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PREPARING FOR MEDICINE

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One way to produce a classic is to hold an international conference. This was proved by the First World Conference on Medical Education, held in London in 1953. Its *Proceedings* (1954) are a splendid record of medical educational thought and practice; the inquirer who turns to them can be sure of finding a competent discussion of any of the main problems of undergraduate medical education; and if he disagrees with what he reads he will at least get a sharper definition of his own point of view.

The book is a mine of information and opinion, but its value as a whole could hardly be assessed by one person; that is why the Committee on Medical Education of the British Medical Association last year appointed four subcommittees to study it. Their views are embodied in the recent report of the parent Committee (*British Medical Journal*, 1956). A concise report of that kind could not do justice to the labours that shaped it, and I take this opportunity of thanking the other members of my own subcommittee—Professor W. Melville Arnott, Dr. Geoffrey Barber, and Dr. S. Wand—for substantial help. At the same time I absolve them from any responsibility for this article, which is a purely personal meditation on the year's work.

The Foundations of Medical Study

Our subcommittee was asked to study all the papers within the field of general education, history, and philosophy. No field is more important than this, for it includes the foundations of medical study—the philosophical basis of both curative and preventive medicine. The papers examined deal with the nature of man; man's relations with other human beings and with the world around him; the function of medicine in society; and the professional and social obligations of the doctor.

The heart of the matter is philosophy. There is nothing wild or woolly about this; there are in fact two rival philosophies of medicine to-day, and it is a matter of vital importance which prevails, since radically different types of medical education flow from each. The two philosophies are the technological and the professional.

The technological conception of medicine has a certain appeal for the layman, whether patient or administrator. It is easy to think of medicine as a craft, and of the doctor as a civil functionary, whose full duty is done when he has plugged the leak or removed the obstruction. These are solid, tangible items of service that can be recorded on time-sheets. For medicine so conceived all that is needed is a good technical training, which could be got in any sizable hospital. There is no place for such training in a university, for universities

are concerned with something quite different—namely, the development and tempering of minds.

The Professional Conception of Medicine

The technological conception of medicine is unsatisfactory; if doctors acquiesced in it, it could in the long run even be socially dangerous. The doctor is—or ought to be—a great deal more than a public servant: a doctor who thinks otherwise is underestimating his responsibilities. Such reflections are corollaries of the noble address with which Sir Richard Livingstone opened the Conference. Man is a spirit—that was the pith of his message; and the Conference worked out its implications.

The Conference was, above all, an unambiguous reaffirmation of the professional philosophy of medicine. The technical accomplishments of medicine, great though they are, are incidental; the doctor is essentially a humanist, and can be fashioned and fitted for his work only by the rich resources of a university. To profit from these the student must have had an all-round and well-balanced education at school; and even that will not suffice unless he is—in the words of Sir Lionel Whitby—"one who will love his profession as well as his fellow men and all their weaknesses, their joys and their sorrows."

This does not mean calling for an impossible versatility in the future medical student; it does mean expecting some evidence of personal interest in the concerns of the world—in languages, literature, history, religion, music, art, or sport. Such interests as these are avenues to the understanding of man, and no distinction of merit should be drawn between them; interests vary with temperament, and there is room for all temperaments in medicine.

Other consequences follow from the professional conception of medicine. The first is that professional obligation is not measurable by the clock; the doctor is not only on duty always, but he also acknowledges no limit to the demands on him. The second is that his education can never be finished; his undergraduate days are merely a beginning, during which he learns how to study and how to keep himself abreast of the times. The third is that his duty is not bounded by the care of individual patients; he has duties to society, and when occasion demands he should lead public opinion on questions apt for one with his gifts, training, and sympathies.

The papers examined accept the professional ideal and collectively represent a detailed consideration of the means of realizing it. The methods vary from country to country, but on the essentials of medical education

Western Europe and the United States of America are clearly at one.

The qualifications for admission as a medical student could be defined in many ways; those on which the Conference was unanimous can be stated briefly. To be fit to study medicine a man should have had an all-round education in both arts and science; he should have warm sympathy with his fellows and their interests; he should be ready to identify his life with his work, not setting limits to his obligations; and he should be sound in body and mind. A more detailed analysis of requirements is not needed; I now go on to express more personal opinions on various aspects of medical education.

General Education

It is not desirable to make specific preparations for a medical career during schooldays. Schools should concentrate exclusively on the development of a pupil's personality, the means adopted varying with the type of school. Nothing is worse than the truncation of a normally unfolding course in arts to allow more time for science; it is a disservice both to the pupil and to medicine. Schoolmasters who share this view may point out that concentration on science is necessary if their pupils are to get into a medical school. If that is true, it is deplorable; schools ought not to be subject to pressure by medical faculties; there should be no special faculty requirements or—what is equally bad—informal hints that this subject or that is of particular importance in medicine. There can be no question that the ideal preparation for medicine is the unbiased study of both arts and science right up to the time of leaving school.

Knowledge of any kind may prove of technical value to the doctor, but no subject should be studied at school for that reason. If German is studied, it should be for its own sake, not on the offchance that it may enable the student to read German medical journals; and physics should be studied for the insight it gives into the natural world, not with one eye on the First M.B. For medical purposes chemistry, physics, and biology are best studied at the university, where they are taught by research workers in close touch with medical colleagues.

It is sometimes said that medical students do not write good English. As much could be said of their teachers. Let the comparison be fair; the examination script written against time must be compared with the first rough draft of the teacher's article, not with the elegant product of careful revision. When students write at leisure, as in essay competitions, their work is often as polished as the best published papers. And teachers who gird at illegibility might remember how often they cannot read their own notes. As for vocabulary, students cannot be blamed for reproducing what they find in their textbooks, which are often badly written.

Of course there is room for improvement. The best way to help the student is to get him to write essays, and then to criticize them in detail. Such tuition presupposes a high staff-student ratio—and a literate staff.

Possibly the teaching of English at school could be improved. The pupil should have a good knowledge of the grammar of current English; he should know the rules and when to break them. But that is not enough. No one can get an intelligent insight into English unless he knows where English came from and how it became what it is to-day. It is not suggested that every schoolboy should learn Anglo-Saxon, but a sixth-former could easily stomach the great vowel-shift and the phenomena of mutation. If he does that, he will have less quarrel with English spelling and will know that the prehistory of Europe is locked up in such plurals as "mice" and "men."

To the historical approach one might add the comparative. When only English is studied grammar may seem dull; when English is compared with another language grammar becomes fascinating. Languages solve the same problems in different ways; it is comparison of the various solutions that

gives point to grammar, and a deeper insight into the peculiarities of English than could be got otherwise.

For comparative purposes any language, ancient or modern, will serve. Of the languages normally studied at school German is the best, but better still are the most highly developed Germanic languages—Swedish, Norwegian, Danish, and Dutch. All four have become simplified in much the same way as English, and show many resemblances to it in both grammar and vocabulary. An Englishman should not find it difficult to learn to read any of them.

The other branch of English study—the literary—has quite different objects. The chief is to acquaint the pupil with the best writers, and, since many of these lived long ago, the study is essentially historical. There are—or used to be—gaps in the pupil's knowledge; he might never get beyond the Elizabethans. Every pupil should read something from each of the last few centuries—including the twentieth. Another reason for literary study is to learn to write; here the modern journalist is the best guide, and the day's newspapers are worthy of careful classroom study from the purely literary point of view.

The Medical Curriculum

Curricula can be planned intelligently only when the planners have a common goal. Ideas on this matter have been steadily evolving since the great scientific advances of the nineteenth century. The first modern curriculum can hardly be described as planned; it was simply the coupling of modern science with the traditional clinical apprenticeship, the sciences being studied before the start of clinical training. The last 30 years have seen a scientific revolution in the clinical field itself, so that modern departments of medicine or surgery include well-equipped laboratories for physiology and biochemistry. This is a step towards the integration of preclinical and clinical science and a better curriculum.

The early modern curriculum aimed at producing a safe, all-round doctor. This idea is expressed in section 3 of the Medical Act, 1886; according to this, the qualifying examination must guarantee "the possession of the knowledge and skill requisite for the efficient practice of Medicine, of Surgery, and of Midwifery." The aim of the curriculum was thus to impart presumably durable knowledge. But knowledge grew faster and faster, and the ideal had to be redefined; the aim was to be more modest—that of preparing students to be good general practitioners. This aim in turn has been abandoned, and the current view—ably expounded at the Conference—is that the medical course should not try to produce any particular kind of practitioner, either general or special; instead, it should produce a man well trained in methods of study and capable of continuing his education after qualifying.

Medical knowledge is now so vast and diversified that selection of topics for teaching on has become more necessary and more difficult than ever before. Nowadays the test of a good teacher is as much his judgment in selecting material as his powers of exposition. Acceptance of the new ideal, which is truly educational as opposed to technical, will bring relief to teacher and student alike. Since the undergraduate can master only the fundamentals, and since theory and practice change so swiftly, it follows that education must continue after graduation—indeed, throughout the doctor's professional life. The profession has not yet got to grips with the problem of continued education, but the great interest in postgraduate courses shows that progress is being made.

Since the curriculum is increasingly selective, more room can be found for the social aspects of medicine, as distinct from the individual. General practice itself comes within the field of social medicine, and it is therefore natural that it should be taught increasingly to undergraduates. The object of such teaching is not to manufacture general practitioners prematurely, but to give every student, whatever his future line of work, some understanding of the medical, social, and economic problems involved. General practice

is as much a professional specialty as clinical medicine or surgery, and must be learnt after graduation in the same way.

In brief, the current aim of medical schools is to turn out a well-educated doctor able to think for himself, with the desire to go on learning and the intellectual means to fulfil it. The ideal is finely delineated in Sir Henry Cohen's Conference paper on the "balanced curriculum." The curriculum should be as free from bias towards specialism as the ideal general education, which is simply a balanced curriculum in both arts and science up to the time of leaving school.

Teachers and Teaching

A teacher should not only know his subject and move with the times, but should also interest himself in the methods used by other teachers. This he can do by reading—the Conference *Proceedings* contain much information—and also by visiting other schools at home and abroad. The best way to teach any subject depends on many factors, such as the time available, the size of the class, the number of teachers, the facilities of the department, and the co-operativeness of other departments. A method may succeed in one school and fail in another. Above all, the method must depend on the teacher himself.

No one can apply all the available teaching methods with equal efficiency; there are temperamental differences—often profound—between teachers of the same subject. Some shine as lecturers, others find lecturing an ordeal; some excel in the practical teaching of large classes, others discover themselves only when informally tutoring small groups. Though every teacher has to use a variety of methods, even some he may not like, a department with half a dozen teachers can so deploy them that each can use his one or two talents to the best advantage.

Preoccupation with methods may hide the fact that they are far less important than the man. By some means or other he will convey to the students his own view of the subject, and—inescapably—a clear idea of his own capacity and standards. If a teacher is really able his virtue will out, even though he mumble; students are far more discerning and tolerant than they are supposed to be.

When students want advice they usually have a choice of advisers. There are sympathies and antipathies between individual teachers and students, as between other people, but matching is normally possible. Teachers vary much in their attitude to students; some are avuncular, others Olympian. These are among the difficulties in the way of the "tutor system," according to which a group of students has the same adviser for much of the medical course. It is questionable whether the system is really desirable; it would probably be better for students to consult different advisers at different stages of their career.

A department is fortunate if it includes teachers whose ages range widely, for the old and the young have different gifts. Older teachers—say from the age of 40 onwards—are specially useful for teaching that is elementary or for other reasons exceptionally difficult; and such teachers should be quite firm with younger colleagues when policy is being formulated. Younger teachers excel at dealing with specialized sectors of a subject; their knowledge is often more detailed and up-to-date than that of their seniors, but they cannot possibly have the perspective and judgment of values that come only with time.

If teachers have a fault it is that of projecting their own deficiencies on to the students. It is often said nowadays that students are not as capable or diligent as they used to be. It is impossible to generalize with confidence, but it is doubtful whether students, as a group, are in any way inferior to their predecessors of 20 years ago. It may be that teaching is less efficient than it was; this is the first explanation that should be considered when one is faced with an abnormally high failure rate in examinations. The second explanation is that the questions asked were unsuitable or badly worded; but these, it seems, are always those set by the external examiner.

Students and Studies

One result of trying to teach too much is an evident demand for spoon-feeding and excessively detailed guidance. A refreshing keenness at the beginning of a subject is finally worn away, and the students come to resemble nothing so much as a row of bottles, eager not for education, but to be filled with what is expected to come out in the examination. This dismal spectacle could be avoided by rigorous pruning of courses. Much of what is now taught could be jettisoned without educational loss, and what remained could be taught with greater care and thoroughness.

Unless the student is relieved of needless work he cannot be expected to develop his powers to the full. With a more reasonable load he could be more self-reliant, and so better fitted for the exacting demands of medical practice. True education must be achieved by the student himself planning his own work, finding or making his opportunities, and recognizing and pursuing his own individual bent.

Too much correlation of the work of different departments is educationally bad, for it denies the student the invaluable exercise of doing his own co-ordinating. Thirty years ago students did this—and much more—for themselves as a matter of course. Knowledge and insight won for oneself are infinitely preferable to the predigested offerings of modern paternalism. Medicine is not a field in which sheep may safely graze. Nor should there be so much squeamishness about repetition in medical teaching; every teacher has his own point of view, and the student is entitled to hear a variety of presentations of the same topic.

One of the delights of a university is that it houses experts on a vast range of subjects. A medical student who has developed some special interest at school or university can enjoy the sympathy and encouragement of the appropriate department. In the teachers of divinity, law, music, arts, and many other subjects he can find able guides to his private reading.

The study of medicine ought not to preclude the pursuit of some cultural interest. What is abhorrent is the notion of compulsory culture—required attendance on orientation courses in politics, economics, history, or philosophy. Parnassus is not for everyone; the essence of culture is spontaneity; when there is no spontaneous passion for learning, culture cannot exist. The medical student, if he attains to it at all, must do so on his own initiative.

Medical students who have no special interests might dip into medical history. There is a wealth of good books on this, and something for every taste. Many teachers are interested in the history of their own subjects, but the best guide for the beginner is the medical librarian. A chat with him will set the student off on the right lines; it is best to begin with biographies of people one has heard of, leaving till later the excellent standard histories.

Second World Conference on Medical Education

Before the First World Conference had ended someone wanted a second conference the following year. A conference on such a scale needs several years' preparation; apart from this, time was needed to digest the results of the First Conference before thinking of a second, and to consider possible themes. Committees in many countries have been studying the question, and the Second World Conference will take place in Chicago in 1959, the theme being postgraduate medical education.

The First Conference did not exhaust all the possible topics in undergraduate education. Vast as its scope was, the programme was selective, and many interesting questions were left undiscussed. But it was felt that the Second Conference should not return to the undergraduate field so soon, and the most suitable theme appeared to be the many urgent and difficult problems of the graduate.

The programme-building and conduct of the Conference are in the hands of the American medical profession. The organizers will have a wealth of ideas to choose from. The

Committee on Medical Education of the British Medical Association listed its own suggestions in the report already referred to (*British Medical Journal*, 1956), and this article may end with a glance at them.

The main theme is the continuation of medical education throughout life, undergraduate education being regarded as a preparation for this. Translation of this ideal into practice involves innumerable problems over the whole range of medical work. First, there are the problems common to all doctors, such as methods of study, keeping up to date, travel, writing, and facilities such as libraries and technical aids of all kinds. Second, there are the problems of training men for the very numerous medical careers. Obviously a judicious selection of topics for discussion will be necessary. The task of planning is in most capable hands, and there can be no doubt that the Second World Conference will be as stimulating and helpful as the first.

Summary

The First World Conference on Medical Education reaffirmed the professional ideal of medicine, and the papers as a whole deal with the translation of this ideal into practice.

The best preparation for medicine is a balanced education in both arts and science up to the end of schooldays. Medical faculties should not impose special admission requirements, official or unofficial.

No subject should be studied at school because of its potential technical value in medicine. For medical purposes chemistry, physics, and biology are best studied at the university.

English grammar could with advantage be taught both historically and comparatively. English literature should include works from each century, including the twentieth, and also current newspapers.

Since the medical course is a preparation for postgraduate study, less should be taught, and taught better.

The Second World Conference on Medical Education, due in 1959, is on postgraduate medical education, and may well present medicine as a lifelong study.

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"In the country as a whole, modern schools have only one feature in common: their pupils have not reached the standard required for entry into grammar or technical schools. . . . Some children at secondary modern schools are not academically outstanding but possess considerable practical skill. Yet educational theory is against vocational specialization before the age of sixteen. This places the modern school in the dilemma of having to decide what sort of pre-vocational training is suitable for these children. A greater dilemma is how to deal with the majority of 'average' children who have no discernible special bent and are most likely to be employed in factories on semi-skilled repetition jobs. Should the schools continue with general education alone, or should there be an attempt to make at least some preparation for their future employment? In some areas courses have been developed for older modern pupils which are linked with their possible opportunities in employment and the further education required. Many employers appreciate the evidence of achievement which these courses provide; but among secondary modern teachers there is still much controversy on four points which are fundamental to these developments: the degree of specialization; the age at which specialization should begin; the need for examination; the importance of staying on at school beyond the age of fifteen."—*Nature*, July 7, 1956.

AIMS AND CONTENT OF THE MEDICAL CURRICULUM

BY

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The above title was used by one of the four sections of the First World Conference on Medical Education held in London in 1953. Recently a B.M.A. committee has been considering the work of this conference with a view to the next World Conference to be held in 1959. The subcommittee concerned with the work of the section on the aims and content of the medical curriculum consisted of Professor Stanley Graham, Dr. J. G. M. Hamilton, Dr. F. M. Rose, and Professor E. J. Wayne, together with the rapporteur of the section. Some of the many suggestions made by the members of this subcommittee are incorporated in this article, but the opinions expressed are not necessarily those of the committee as a whole.

Results of the First World Conference

International conferences are not habitually outstandingly successful, save in personal contacts, but the First World Conference on Medical Education was perhaps unexpectedly useful, for it brought together ideas on medical education from fifty-two countries and led to a rather comforting measure of agreement upon the general character and aims of medical education.

It seemed to be generally agreed that the aim of medical teaching is not to train any particular sort of doctor but to develop an educated, thinking man with sufficient knowledge of the principal medical subjects (medicine, surgery, obstetrics and gynaecology) to enable him to acquire readily the additional theoretical knowledge and practical skill necessary for the particular branch of medicine he chooses, whether this be general practice, pathology, orthopaedics, or neurology. He should be equipped to continue learning after qualification, and to do this he must have developed a good technique for learning, a desire to learn, and the sort of critical appreciation which Sir Richard Livingstone described as the "philosophy of the first-rate." This implies that the student has developed a set of standards so that he recognizes and distinguishes between what is mediocre and what is first-rate. It is not, of course, enough merely to distinguish the best from the second-rate—there must be active unwillingness to accept the second-rate. Nor will it do to accept second-rate standards in general practice but demand first-rate standards in specialist practice. That is not to say that the standards are the same, for they are not, but the standard must be the best in the appropriate circumstances. It would be too idealistic to hope that this would always be achieved, but it will be achieved much more often if the practising doctor aims high enough, and one of the objects of medical education is to set up the target, to show it to the student, and to get him to believe it is worth aiming at.

A second point of general agreement is the recognition that the old major subjects of medical teaching have been fragmented by the splitting off of the specialties, and this process continues. Although in the practice of medicine this fragmentation may be necessary in order to achieve the highest technical standards, it has had most undesirable effects upon medical education, for teaching has largely ceased to deal with the whole of the major subjects and has disintegrated into piecemeal teaching on the several parts. In some subjects such as paediatrics (which is, after all, a part of general medicine), the schism has gone far enough to lead to the setting up of separate courses and examinations. This has been justified principally by the