THE FUTURE OF MEDICAL EDUCATION AS SEEN BY A TEACHER

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Without an accurate acquaintance with the visible and tangible properties of things our conceptions must be erroneous, our inferences fallacious, and our operations unsuccessful. "The education of the senses neglected, all after-education partakes of a drowsiness, a haziness, an insufficiency, which it is impossible to cure." Indeed, if we consider it, we shall find that exhaustive observation is an element in all great success. (From Herbert Spencer's *Essay on Education*.)

I

At a time when planning is much in the air, but the war and the vast uncertainties of the future conspire to give to all Utopian castles a more than usually aerial quality, the Editor has invited a statement of ideas on the future of medical education. At the moment we cannot begin to visualize the kind of foundations upon which we shall have to build. The physical, social, and economic structures of our post-war world are beyond imagining. Ideas and hopes must therefore be accepted as such and not regarded as fixed projects. Discussion and inquiry must be fostered. Individual opinions in such a time, although freely expressed, may later need to bow to change or circumstance.

We can, nevertheless, start with the thesis that medical education stands much in need of reforms, and that all concerned for it, both old and young, are willing to become reformers in aid of this particular contribution to our new order. On certain main points, such as the overcrowding of the curriculum, there will be full agreement, and none will dispute that the aims of medical education should include on the one hand the training of sound and practical doctors and on the other the maintenance of high cultural and scientific standards. If there is one thing which medicine has shown a tendency to sacrifice in return for the rapid contributions of the sciences to its instruction and practice, it is perhaps its position as a cultural profession. Its philosophy has not kept pace with technical achievement.

Let us briefly state the problem which confronts us in the form of a question. How shall the medical education of the future, without further complications of or additions to the curriculum, provide a better scientific and general training for the student and ensure a more organized and integrated approach to the clinical subjects and, in place of accumulations of memorized but poorly correlated detail, a wider appreciation of first principles? How in the process shall it help to develop a breed of doctors better blessed with humanity and judgment, with simultaneous gain rather than loss to their scientific sense?

II. The Phases of Education

The teacher in the wards receives the product of a previous education in the schools and the laboratories, and, while fully conscious of shortcomings in his own department of learning, may justly feel entitled to criticize some

of the results of preliminary training. He also sees his students launched into the world of practice, and meets them there afterwards, knows something of their requirements and difficulties, and has opportunities of observing defects in their methods or standards. He thus stands as an important intermediary observer between consecutive but at present too widely separated phases of education. An analysis of the curriculum as a whole and of existing teaching methods suggests to him that at every stage, both clinical and pre-clinical, there is too much instruction and too little education in its truer and better sense, and that the community of interest and purpose which should obtain between those responsible for the organization of earlier scientific and later clinical training is too rarely cultivated.

Medical education may be considered as falling into five periods. These are:

1. The school period prior to the year or years devoted to work for the First M.B.—a period which should surely, in the modern world, seek to prepare the way for a more scientific outlook in the population as a whole and to provide an early inspiration to those destined for the scientific professions, albeit without loss to general discipline.
2. The period devoted to work for the First M.B., whether this takes place at school or elsewhere (generally called the pre-medical period).
3. The pre-clinical period proper, which is spent at a medical school and concerns itself with the study of physiology, anatomy, and pharmacology, and, at some universities, of biochemistry and pathology.
4. The clinical period, which is spent at a teaching hospital.
5. The first postgraduate year, which is generally but by no means universally devoted to house appointments and should come to be regarded as an essential educational year in responsibility and practical experience.

Even though it be accepted that the main purpose of the education given in the second and third periods is to provide an introduction to scientific method and a proper familiarity with those sciences which are everywhere regarded as necessary to medicine, the work should ideally be organized throughout in such a way as to prepare the mind and interest of the student for the tasks which will engage his attention during the clinical years and, in fact, throughout the rest of his professional life. Without such provision there must be some loss of interest and organized thinking in the earlier stages, a lack of continuity between earlier and later training, and a groping for method at the beginning of the fourth or clinical period which the pre-clinical period should already have instilled.

At present certain of the shortcomings of the clinical period can unhesitatingly be referred to shortcomings in previous training. With a growing tendency to embark at too early an age upon specialized work for the First M.B., the general education of the student has assumed too low a level. Good literary standards, general knowledge, know-

ledge of languages, and interest in problems outside his own necessary sciences do not, with rare exceptions, characterize the equipment of the medical student. This is evident in his written work and examination papers, and often enough in his conversation, his reluctance or inability to share the literary, artistic, or socio-political enthusiasms of others in his generation, and often in his intellectual standards subsequent to qualification. However anxious he may be to make good these deficiencies, the overcrowding of the pre-clinical period proper hampers his endeavour in the early adult years. In comparison with the medical faculty at a university few faculties show a comparable multiplicity of subjects in their curricula or allow such scant leisure for private interests and recreation. The education of the mind and of the whole man inevitably suffers.

III. Some Present Defects in the Pre-clinical Years

Before proceeding to a consideration of remedies for these defects let us consider the First M.B. period and the university or pre-clinical period proper in a little more detail. In what respects does the teaching here fall short of what is to be desired? What are the particular mental faculties which it fails to encourage or to train?

Briefly, we may say that the whole of the teaching in the pre-medical and pre-clinical periods—allowing for exceptions in a few of the more advanced schools—is didactic and analytic. The student is taught facts and to memorize facts, and he is instructed in the analysis of certain natural or artificial phenomena, but at no stage as a rule is he given serious encouragement in *the observation of phenomena for himself*. Rather is the natural inquiring faculty of childhood unintentionally discouraged and inhibited year after year by too much teaching. Now the most essential faculty in clinical science and its application to practice is the ability *to observe naturally occurring phenomena*. Small wonder that the student entering the ward for the first time often feels or shows that he is entering a new world for which the world he leaves has inadequately prepared him. Here for the first time (unless of his own initiative he has indulged some naturalist hobby) he must learn to look and to see, to touch and to feel, to listen and to hear, and, furthermore, to interpret logically what he discovers with his senses and by the interrogation of his patient—types of inquiry for which the classroom and the laboratory have given him but a poor orientation. Clearly the didactic and analytic method cannot be dispensed with altogether, and chemistry, physics, biology, anatomy, physiology, and pharmacology are all essential studies. While, however, the teaching of the first two must remain in large part didactic, the teaching of biology, physiology, and anatomy might with reorganization encourage to a far greater extent than heretofore the faculties of observation and interpretation—the twin faculties so necessary to clinical science and practice.

At present, from the day when he first dissects the frog to that on which he concludes the dissection of the human cadaver, the student spends the greater part of his time in looking for things he is told to look for, in carrying out experiments prescribed by book or lecture, in remembering by means of diagram and table, in imagining physiological function in terms of tracings, graphs, and chemical formulae, in building his composite picture of the living human organism from inspections of the dead or of the decerebrate animal and from microscopical films or sections—in *constantly contemplating parts to the exclusion of wholes*. He is not customarily given a frog and told to observe all he can about it in the living state—its colouring and movements, its digestive or respiratory habits—without reference

at first to books or pictures, and to write down all he sees. Nor when it is pithed does he settle down, as Harvey would have had him do, to discover what he can of internal structure and related function.

After two years of lectures and laboratory work in physiology he may know much that has been discovered by others about carbohydrate metabolism, the acid-base equilibrium, the latest views on nerve conduction, the cardiographic tracing, the carotid sinus and Hering-Breuer reflexes, the theories of urinary secretion, the role of the accessory food factors—all valuable knowledge. About his own everyday movements and functions, however, and his own sensations and their responses to such things as exercise and changes of temperature and emotion, and about the temperamental and physical variability of those with whom he consorts, he may still be quite ill informed and unobservant. He lacks “an accurate acquaintance with the visible and tangible properties of things.” If he notes peculiarities of feature or gait, of expression, habit, colouring, or body weight in others he does so casually and not critically, and without that curiosity and that urge to interpret in terms of intimate function or structure which are so essential a part of the mental behaviour of the good naturalist or clinician. Although he is supposed to have completed a study of the normal he knows little about growth in infancy or childhood, about the changes in such simple functions as the pulse and respiration rates between birth and adult life, or the other milestones of natural development. He has not watched healthy babies. Of such things, in fact, he often remains in ignorance until he starts his paediatric studies in his last clinical year. The occasions on which he has felt the radial pulse or apex beat critically and attentively or listened to the normal heart or examined the normal fundus and sought to describe his findings unaided have usually been very few. It is unlikely that he will have observed closely the subjective and objective phenomena of dyspnoea induced by effort in himself or his fellows, or have produced for contemplation and analysis varieties and degrees of pain in his own accessible structures. At present after a year or two in the wards he may remember something about the respiratory functions of the blood and yet be unable to describe or discuss and sometimes to recognize the manifestations and clinical varieties of disturbed respiration which are so valuable to diagnosis; visceral and other pains, for all their significant qualities, present themselves to him as phenomena of doubtful and difficult interpretation. The symptoms of health, and the transition from them through the symptoms of health modified by applied physical or psychological processes to the symptoms of developed disease, have rarely received consideration by him or his teachers.

And yet work along these lines would have been good physiology and would have supplied good training in scientific method, both of an observational and of an experimental kind. It would have had an obvious and immediate bearing on his ward work from its earliest days. It would have helped him by inculcating as a habit the exercise both of his sense organs and his wits, implementing the parallel discipline of a more repetitive and precise kind provided by the dissecting-room and the laboratory. The interest, bordering on excitement, of the first days of clinical work would then, too, be controlled and directed by past training; comparisons between normal, less normal, and frankly abnormal would be more readily and appreciatively made; disease and the symptoms of disease would have meaning from the beginning. Necessary instruction, in brief, would have been allied with and assisted by education in its truest sense, with interest more surely maintained and the goal of human medicine kept constantly in view.

IV. Some Remedies

To bring all this about it should not be necessary to lengthen the curriculum. Concentrating more on basic ideas and principles, much troublesome detail could be allowed to go by the board or be garnered slowly at a later date. The close co-operation of physiologists, anatomists, and clinical demonstrators would be needed, and eventually a new breed of teachers, uninfluenced by too specialized a concern for their own subjects, interested in each other's, and devoted rather to the discipline of inquiry at all stages than to the instillation of factual knowledge, would evolve.

Specific criticisms call for specific remedies.

1. In the school period biology (with elementary physiology in the final year) should become an obligatory cultural subject for every child from the age of 13 onwards, and should be taught alike to those adopting "classical" and "modern" programmes. There is no subject comparable with biology for stimulating lively and critical thinking or more important than biology as a proper introduction to the later understanding of man and his problems and of healthy citizenship. How slow we have been to implement the advice of Huxley and Spencer! At some schools the teaching of biology in this way has already been introduced with notably good effect. In combination with field work and the work of natural history societies the biological subjects not only provide a scope for observational training but also furnish teachers with opportunities of discovering just that type of boy or girl who is most likely to make a good student of the medical sciences and to find a vocation in medicine, and also of eliminating the unsuitable. In future a more careful selection of recruits for medicine will surely become necessary. Advice in respect of this selection should be among the more responsible duties of science masters, head masters, and the deans of medical schools. Having been studied from the beginning biology would present no difficulties as a First M.B. subject, and the special work for this examination could therefore be embarked on later. This work should not, in fact, be started until the school year in which the pupil reaches the age of 17. During this final school year the study of English literature and a language or mathematics should continue.

A higher standard and a more enlightened type of science teaching than obtains in many schools at the present day will be necessary, and it is to be hoped that some training for science masters in teaching method after obtaining their university degree will become obligatory.

2. The attempt to teach, and all within a period of two or three years, a very comprehensive topical anatomy with embryology (and sometimes comparative anatomy), physiology, pharmacology, biochemistry, and general pathology (with bacteriology) which obtains at present in some universities has necessitated a form of "cramming" which succeeds only partially in the training of organized and inquisitive minds. The first two university years should be devoted to the essentials only of topical anatomy and embryology with normal histology and to physiology with pharmacology. Human physiology and anatomy from the beginning should be developed along observational lines—whenever possible, and certainly more frequently than at present, employing the student himself as the object of study in conjunction with and illustration of other class-work on the several systems. After a pass examination in these subjects the final year should be devoted to honours work in human physiology (and applied biochemistry) as an essential subject and not more than one other subject, to be selected from a more advanced anatomy or general pathology or psychology dealing especially with the emotions and the special senses. In this year one or more weekly clinical classes introducing cases in or from the wards and a collaboration of clinical and pre-clinical teachers should be arranged in illustration of important physiological or pathological principles or processes.

The gaps in time and place between pre-clinical and clinical teaching must be bridged. There should be more frequent intercourse and discussion between the science masters in the schools, the university teachers of the pre-

clinical subjects, and the clinical teachers. For the last-named the whole-time opportunities enjoyed by the teachers of the earlier subjects must be provided on a more generous scale, so that education and its methods may become for more of them a primary concern. And finally, the teaching of science need not, as some scientists suppose, be harmed by frequent consideration of its practical and humane uses.

V. The Clinical Period

Thoughtfully introduced and wisely fostered, the discipline of the clinic is among the finest of all disciplines. It trains the senses; it teaches the value and uses of evidence; it exercises the logical faculty and requires the frequent balancing or correction of one method by another; it maintains the spirit of inquiry and compels humility; it demands the closest collaboration between science and humane feeling.

But clinical teaching in recent years, once of so high a repute in British hospitals, has suffered a certain disorganization and some loss both of method and of ideals. The conflict between the claims of practice and multiple public duties on the one hand and of teaching duties on the other (although there are great advantages in the combination of teaching and practice which must not be lost to view) has been partly to blame. The professorial units have not so far been potent to compensate or correct in any large degree.

The practice, for purposes of expedition, of instituting multiple investigations soon after the admission of a case to the ward has encouraged a faulty approach to problems and a neglect of historical evidence and the proper sequences of symptom-analysis. Investigation to the limit, often with no clear therapeutic policy to reward either the research or the patient, can cumber minds as well as beds. A small proportion of students in the clinical years are naturally observant from the first; some become observant in the course of time; many under stress of learning seem to lose the faculty they have begun to acquire; the majority trust too little to their senses and too much to the extraneous aids which they find ready to their hand. An x-ray-minded or laboratory-minded student, even if he writes a good report, may be unable to base his diagnosis on the evidence he has elicited although that evidence is sufficient for the purpose. He is for ever seeking other assistance and ignoring or missing what is set before him. His teachers do not always discourage this increasing over-reliance on accessory objective methods. He may be given some rules, but he is seldom given a system. He starts and continues his apprenticeship all too commonly with a haziness of mind that is accentuated by the looming menace of examinations. Clinical clerking can provide a type of discipline in observation and reasoning of which we in this country have been justly proud. We must help it to come into its own again.

While the general plan of three-monthly appointments and of "firms" has stood the test of time, the following criticisms may be allowed as valid.

1. The proportionate allocation of time to the various clinical subjects is not rational. Too large a proportion is given to the special departments and too much time is spent in the operating theatre watching techniques which should not be intimately studied or practised until the postgraduate years. Too little time is spent in the medical wards, where alone the systematic examination of the case as a whole is insisted upon, and where the use of special instruments (ophthalmoscope, auriscope, laryngoscope, sigmoidoscope, sphygmomanometer) and the methods of the clinical laboratory can and should be intelligently taught and used in association with direct bedside method. An additional three months of medical clerking, with subtraction elsewhere, is much to be desired.

2. Medicine and surgery are at present separated from the beginning in a way which renders them almost rival subjects employing different methods—as though pathologies could be separated according to therapeutic procedure! The discipline and principles in medical and surgical wards are at variance. In the medical ward the student is expected to examine and write a report on the whole patient. In the surgical ward it is commonly considered enough if he examines the hernia or the lump and does not forget to examine the urine before the day of operation, and this notwithstanding that no patient more needs a general examination than one about to be subjected to anaesthesia and operation. Sometimes he sees cases for the first time in the theatre which have not been previously discussed and perhaps not even seen in the ward by the operating surgeon. Pre-operative and post-operative therapeutics considered at the bedside are of high educational value and should receive far more attention. It has taken a second world war to remind us all that Listerian and Hiltonian principles could still be more meticulously taught and practised. The principles of asepsis and measures to counteract cross-infection are or should be the same in medical and surgical wards. There may be nursing and administrative advantages in the separation of surgical from medical cases at the stage of operation, but at the stage of diagnosis there is no good reason for separating them. There are, in fact, strong arguments for combined medico-surgical units and for more frequent consultations before students between surgeon and physician on matters of diagnosis, on therapeutic decisions and alternatives, and on post-operative management and complications.

3. The sequence of appointments could be reconsidered with advantage. Although the usual order of junior surgical, junior medical, senior surgical, and senior medical dresserships and clerkships has much to commend it, and this order, as conducting from the simpler objective examinations to the more complicated study of all the systems, including the analysis of subjective phenomena, will still commend itself to most teachers, the alternative experiment of learning the general approach first with the full discipline of medical ward routine should be worthy of a trial. The special appointments which follow should be employed more for a continuance of the demonstration of general principles in diagnosis, prognosis, and treatment in medicine and surgery and less for the demonstration of specialized techniques. Neurology, orthopaedics, laryngology, and genito-urinary surgery can be made to provide the most valuable lessons in applied anatomy and physiology. In the matter of paediatrics we might well follow the practice of the Russian schools by giving it a much more prominent place in the curriculum. It is one of the most important subdivisions of general and preventive medicine. The handling of children and modifications of diagnostic approach necessary in their diseases are not at present sufficiently brought home to the undergraduate student. For the most part purely specialist teaching should, however, be postponed until the postgraduate period. The details, rarer problems, and operative techniques of ophthalmic, orthopaedic, and genito-urinary surgery and of throat and ear work are essentially postgraduate studies. Indeed, surgical technique as a whole should not claim much more of the student's time than radiological or bacteriological or chemical techniques. Principles and methods of study are the student's chief requirement, and above all constant practice in assembling evidence and in logical deduction from facts observed and symptoms elicited.

Psychological medicine must not be wholly concentrated in a department but should come to inspire the daily teaching of the medical and surgical wards. Regular clinico-pathological consultations on post-mortem material should be universally adopted. The chemist and the pathologist should be invited more often to ward discussions. The value of consultations as opposed to "second opinions" and interchanges of requests and reports must be impressed upon the student's mind from an early stage.

4. In the matter of lectures customs vary. Some schools have abandoned the systematic lecture in medicine and surgery in the belief that they are a duplication of textbook teaching. In replacing them, however, by a much greater number of clinical lectures by the many members of a staff too little trouble has been taken to secure enough lectures or lecture-demonstrations

on essential subjects and the commoner diseases. Some teachers lecture again and again on their own pet themes. Few go out of their way to discover what subjects have been covered in a recent session or what their colleagues are lecturing upon or what their students want. There is thus much overlapping and much omission. But what perhaps is needed most of all is a series of introductory lectures in each academic year by the professor of medicine or a senior physician on some of the main principles underlying the tasks of the applied science of medicine, of which all the special subjects are after all but subdivisions. Aetiology, the meaning of Diagnosis and the forms and uses of diagnostic method, Prognosis, and Therapeutic Principle are all surely worthy of separate discussion. There are few students who pause or are advised to consider how their approach to their work and to the individual case may be improved and amended by a better familiarity with basic ideas on such subjects and even by a better understanding of nomenclature. Lectures on main symptoms such as fever, pain, cough, and dyspnoea can also make an important contribution. Symptoms as expressing morbid physiology and signs as expressing morbid anatomy should, in fact, inspire frequent discussion. "What does this symptom mean?" not "What disease is it a symptom of?" should be the constant query in the mind.

5. The approach to the patient, the "management"—both in a physical and a psychological sense—as opposed to the more specific treatment of cases of the common diseases, with reminders that much sound treatment can be viewed as applied physiology, find frequent texts in the daily material of the clinic and yet are apt to suffer neglect in enthusiasm for the manifestations of a rare or "interesting" and often incurable case. On ward rounds the attempt to see too many patients in an afternoon is apt to lead to superficial or anecdotal teaching. Two or three cases carefully reviewed are less likely to leave bewilderment and a train of ill-digested ideas in the minds of the "firm." A part of out-patient teaching should be in the hands of senior members of the staff. Again a limited number of cases should be employed, but preferably not selected, for the purpose.

A proper perspective in the matter of accessory diagnostic methods, their place and limitations, and the interpretation of their findings is as necessary as insistence on the primary importance of the clinical survey.

6. It would be impossible in the space available to consider in detail the future of the teaching of obstetrics, of pathology and bacteriology in their special relation to medicine, and some important reforms needed in other special components of the curriculum. The belief is gaining general acceptance that a much broader "social medicine" course in illustration of the origins of ill-health and the social responsibilities of the doctor might come to replace the present dull teaching on "public health." It should occupy some part of the free period commonly devoted to fevers, anaesthetics, and vaccinations.

Postgraduate education, both in the house-officer period and later, and some overdue reforms in the examination system must also, for reasons of space, be omitted from present consideration.

VI. The Teachers

Finally, we must consider the clinical teachers themselves. It will surely by now be conceded that if anatomy, physiology, and pathology require whole-time teachers we can no longer accept that the much more difficult and essential subjects of Clinical Medicine, Surgery, and Obstetrics can be satisfactorily shared among a number of part-time teachers, each spending a few hours a week in the service of his school. On the whole-time professors of the three main subjects, in consultation with the dean of the school, should fall the duty of organizing the teaching on behalf of the students and the part-time staff and maintaining close educational contacts with the laboratory teachers. With the increase of specialism among physicians and surgeons, and their natural tendency to accumulate in their beds cases of particular interest to themselves, it becomes ever more important to have one or two large

units concerned with medicine as a whole and with beds open to cases of all types. The medical unit or combined medico-chirurgical unit should perform this function, and the professor, whatever special interests he may have, must remain a general physician (or surgeon) concerned with the principles and methods in accordance with which diagnoses and prognoses are achieved and with the lessons to be learned at the bedside, in the operating theatre, and in the post-mortem room from successes and from failures. At present it is not possible for all students in a given year to serve on the professorial units, where such exist. A combined medico-chirurgical unit and an additional three months for medical clerking should make it possible for all students to hold an appointment, whether medical or surgical, under the whole-time teachers and to obtain the advantages of work in the unit atmosphere. The clinical professor should whenever possible be a man with wide experience of institutional or consulting work, or both, and a developed interest in teaching. He should rarely be under 40 on assuming his chair. Such an appointment should not exclude the appointment also of a reader or associate professor in clinical science, whose main function would be research, who should accept limited teaching, and whose scientific activities should prove of the utmost value to the unit and provide frequent reminders for all its members that experiment as well as observation has an important part to play in education as in the advancement of learning generally. One general practitioner of high standing in the profession should also be attached to the unit and should engage in ward and out-patient consultations and give occasional classes on the management of a practice and of sickness in the home and the essentials of medical ethics. The opening of discussions on teaching among senior and junior members of the staff should be a regular function of the heads of units. Opportunities should be given to student representative bodies to register considered desires and criticisms.

In the medical school of the future we may perhaps visualize provisions (a) for whole-time clinical teaching staff, (b) for staff devoted entirely to institutional work, but sharing their time between and deriving their experience and income equally from a teaching school and a municipal hospital, and (c)—if private practice survives the war and the reconstruction—for staff giving half their time to their teaching school and the rest to private consulting work, albeit with facilities for most of this private work provided within the precincts of the hospital. With a healthy diversity of interests and experience thus secured; with closer contacts between the teachers themselves and between the staff, the students, and the house officers; and with a freer association within the hospital community of clinicians, chemists, and pathologists, and more consultations between them, we might picture the evolution of a clinical school and methods of training as far superior to what now obtains as are existing conditions to those which flourished in the days of the apprenticeship system and "walking the hospitals." Those days had certain things to commend them, and they witnessed the birth and infancy of our cherished bedside clinical teaching, but they allowed too free a rein to authoritarian instruction and lacked the inspiration, the checks, and the precisions of a preliminary and parallel education in scientific method.

Freedom to live and to learn must be secured first, but thereafter, with wise prevision and co-operation on the part of the State and the schools, and by dint of extracting the best from old experience and new experiment, who can doubt that we shall one day find the proper place and proportion for each science and service in the complex structure of our medical university or whole?

THE FUTURE OF MEDICAL EDUCATION A MEDICAL STUDENT'S VIEW

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To say that medicine and the medical profession need reforming is to-day to utter a commonplace. To decide how this shall be done is less easy. In the past the wider problems of medicine have been the hobby of more or less eminent members of the profession who are retired. To-day, sudden and violent change has become such a part of our daily life that everyone takes note, and the future has become the vital concern of everyone. As a sign of this, meetings of medical students from schools all over Britain, which were unknown ten years ago and embryonic four years ago, this year gathered almost 200 students at Cambridge, organized as the British Medical Students' Association. They discussed problems in every sphere of medicine; but, because the student of to-day is the doctor who will have to solve these problems to-morrow, and because the education he receives will make or mar his success in this task, medical education was held to be the most important link in the chain of medical planning.

The first and yet most vital problem is the actual entry into the medical school. For the individual who wants to be a doctor this is a question of money rather than ability. For the community, it determines very largely what sort of a doctor it will get; for, as one Spanish university has it, "What Nature has denied, Salamanca cannot supply." No one can doubt that the present methods of selecting medical students are haphazard in the extreme. A father's sentimentality; a desire for a safe job; almost any reason, except a desire to serve the community, is good enough, provided there is enough money for the initial heavy expenditure. Medical schools, bound up with the voluntary hospitals, have to accept such students as a source of income, using a very few scholarships as a means of advertising. The solution clearly must lie with the provision of a vastly increased number of scholarships by the State. Only then can students be chosen because they will make good doctors, which requires temperamental as well as intellectual qualities, and not for any other reason.

The Curriculum

The medical curriculum itself is long and arduous. This is inevitable because the subject is vast and the doctor needs to be efficient in every branch of it; therefore no one complains about its length. On the other hand, there is much that is useless and irrelevant which needs to be pruned away. The result of this will not be to shorten the whole course but to allow more important subjects to be introduced. The wartime need of getting doctors as quickly as possible introduces an important factor into immediate considerations of the question, but will not alter the long-term view of what is felt to be desirable. In chronological order, the pre-medical course in the elements of the physical and biological sciences comes first. It needs drastic revision, for it is poorly presented, uninformative, and a dead weight on the early enthusiasm of the student. Although its aims are entirely praiseworthy it is still planned, as in olden times, for the student who read only classics at school, and even possibly took a classical degree before proceeding to medicine. To-day that is true of very few, and certainly specialization at school should not be so advanced as to exclude anyone's reaching university standard from the elementary knowledge of physics and chemistry that is.