BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 29 1953

First World Conference on Medical Education

President's Address

THE CHALLENGE TO MEDICAL EDUCATION IN THE SECOND HALF OF THE TWENTIETH CENTURY

BY

Sir LIONEL WHITBY, C.V.O., M.D., F.R.C.P.

Regius Professor of Physic, University of Cambridge

The title of my address has not been framed as a question, since there can be no doubt that the second half of the twentieth century offers a challenge to medical education, as indeed it offers a challenge to every variety of medical experience, to every aspect of medicine, and to the practice of medicine in every part of the world.

It is for me to examine the nature of the challenge and for you to listen in the coming week to speakers from all over the world who will make their contributions to our discussions, and who, though having in mind the general issue, will nevertheless instruct us in some of the particular difficulties of their own countries and conditions. For perhaps the first abiding value of this conference may be that we shall know more of each other and each other's conditions. There can be little doubt that when we individually think of medical education we think only of our own countries.

The world, however, has now become so shrunken, because of modern communications, that we can no longer take a parochial view of our problems, whether they be economical, political, social, or, above all, medical, since medicine mercifully knows no international boundaries and happily has the same ideals in all countries. Even when countries are at war their medical professions can co-operate and be at peace one with another in a common task. Fortunately, there is a growing world-wide awareness of the common bonds of medicine and the contributions which these can make to world peace.

The World Health Organization of the United Nations and the medical offshoot of Unesco, C.I.O.M.S., both intergovernmental in constitution, are a formal international recognition that medicine, health, science, and education present common world problems which can, in part, be faced and partially solved by men and women from different countries meeting together and expressing their views. Medical men themselves have realized the challenge by founding the World Medical Association, and I am proud to know that in this the British Medical Association has played a prominent part. The World Medical Association represents the field workers, those who have to do the job.

It would indeed be unusual, if not an indication of inertia and ill-health, if the practising doctors did not have their disagreements with intergovernmental planners. We regard the scene from different standpoints.

and I can understand at least this much of Einstein's theory of relativity, that what is observed depends upon the position of the observer.

It is perhaps significant that the first great project of the World Medical Association is the holding of the First World Conference on Medical Education, and it is also significant that it has secured the willing collaboration of the World Health Organization, whilst the support and interest of the International Association of Universities can only mean that the sure foundation of medical studies is the university and the university ideal.

The Challenge to Education

The first challenge which has come to the fore in the second half of the twentieth century is not confined to medical education, but is levelled at education itself, whatever calling or profession a man or a woman is to take up. The basic trouble is the same as with medicine, that the accumulation of knowledge is such as to demand early specialization and to make it impossible for a student to be comprehensive in his approach to his subject.

Abraham Flexner said that medical education was not so much a matter of medicine as of education. It is fortunate, therefore, that Sir Richard Livingstone, who has probed deeper than any of us into the meaning and purpose of education, has paid us the great compliment of coming to address a gathering of doctors and to give us the benefit of his wisdom.

It is also fitting that Professor Fulton, who has made the physiology of the brain his special study, should follow Sir Richard Livingstone and speak on his other special interest, that of medical history, telling us of the background of the theme of the conference under the title of "The History of Medical Education."

And then, several thousands of miles from New England, Colonel Mallick comes from Pakistan to speak on the parting of the ways between the medicine of this century and before that time. Is medicine a technology or a profession? And if the answer is clear, as I think it is, then how must we educate youth to respond to the challenge implicit in this conception of our common faith?

In preparing for any calling there are challenges from three directions. These are directed at the teachers, at those they teach, and at what they teach. These aspects therefore form the basis of three of the main sections for

the Conference, whilst the fourth, preventive and social medicine, reflects our enhanced consciousness of its importance and of its potentialities both in the medical profession and among the general public, including their elected representatives in the governments of the world.

Social medicine, not to be confused with socialist medicine, is indeed our main contact with the laity, since it covers a part of medicine which they can readily understand, and the execution of it, particularly from the financial angle, lies in their hands. In this field of medicine, too, the fundamental principles are the same in all parts of the world, whether the conditions be civilized or primitive.

Challenge to the Student

What is the challenge to the student? There are certain qualities essential to all students, from whatever part of the world they may derive. It is not difficult to draw a brief pen-picture of the ideal medical student; cultured, broadly educated in the humanities, intelligent and intellectual, of transparent integrity, humane and sympathetic, and, above all, one who will love his profession as well as his fellow men and all their weaknesses, their joys, and their sorrows.

It would be impossible for all students to attain such an ideal, but all should have some at least of these qualities, either inherent or capable of development, for I personally believe that unless this is so the man will never make a doctor, however well he is taught. Selection therefore becomes of importance, and will be a part of our discussion.

It is reasonable to suggest that the profession of medicine, being recruited from the upper one-third stratum of the normal distribution of intelligence, should be composed of something better than a high average. This view must necessarily be related to the demands of other professions and occupations, which likewise need to be recruited from the same stratum. Indeed, it may be necessary to survey the man-power available in relation to the number of doctors required by the various peoples, some countries being prosperous and urbanized, others prosperous and rural, many poor and underdeveloped.

In all countries it is important that the medical profession, while being technically competent, should also have such intellectual and social prestige and such unquestionable integrity as to command respect in the councils of the nation, the province, and the community. Medical students must be recruited on individual qualities and ability, quite independent of family, of personal fortune, of class or family distinction, save that a cultured philanthropic family tends to foster desirable qualities.

There can indeed be little doubt that the first challenge to medical education at this time is the challenge to education itself. Has the government of a particular country so ordered its educational system that a proportion of its youth will be fit to take up the most exacting profession in the world? If this is not the case, then the omission may need to be rectified at adult phase, perhaps in another country, otherwise there is little point in making fine or even coarse adjustments in the medical curriculum if the soil is not fit to receive the seed.

The Medical Teacher

Just as we think of the ideal medical student (though we ought really to think of the average, for this is the type with which our educational methods have to contend), so also we can picture the ideal medical teacher, whether he be teaching at the bedside, in the out-patient department, in the operating theatre, in the laboratory, in the lecture-room, or in the field.

Not all can attain the ideal, and it is not necessarily true, in fact often not so, that an expert in his subject can readily hand on his knowledge to others. Yet the expert and the artist can usually impart something which the professional

teacher cannot convey. There is, however, much to be said for the wide use of some form of tutorial system in the teaching of medicine. By this I do not mean what is generally implied by a medical tutorial—namely, question and answer in preparation for an examination. I think, instead, of the relatively young, experienced, keen member of a hospital staff to whom a small group of students can be permanently attached during the whole time of their hospital learning. The group could gather with the tutor, once or twice a week, from their several and different duties and discuss with him the doings and experiences of the week. Such a tutor, who might well be a general practitioner, could direct studies, review the work of the week, integrate and co-ordinate the various experiences, and give point and emphasis in such a review to all the aspects of medicine, social, hygienic, psychological, ecological, historical, and so on, which various advocates would especially wish to have inserted into an already overloaded medical curriculum. Such a tutor would indeed help to correct the departmental attitude which tends to over-emphasize a narrow subject. Good tutors are difficult to find, and they should not be overloaded with too many students, otherwise the personal atmosphere, that of a family rather than a tutorial class, would be destroyed.

Presentation is in many ways as important as what is presented. The classics, thought by many to be the ideal form of education, are worse than useless if presented to the student in a way which repels him.

The selection and appointment of future teachers might well be more deliberate than hitherto, in order that some may be chosen for their teaching capabilities; and such appointments in some grades might be for limited terms instead of for life.

What is to be Taught?

So much, then, for the medical student himself and his teacher. I must now take up the third challenge—namely, what is the student to be taught. From the narrow point of view one can argue endlessly whether this or that subject should be included in the curriculum and how many hours a week or a term should be devoted to it. With such an approach this conference would probably make little progress even if it were to confine its attention to the problems of the various medical schools and faculties in Britain.

Obviously the content of the curriculum is important, and during this week we shall learn a lot from each other with regard to it. Medical education, however, in any one area must to some extent be related to the medical needs of the population of that area. For example, the doctor practising in Britain will not need to be an expert in tropical medicine. Yet Britain's world-wide responsibilities in the Commonwealth have been reflected in the fundamental contribution made to the subject of tropical medicine by British workers. I need mention no more than Manson, Ross, Bruce, Leishman, and Leonard Rogers. This illustrates at least the fact that medical education can never be parochial.

The approach I have made with my programme committee has been to determine four principal sections and to select topics within these which will bring out and illuminate principles and methods. Let us just look for a moment at a few of the many things in which a medical student might be profitably instructed or of which he at least ought to have some knowledge. The complexity and variety of the subject arise from the enormous accumulation of knowledge during the past 50 years, and especially the last 25 years.

Nuclear physics, colloid science, and enzyme chemistry have provided us with new instruments of thought and practice. The bacteriologist has come to govern the surgeon in the operating theatre, the nurse in the ward, the cook in the kitchen, the practising doctor who uses antibiotics, and the public health worker who is concerned with community infections. The problems of blood transfusion, at one time seemingly simple, are now an affair of genetics,

specialized serology, and statistical analysis. Even clinical experience and a flair for diagnosis can no longer be regarded as infallible guides to ultimate clinical truth: the opinion needs to be checked by means of which the clinician may be profoundly ignorant. The clinician may indeed be momentarily embarrassed when asked for a quantitative expression of his observations and deductions. Medicine is coming to draw even more heavily on the more exact basic sciences and to become more precise and scientific in the formulation and execution of its tasks. It has been said that "science is measurement," and the medical statistician is now an indispensable member of the team which assesses the results of new remedies in a clinical trial or the efficacy of a new immunizing agent.

The challenge to our universities and medical schools is a simple one. Are we preparing our students at least to grasp the principles behind all this scientific work? Does the student leave the university with an understanding of the methods of science and with some knowledge of its history? The doctor of the future will have to be grounded more firmly in the basic sciences than was the student of 20 or 30 years ago, otherwise he will not be prepared to meet the challenge of advancing knowledge which is making medicine a more complete science. And here at once we come up against a difficulty. Because of the length and the ever-increasing complexity of medical studies university authorities ask that the boy at school shall have passed his first medical examination in the basic sciences of chemistry, physics, and biology before he enters the medical faculty. Parents, too, approve of this requirement because of the cost of medical education. The schoolmaster has had to bow the knee to this necessity. But there is evidence that there is now some poverty of mind in the finished medical and science graduates because of lack of general education in the humanities, literature, language, history, philosophy, and the arts. There is little doubt that the medical student who is to be a practising doctor should understand the world in which his patients live, and should be able to approach them as human beings with a depth of understanding that can come only from an appreciation of civilized values. We are indeed aware of the obvious dangers of too early specialization in science among those who are going to graduate in science and medicine. Perhaps the discussion between schoolmasters and doctors at the Conference will help to find an answer to this problem. Here, however, I would say that it is not advisable to extend the graduate period of education if it can be avoided.

It is also desirable, wherever possible, to preserve the continuity of education in school, university, and, indeed, in postgraduate studies. For example, the inorganic and organic chemistry at school should lead to extension of these subjects in the first medical examination and so to the biochemistry and physiological chemistry of the second medical examination, and thence to the application of these to the clinical work of the bedside in the form of chemical pathology. I shall listen with interest to hear whether speakers will state at which point in a student's education at school and university a medical orientation should be given, for example, to the teaching of chemistry.

From the undergraduate standpoint the depth to which the subject should be taught also presents a problem. How much chemistry? How much physics? How much anatomy? Does the intending and practising doctor need to memorize in detail, and then forget, the three-dimensional relations of the posterior triangle of the neck? Does he need to learn the dosage in Röntgen units of the radiation treatment of carcinoma of the cervix? Does he learn anything, as a student, when spending hours in an operating theatre watching the surgeon remove a tumour of the brain? Could he not spend his time more profitably in the outpatient department, the casualty reception, the polyclinic, or even in an art gallery or on the football field?

Sometimes a subject may become a burden in a particular medical school because of a struggle to maintain a department in a prominent position. I myself believe that a student

should receive continuous and lengthy instruction only in the common and basic and useful and everyday clinical problems, but he should content himself with a single experience in rare or specialized procedures. The brain operation which I have quoted will serve as an example, and likewise with the highly specialist work of the ophthalmic and other departments. On the other hand, more experience in such special departments as dermatology would be repaid in the field of actual practice.

Only by discussing such views and exchanging ideas shall we eventually find out how to unload the medical curriculum to make room for new subjects and how to give more attention to parts of training that have been neglected or should receive a fresh emphasis.

I should like once again to emphasize the need for continuity of teaching and how important it is to avoid presenting the student with separate blocks of instruction, the one block being unrelated to the other except in terms of successive examinations which have to be passed. The student must never think of the various phases of his education as a vista of obstacles between him and his final qualification, to be overcome as soon as possible and, once overcome, to be forgotten.

Integration of Medicine

Some of the themes for discussion this week remind me of one of my most distinguished predecessors at Cambridge, Sir Clifford Allbutt, who protested eloquently and with learning against the separation of medicine and surgery, a separation for which physicians are much to blame. Likewise many now hold the view that physiology and anatomy should be integrated as a single basic subject in the curriculum. We do not now need to train the nineteenth-century prosector. He can train himself after he has qualified.

Integration is indeed a fundamental requirement in the curriculum. Teaching has grown up piecemeal. Some aspects are mere survivals which have long lost their relative importance; others, of modern conception, have not been fully appreciated or orientated. Someone might well attempt to write a reasonably short textbook giving the principles governing the integration of all the many facets of medicine. If all the bees could be collected in one bonnet we should indeed have made progress. Happily the clinician in the wards is now accustomed to welcome to the bedside the physiologist, the pathologist, the radiologist, and, especially, the general practitioner.

I feel sure myself that the properly chosen medical tutor could contribute so very much to real integration and do away with both piecemeal instruction as well as the danger of disproportionate departmental and sectional emphasis.

Preventive and Social Medicine

This country's experiment with a National Health Service is one manifestation of the view that medicine is also a social science. The illness of one person is not an isolated event having no effect on others. Tuberculosis is not caused only by the tubercle bacillus. Housing, nutrition, conditions of life and work, all play their part, whilst in the chain of recovery the physician, the surgeon, the pathologist, the radiologist, the sanatorium, the public health officer, and the social worker in the home and in industry are all involved.

The study of man in relation to his environment, human ecology, is the fundamental basis of what is now called social medicine. The challenge to medical education to meet this growing consciousness of the importance of social medicine comes from within as well as from without the medical profession.

A complete section of this conference is concerned with the teaching of preventive and social medicine, a subject in which the World Health Organization takes a special interest. Thus, there will be opportunities for educationists from all parts of the world to exchange ideas and experiences. And it is to be hoped that what is said will help those responsible for medical education in countries where facilities are less

highly developed, especially, perhaps, in the fields of social and preventive medicine.

The Objective of Medical Education

Whatever be taught to the student, it is as well at some phase to ask ourselves coldly and critically, What is the object of undergraduate medical education? The short and incomplete answer is to turn out someone fundamentally equipped to be a practising doctor. The period of training should not be specifically directed towards the training of a general practitioner or a specialist or a public health official or an administrator, but should provide the student with a foundation for his after-career in any branch of medicine. It is his postgraduation apprenticeship and narrower studies which finally complete his early education in the branch of medicine he elects to follow, whether this be general practice or a specialized field.

The undergraduate teacher should aim at producing an educated person grounded in principle and method, able to see what the whole of medicine stands for and means, trained to observe with his hands and his senses, encouraged to think logically and critically, instructed in the use of the instruments of measurement, and equipped with a basic knowledge upon which he will continue to build for the rest of his professional life.

Are we as medical teachers doing this? Or is teaching just a by-product of our professional life? Do we positively examine ourselves from time to time with a critical eye, or do we complacently content ourselves with no more than getting the student over an examination hurdle?

Are we also satisfied with the means by which a student's competence to be qualified is assessed? Has the examination a hampering effect on what is taught and learned, and, if so, can we suggest any alternatives? Always we have to bear in mind that in many countries the manner of assessing competence and the standard are governed by law. There is, however, little doubt that experiment would show some ways in which the perpetual orthodox examinations could be advantageously modified.

Those of us who had the task of devising the programme for this Conference had to pack a great deal into the short space of a week. Many themes I should like to have heard discussed have had to be omitted. Many here might have made different choices. All of you will, I hope, by the end of this week conclude that we have made a useful beginning in tackling this most fundamental of all medical questions—education. And if that is the conclusion, I hope that, individually and collectively, you may decide that the organizations which you represent might be asked to repeat the Conference in four or five years if it is felt that that would carry the matter further.

In the meanwhile what likelihood is there that something will be done? That those in control of medical education will really have the humility and courage to admit that all is not at its best in the best of all possible worlds, their worlds? That those who hold the shaping of the future in their hands will fashion it with vision and imagination so as to inspire the young man and woman to pursue the tasks of our great profession with a feeling of dedication to something greater than themselves? There is indeed a likelihood, otherwise so many of us would not have met here in London in the month of August. But the possibilities must be turned into probabilities and certainties, and until this happens we must possess our souls with that discontent that has so aptly been called divine.

We may aim higher than we can reach. But if we aim high we shall at least reach somewhere. Our individual and collective responsibility as a profession grows, and will grow. We cannot escape it. Medicine to-day demands much from character, intellect, and practical ability, and medicine also provides a wide variety of opportunity for all kinds of talent. But talents will be wasted or misused if the structure and content of medical education are faulty, and if medical educationists remain complacently satisfied with themselves and their methods.

WHAT IS EDUCATION?*

BY

Sir RICHARD LIVINGSTONE, M.A., Hon.D.Litt.,
Hon.LL.D.

We have—most of us—to earn a livelihood. We find ourselves on an immense stage called the universe, occupied by strange creatures called men, and we must have enough knowledge of this scene and of its inhabitants to play our parts intelligently. And we are human beings, with a body, a mind, and also something elusive and indescribable but very real, which we call a soul or spirit—three elements which combine in our personality and which interact on each other; and we wish to make the best of all of them, so far as our natural endowments allow. For even if there were no Great Assize before which at the end we shall be summoned to say what we have done with ourselves and our talents, the world will judge us; and, what is more disquieting, in moments of insight and reflection we shall judge ourselves.

These three needs determine the aims of education. It should prepare us, either by a general or a vocational training, to earn our bread; it should give us some understanding of the universe and of men; and it should help us to become fully developed human beings. Of these three aims the vocational one which concerns us as breadwinners is least likely to be overlooked; and I shall therefore say nothing about it, but concentrate on the other two aims—the making of intelligent citizens of the world and of good human beings—*homines maxime homines*. These two are the most important to us as men, but, since they are the less obvious and the more difficult, they may be neglected, and especially the last of them. Yet the human being is a work of art, capable of a quality and beauty of its own, quite apart from any practical purposes to which its powers are put.

Science an Essential Part of Education

We have to live in a material universe inhabited by men, and to live intelligently we must know something of both. The keys to a knowledge of the material world are commonly called (not very happily) science, and so some knowledge of it is an essential part of education. But in planning our curriculum we should distinguish between scientists, doctors, engineers, and others, who require exact knowledge of science in their occupation, and those who do not. For the needs of these two classes are not the same. The former class must have specialist knowledge of the sciences which they require for their life's work. The need of the others is different. It is less important to teach them chemistry or physics or biology than to give them an idea of the meaning of the changes that came in human affairs about 600 B.C., when some Greeks realized that there was more in the universe than the senses could perceive, and began looking beneath the surface of phenomena to underlying realities and laws, and science was born: and, again, when in a later day other men conceived that through such knowledge nature could be controlled as well as understood, and science gave birth to her child, technology.

To realize the meaning of science, her powers and procedures, the instruments of observation and experiment by which she works—that is more important than teaching individual sciences to pupils who are not going to specialize in science—it is, of course, only of them that I am speaking. By all means add to this essential core as much as

*An address given in the plenary session of the First World Conference on Medical Education on August 24.