending to disappear; and in each of the above-named methods there may be numerous modifications. This variety, whether in different countries or in different schools within the same country, is a good thing. In medical education, as in other education, stereotyping is fatal: a strict uniformity, either in time, order, or method of instruction is strongly to be deprecated. Sir Norman Walker, in his presidential address to the General Medical Council in May last, said: "It is not possible to frame a model curriculum which will suit every country or every school in any country, and no hard-and-fast arrangement of subjects is possible, even if it were desirable"; and the British Medical Association's report states that "it is desirable to allow—even to encourage—a wide liberty of choice in the different schools, provided that certain broad general requirements are satisfied."

Lecture Theatre and Laboratory

There are, however, two of the methods of instruction ordinarily employed upon which particular comment may be made. The systematic lecture course has been paramount in most schools perhaps too long. It is a survival of the days when good textbooks did not exist or were not easily come by, and when habits of speaking and hearing varied widely from those cultivated or common to-day. In Elizabethan times, and in the seventeenth and eighteenth centuries (as particularly illustrated in the spheres of the stage and the pulpit) the English people possessed a range and dignity of speech and a power of attentive and appreciative listening which to-day they have largely lost. Even in Scotland it is not what it was. Yet the spoken word, even in a set discourse, still has its value; and, as Sir Clifford Allbutt said in his address on professional education nearly thirty years ago, "reading of textbooks at home is eating sawdust." The opinions of the modern student as to the limitations of the value of lectures are worth noting, and may perhaps be a better guide than those of the lecturers themselves. In a report recently issued by the Manchester University Medical Students' Representative Council it is held that "most necessary changes" are that "systematic lectures should be drastically reduced in number," that "attendance at all lectures should be voluntary," and that

"where lectures must be given, then the function of the lecturer should be: (a) to present a view of the subject as a whole; (b) to state principles and so give coherence to the subject; (c) to bring textbooks up to date; (d) to emphasize the salient points in the textbooks by illustrations from the lecturer's own experience; (e) to vitalize the subject."

Laboratory practice is in some danger of usurping the place of undue prominence which is being vacated by the set lecture. It has a very important place; but it is time-consuming and is quite often directed to wrong ends. It is probably unnecessary to say more than that many laboratory experiments frequently carried out are relatively unimportant and uninforming, and that, in the words of the American Commission on Medical Education, "the laboratory is used too much as a training in manipulation rather than as a means of illuminating and illustrating the subject-matter and familiarizing the student with some of the general principles and methods."

Learning by Doing

The third important function performed by the medical school is the affording of *opportunity*. It has been said that only a small portion of medicine can be taught to the student; the best that can be done is to enable him to learn; and it is a commonplace that, in some directions at any rate, the best way of learning is by doing. The way to much effective knowledge by the medical practitioner lies along this path. In the Bulletin on Medical Education of the Health Organization of the League of Nations it is said that "several countries complain that the majority of students look and listen but do not act. They remember what they have seen and heard, with their heads, but not with their fingers."

It is the possibility of the adequate performance of this function of affording opportunity that should be a determining factor with medical schools and faculties in admitting students. The number of students may, in respect of opportunity of learning, easily become excessive. With regard to lectures, demonstrations, class teaching, the numbers, within fairly wide limits, do not matter, but when they affect the easy securing of parts for dissection, the actual performance of suitable laboratory experiments, the possibility of making the required number of post-mortem examinations or of maternity attendances or of anaesthetic administrations, the gathering of a sufficiently wide experience during clerkship or dressership, or the securing of clinical assistantships or house appointments, then the actual number of students accepted, and the proportion of hospital beds and of outpatient attendances to such number, become of the utmost importance. If the numbers are properly adjusted it should be possible for every student to have practical experience in the performance of all those minor operative procedures, whether clinical or pathological, whether medical, surgical, or obstetric, which will be essential for him in the carrying on of his daily practice after qualification. Seeing these things done by others is not enough; it is essential that he should have actual experience in their practice. Having been done once or twice under supervision they no longer present the formidable aspect which has in many cases prevented some medical practitioners ever attempting them. Yet a practitioner's equipment is awkwardly and inconveniently incomplete without this skill.

Clinical Experience and Responsibility

The student needs to be afforded opportunity not only for gaining clinical experience and acquiring manual skill, but for realizing and exercising a sense of responsibility. In this respect the average student in Great Britain and Ireland is already in a relatively better position than

the ordinary student elsewhere. The requirement of the periods of clerkship and dressership gives him this advantage; but the opportunities so afforded are not always as full as they might be. The responsibility placed upon clinical clerks and surgical dressers varies very considerably.

Further, in regard to actual practice, it is perhaps a little curious that the only specific numerical requirements of the General Medical Council with regard to the personal performance of duties while a student are concerned with post-mortems, maternity cases, and the administration of anaesthetics. It is no doubt assumed that wider opportunities will be given and wider responsibilities undertaken during the holding of a clerkship or dressership. Nevertheless it remains true—and this must be to some extent inevitable—that on qualification the student has not acquired self-reliance or an adequate sense of responsibility, and is, indeed, very imperfectly instructed in the nature of the responsibilities which then fall upon him. It is for this reason that the American Commission insists so strongly upon the importance of the "internship," and that the British Medical Association's report suggests for every student a final clinical period of from six to nine months after the main part of the qualifying examination has been passed. This period, involving a maximum amount of clinical experience and responsibility under supervision, would usually be spent either in a definite appointment to a hospital department or clinic or as a pupil to an approved general practitioner or medical officer of health with a sufficiently wide range of services under his control. With this would be combined specific instruction in the legal, ethical, and social obligations of a medical practitioner. The difficulties of carrying out such a suggestion are obvious, but they are probably theoretical rather than actual, and can certainly be overcome by good will and judicious selection. Of the importance and value of such an experience on the threshold of independent practice there can be no doubt whatever, and of the real necessity of some such experience at this stage nearly all observers and critics of medical education are quite convinced.

The Imponderables

The last function of a medical school or faculty that need be mentioned here is that of *inspiration*. It must be a poor school or university which cannot supply this, either through its general atmosphere or through the personality of one or more of its teachers. It is a real thing, and a necessary thing for the medical practitioner. Without it the student's acquirements will be imperfect, and his work, both during his studentship and thereafter through his professional career, a burden, or at least a source of infinitely less satisfaction than it might otherwise have been. In the words of Littré, "La puissance de l'éducation consiste à augmenter le nombre des motifs dans l'esprit de l'individu." If the student is not put in the way of acquiring, or of developing, some width of culture, a zest for knowledge, a love for his work, a real sympathy with human suffering and trouble, a profound respect for confidence reposed in him, an appreciation of nobility of character and of the dignity and peculiar requirements of professional life, to that extent will the contribution made by the medical school to his medical education have failed of its complete purpose, and to that extent will he pass out from it a liability rather than an asset to his profession and to the community.

The Student's General Education

As was said at the very beginning of this article the contribution to medical education that must be made by the student is no less important than that made by the

medical school or faculty. The contributions to be expected from the student may, however, be considered much more briefly than those required from the school, for, except with regard to the first of those about to be mentioned, they lend themselves much less readily to analysis or to detailed criticism.

The first, and very important, contribution from the student must be an adequate *previous equipment* in knowledge and intelligence. There can be no reasonable doubt that the minimum of present requirements in this respect is definitely too low. This minimum level should be appreciably raised, and the present is a convenient time for effecting this improvement, as the rate of entry into the medical profession might be somewhat reduced without any public loss. No profession should be entitled to claim the epithet "learned" more surely than the profession of medicine. It has an enormous responsibility to the public. It possesses the confidence of the public, to an extraordinary extent from individual members of the community, and to a great extent from the community as a whole. It exercises, therefore, a very considerable degree of authority over public thought, and great influence over many persons. The medical practitioner by reason of this should, as is said in the League of Nations Bulletin on Health Education, in the best sense of the words, "belong to the élite. His professional knowledge should be enhanced by general culture." Yet this does not universally obtain. It cannot be denied that there is a small substratum within the profession of whom this is far from being true, whose general education can only be described as poor, whose interests are extremely narrow, and a few of whom seem incapable of realizing or appreciating fully the obligations of professional life. It is only three years ago since the following was written:

"Our students are the most uninteresting of men. They are ignorant of either art or literature. They only read sporting papers and cheap magazines. They do not even know their own language, nor can they spell. They are in fact semi-illiterate."

That is American, and is not true of this country, even of a small minority of students; but it illustrates very vividly the dangers of too low a standard of general education being allowed to qualify for admission to the medical course. Exactly to what degree or in what particular direction the minimum standard should be raised may be a matter of controversy, and there should certainly be a wide range of choice in the subjects that may be taken; but it is not unreasonable to suggest that at least a pass in something roughly equivalent to the intermediate arts examination of a university is not an unduly high requirement as a test for entry upon the profession of medicine.

Scientific Groundwork

There is a common agreement that the preliminary equipment of the medical student should include a training in science, and that this training should embrace not merely a suitable grounding in physics and chemistry, both inorganic and organic, but also in the principles of general biology. The biological approach to medicine is essential—should now, in fact, be regarded as axiomatic—and is becoming more and more important each year. No very profound knowledge of these sciences need be looked for at this stage—nor is it a *sine qua non* at any stage—but an understanding of their principles, methods, and main elementary facts cannot be dispensed with. Nor does it matter where, or exactly at what stage of previous education, such understanding is obtained. It may easily be acquired, along with some other studies, during the two years following the passing of the School Certificate

examination, or its equivalent, at many schools, or as part of a general course at some university or university college; but it should be required to be completed and tested prior to the commencement of the fifty-seven months of the medical course proper. In the words of the British Medical Association's report:

"The student should then at least know how to think, how to read with comprehension and reasonable fluency one language besides his own, and how to express himself, both in speech and in writing, logically and clearly in his own language. He would have been introduced to some great literature, and have some notion of historical sequence and perspective. He would understand scientific method and scientific principles of observation and deduction; and he would have acquired such a knowledge of the main facts or problems of the physical universe and of living organisms as to enable him to pass to the study of the human organism and its environment with interest, intelligence, and profit."

Without some such previous equipment the student will certainly be unable to complete his medical course within the prescribed minimum period, will be unable to profit fully by the sequence of studies undertaken in that course, and will thereafter remain lacking in some of the mental content and quality which would enable him, with increasing experience, to render the complete complement of service. For these things, if not taken in their proper place, cannot so well be supplied thereafter, and will probably not be supplied at all.

Habits of Work

A second contribution which the student may be expected to make to his medical education may be described as *assiduity*. This is defined in the *Oxford English Dictionary* as "constant or close attention to the business in hand, unremitting application, persistent endeavour, perseverance, diligence." Too much, of course, cannot be expected of the youth of 17, 18, or 19 years of age. He comes, probably, fresh from his secondary or public school, where he has been accustomed to his weekly and terminal holiday, possibly with some small task in which he can occupy some of his leisure not unpleasantly or unprofitably. In his early years of medical study it is likely that he will expect a continuance of similar conditions, and may be able to contrive them. But in his later clinical years he will become more conscious of the life in front of him, and will realize that the necessities of his work require him to put in six days work a week instead of five, and make his working year one of nearly twelve months instead of little more than nine. Assiduity, in the full meaning of the word, will, indeed, be required of him if he is to complete his course in the five years or so in which he may hope to accomplish this in the absence of illness or other misfortune. This is no bad preparation for the conditions of life in a successful general medical practice; and the exigencies of clerkships, dresserships, and other time-limited duties will make the taking of regular vacations at stated periods impossible. In fact, the normal vacation times may be found among the most profitable opportunities for a more extended clinical experience. At any rate, the average student must expect to make his contribution along these lines by an increasingly strenuous period of steady, but, it is to be hoped, not disagreeable work.

A third contribution to be made by the student is *character*. It is often circumstances rather than inclination or special aptitude that lead to the choice of a career. It is a very fortunate thing when all combine in the choice. It has to be recognized, however, that there are some persons whom no amount of educational endeavour on the part of the teaching staff of a school or university could convert into accomplished and successful medical practitioners. There is not necessarily any question here

of goodness or badness, but merely of suitability. It is not always the most learned physician who makes the best medical adviser. In general, however, it is only very rarely that anyone entirely unsuitable finds his way through the medical curriculum, and there are, of course, within limits, different kinds of suitability for different branches and crafts within the profession. It remains true that, though character may develop under the influence of educational surroundings even after adolescence, and though this influence may be beneficial, it is the student and not the teacher who must contribute those qualities of character, whether inherent or acquired, which will make or mar the success of his career, whether during his student days or thereafter; and it is a contribution which, to a large extent, he must deliberately and consciously make.

Conclusion

Thus the medical school or faculty offers guidance, but very often this cannot well be given unless it is sought,

and though the wisdom of such guidance remains with the teacher its acceptance or otherwise depends upon the student. The school offers instruction, but the student may neglect, or even avoid, it; and offers opportunity of which the student may or may not avail himself. The school offers inspiration, too; but without a basis of character to work upon it loses all its force. Medical education is a co-operative business.

It is a continuous business also. It begins, in a sense, before the student comes to the medical school. While he is there, though it has the definite and limited aim of equipping him to enter upon practice in five or six years, it should also be laying sound foundations on which later post-graduate and continuing education can be built. Afterwards, while in practice, the medical practitioner must go on learning and keep his knowledge up to date. His medical education should not cease as long as he lives, or at least until he no longer practises his profession.

THE PROFESSION OF MEDICINE

INTRODUCTORY

In accordance with long-standing custom we preface the main contents of the annual Educational Number of the *British Medical Journal* with some remarks by way of guidance to those who contemplate entering the profession of medicine. What is said here will follow the lines laid down in previous years; but readers of each subsequent section should bear in mind that not only the methods of medical education but even its purpose are under close scrutiny in various responsible quarters. The medical curriculum is a subject of discussion to-day in nearly every country of the world.

In our Educational Number last year (September 2nd, p. 409) we referred to two important reports on medical education then very recently published—the final report of the American Commission and the interim report of the British Medical Association's Committee. The final report of this committee has now been endorsed by the Council and Representative Body of the Association, and within the year there has also been issued a Bulletin on "Medical Education and the Reform of Medical Studies" under the auspices of the Health Organization of the League of Nations. These three publications—American, British, and international—are probably the most important pronouncements on the subject of medical education that have been issued for many years, and they must together have great influence in determining any changes which may be made either in Europe or in America as a result of the widespread consideration now being given to the matters with which they deal.

The point of view of each of these documents is naturally different from that of the others; but the correspondence of their conclusions and suggestions is remarkable: indeed, in the case of the reports of the British Medical Association and of the Health Organization of the League of Nations they may, with scarcely any exaggeration, be said to be identical. Broadly, the different aspects from which the three reports consider the subject may be indicated by the questions: What are the needs of the public in relation to the supply and equipment of doctors? (American.) What sort of medical practitioner is it desired to produce? (British.) What is the field of study which must be covered, and how best may this be done. (International.) It must, however, be understood that none of the reports is confined exclusively to answering only one of these questions. All alike insist on the need for a higher general culture and a wider knowledge of scientific

(especially biological) facts and principles in entrants upon medical studies; on the importance of medicine as a preventive and social agency; on the co-ordination of medical studies into a unified course instead of their treatment in separated departments; and on the absolute necessity of increasing the opportunity for practical clinical work and the cultivation of a sense of responsibility. In the American report and the League of Nations Bulletin will be found a relatively full account of the actual curriculum of studies in different countries. The impression left by a careful consideration of these is that, for the generality of students, the courses of study prescribed and followed in Great Britain, though in need of revision with a view to meeting more fully the conditions above referred to, are, in most respects, the best to be found anywhere. In his presidential address to the General Medical Council in opening its last summer session, Sir Norman Walker said:

"Medical education and its bearing on the public weal is to-day the subject of anxious consideration in every civilized country. . . . The boundaries of medicine are ever extending, and there is more and more to be learned. The Council welcomes all the inquiries which are going on as likely to contribute to the solution of a difficult problem."

The General Medical Council has already appointed a small Curriculum Committee to give preliminary consideration to such reports and observations on the subject as may be brought to its notice, and in due course, no doubt, the fruits of this consideration will appear.

FINGER-POSTS

The first object of the Educational Number, 1934, is to inform prospective students and their parents of the steps that must be taken in order to become a registered medical practitioner under the existing order of things. The second is to assist those wishing to know what a medical career has to offer, and others who, having already decided to study medicine, are uncertain about the line of work for which they are best suited. This introductory article is meant to serve as a clue to the great body of information contained elsewhere, but it also gives an opportunity of touching upon some aspects of medical study and practice, and of directing attention to a few points that might not occur to anyone without experience of the medical life.

Intending students will find in the pages that follow an account of the course of training required of them at the