Papers and Originals

REFLECTIONS ON UNDERGRADUATE MEDICAL EDUCATION*

BY

ROBERT F. LOEB, M.D.

Bard Professor of Medicine Emeritus, Columbia University, New York, N.Y.

My comments are of necessity quite parochial and are limited to observations in my own country. They are based largely upon some forty years of experience gained in the Department of Medicine of Columbia University, which, as King's College in 1770, awarded the first doctorate in medicine in the American Colonies. Much of what I have to say may be controversial, and, while it is stated with conviction, it is offered as a basis for discussion.

My primary thesis presents the plea that in undergraduate medical education we maintain the emphasis on intellectual growth, and that we guard against the dilution of our effort by the subtle and alluring encroachment of romanticism and the so-called practicalities.

Study in Depth

In the years that lie ahead we in the universities who are concerned with the advance of medical science, medical education, and patient-care will have to be extraordinarily competent if we are to fulfil our responsibilities in meeting the challenge presented by the advance of the basic sciences, and if we are to capitalize on the products of this progress in the investigation of normal and pathological mechanisms. The opportunities are infinite, but they can be discerned and grasped only by the prepared mind. We must hold fast and re-emphasize the highest standards for admission to our medical schools. We must be vigilant in giving constant and serious consideration to the content and calibre of premedical education. We must do everything in our power to stem the acceptance of the levelling-down process manifested by the substitution of trade skills for basic scientific concepts, and of superficial survey courses in so-called "general education" for scholarly pursuits in depth. There can be little disagreement with the view that study in depth, whether in the humanities or in the sciences, develops scholarship, sound critique, and a method of approach applicable to problems in all fields.

It is my belief that if curricula are carefully planned in the secondary schools and in the colleges there will be ample time for more intensive study both in the basic sciences and the humanities. It is inescapable, however, that in the future the student of medicine, whether in practice or in the laboratory, will have to have at his command, and be able to cope with, an ever-expanding body of knowledge of natural science if he is to exploit to the fullest the potentialities for the advance of medicine provided by the enormous achievements of our colleagues in physics and chemistry.

Indictments Against Medical Study

With the strong resurgence of interest in medical education serious indictments have been brought against the aims, the methods employed, and the results achieved. In my country these indictments find their origin, in part, among those individuals who have no academic ties but who are in a position to mould thought in universities by

virtue of the funds they have to offer and also among university administrators who are understandably sensitive to the financial aids which may lighten their burden. To these wells of criticism there may be added those in some branches of the social sciences who in recent years have so wisely been concerned with medicine, but, at least in the United States, often forget that nearly sixty years ago Richard Cabot, at Harvard, led a crusade to introduce medical students to the significance of the socio-economic environment of the patient. The bulk of lamentation concerning the training of physicians seems, curiously enough, to emanate from individuals who have precious little first-hand contact with current undergraduate education, particularly in internal medicine, the discipline central to all clinical training.

It may be appropriate to consider a few of the criticisms now being levelled at medical education as well as the suggested cures. There are those who advocate extension of education in the social sciences, if necessary, at the expense of training in the basic sciences, not for the desirable goal of bringing these disciplines and medical sciences closer together, but rather to humanize medicine. This is a point of view I find hard to accept. There are those who complain, as does the president of a distinguished American university, an individual wholly untrained in medicine, that "the doctor to-day is a specialized technician and a business man." This same educator deplores the "cold" objectivity of medical science, inviting the impression that compassion, understanding, and social conscience are acquired through education in the social sciences rather than being natural endowments susceptible in some degree to influence by precept. The complaint is heard in many quarters that the medical student to-day is trained to be a specialist, but in just what area this specialization is supposed to take place is never clearly defined. The implication is that the concentrated training in hard objective scientific critique crowds out concern with the practicalities and minor medical skills. To me this is a fortunate rather than a deplorable situation. It is, moreover, frequently asserted that, in the education of the medical student, aspects of medicine important to the family physician are being neglected and the student is taught much he cannot apply in medical practice.

Corrective Measures

To correct some of these alleged defects of undergraduate medical study, a number of medical schools in the United States have home-care programmes for students, even in their first year, with the goal to "learn about families," to counsel them, and to care for them. Apprenticeships to country physicians and general practitioners for as long as four months have been introduced to familiarize students with the practicalities of medicine. There is serious danger that widespread application of these programmes might lead to the conversion of university schools of medicine into trade schools which, though they might prepare physicians for the practice of medicine in isolated and underdeveloped areas, would leave them

*Read at a symposium to celebrate the tercentenary of the Regius Chair of Physic in the University of Dublin, December 6 and 7, 1962.

wholly unequipped to bring the best that medicine can offer in advanced urban communities, or, indeed, in many rural areas to-day. It is my opinion that we can ill afford this form of training in view of the short time at our disposal in which to indoctrinate the fundamental principles of modern medicine and to prepare the physician for his continuing self-education.

In addition to those harshly critical of present-day trends, there are more hopeful administrators who, to quote one, feel that we are *just now* "in a phase of transition" from an era which had "scientific medicine as its objective and slogan, specialization as its dominant pattern, and the university medical centre as its preferred instrument." This group *anticipates* the emergence to a third phase "in which there will be some reconciliation between scientific medicine and what is now called comprehensive medicine," and feels that "at long last attention is beginning to be focused on the patient as a whole."

It might be asked without disrespect, "Where have these administrators been?" for surely it can be documented that this "transition" has actually been in evolution for half a century. Review of medical curricula and the structure of university clinics in the United States reveal the formal introduction of social service at the turn of the century, the establishment some fifty years ago of follow-up clinics for the longitudinal study of disease, and the development of the now familiar unit history. The unit history embodies the total health record and much of the social record of the patient as recorded sequentially during all his clinic visits and all his hospital admissions, and consequently contains the information relevant to his life and to his health over the years of observation. For nearly four decades psychiatrists have been attached to and closely integrated with medical ward services. Furthermore, a procedure has been introduced into daily ward visits in some university clinics in which rounds are conducted jointly by a full-time member of the staff who is often involved more than half his time in laboratory investigation, and a practitioner of medicine who by mandate holds both a university and a hospital appointment. This type of daily exercise is an excellent medium for bringing into balance the science of medicine and the art of medicine as they relate to the individual patient. Under this system, visiting staff, resident and intern physicians, students, and, above all, the patient are the beneficiaries.

More recently, group clinics have been established for the better appraisal and care of the "total" patient than was possible in the older conventional out-patient departments. In these group clinics a senior medical student serves as "family" physician, while a member of the staff, either a full-time man or a practitioner, serves as his consultant; specialists are on call to consult on the spot when indicated, and ancillary facilities are available.

Recent Fruits of Medical Education

Now, what have been the fruits of medical education in recent decades? It would be unfortunate, despite the current doubts expressed, not to recognize that man's health and his medical care have advanced more in the past fifty years than in all preceding time. Few would deny that the unequalled progress of the past half-century stems primarily from the advance of medical science and its application to the care of the sick through the media of medical education and public-health practice.

If these premises are valid, as I believe they are, it seems logical that we should guard vigilantly those approaches which continue to prove eminently successful in advancing

the health of man. The illumination of the mechanisms of disease and its management derived from the intensive undergraduate study of the basic sciences must not be supplanted either by unrealistic attempts to encompass and modify the total lot of man or by overwhelming emphasis on the routine minutiae of practice. The so-called practicalities are more appropriately and effectively mastered in the face of full clinical responsibility inherent in intern and resident physician training, and later in the course of actual practice.

Conclusion

I have extolled the introduction of more basic science into curricula, I have decried certain trends toward dilution of medical education, and I have expressed optimism concerning the present-day training of physicians in many schools. I should like, in closing, to voice one grave apprehension. Currently, greater and greater emphasis is appropriately being placed on research experience beginning even in the undergraduate years of the medical student, if for no other reason than to develop critique. This is good. However, to reject applicants to medical schools who fail to evince interest in research, as is becoming a tendency—in effect to demand that *all* students, regardless of aptitude or inclination, participate in laboratory investigation, and thereby to stigmatize those who do not as "second-class citizens"—is folly. The current competition for promotion up the academic ladder on the basis of research activity *alone* not only can but does result in neglect of teaching and of responsibility for patient-care. This is to deny the essence of medicine and, ironically, to deprive the young physician of the deepest satisfactions that medicine has to offer. Surely, comparable recognition and reward should be given for the cultivation of pedagogic talents and for the expression of the priceless inborn qualities of the healer. To place unbridled emphasis on research and thus to engender separation of scientific investigation from clinical medicine would set the clock back and destroy the development and cultivation of the "physician-scientist" whose dominant role in academic medicine must be maintained.

The total number of students from other countries enrolled for full-time study or full-time research in United Kingdom universities at the beginning of the academic year 1962-3 was 14,020 (12,083 men; 1,937 women), which compares with 13,385 in 1961-2 and 12,410 in 1960-1. The subjects studied by the 14,020 students were: agriculture and forestry, 332; arts, 3,334; dentistry, 165; medicine, 2,211; pure science, 2,274; social studies, 2,371; technology, 3,209; veterinary science, 124. The countries from which the largest numbers of students came were: India, 1,746; U.S.A., 1,186; Nigeria, 1,090; Canada, 657; Pakistan, 619; Iraq, 483; Egypt, 464; Kenya, 445; South Africa, 438; Australia, 401; Ghana, 330; Malaya, 322. Of the 14,020 students 6,642 were postgraduate students. The subjects they studied were: agriculture and forestry, 156; arts, 1,651; dentistry, 71; medicine, 1,056; pure science, 1,445; social studies, 1,020; technology, 1,229; veterinary science, 14. The countries from which the largest numbers of postgraduates came were: India, 1,000; U.S.A., 700; Canada, 553; Pakistan, 450; Egypt, 402; Australia, 315; Nigeria, 234; South Africa, 222. In London the distribution of those studying medicine was as follows: Charing Cross, 6; Guy's, 83; King's College Hospital Medical School, 15; London Hospital Medical College, 25; Middlesex, 48; Royal Free, 54; St. Bartholomew's, 47; St. George's, 5; St. Mary's, 53; St. Thomas's, 29; University College Hospital Medical School, 34; Westminster, 12; British Postgraduate Medical Federation, 761; London School of Hygiene, 93; Lister Institute, 2.