Papers and Originals

CHANGING PROSPECTS IN MEDICINE *

BY

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The National Health Service was introduced 15 years ago, not as an isolated change but as one element in a fundamental reorganization of our social services after the war. It was foreshadowed in the Beveridge Social Security Plan and elaborated in a White Paper published before the end of the war, and, although the National Health Service Act of 1946 has suffered only trifling modifications by amending Acts, the service itself has changed a great deal in its range and emphasis; enough to require the publication within the last 18 months of two large Blue Books outlining plans of development over the next decade, which run far beyond anything we envisaged in 1948. Those two plans, the one for the development of the hospital buildings and the other for health and welfare services in the home, are hardly student reading, but you will need to know something about them soon because the district general hospitals of the future are crucial in the development of medical practice, and the supporting services to medical care in the home can make a no less effective contribution to the solution of general practice in which perhaps two-thirds of you will find your future work, if you go on in clinical medicine.

When I was a student there was much less to learn than you have to learn to-day. It seems to me that it is only because basic scientific principles have been so much more fully elucidated that you can possibly acquire and retain the more detailed knowledge of "how" and "why" that you will need for diagnosis and treatment of your future patients. During the six years I was a medical student there was, I believe, one major therapeutic advance—the introduction of injectable liver extract for the treatment of macrocytic anaemia. There were really only about a dozen effective drugs, and of these only two or three survive in similar form, one of them being aspirin. In the course of your student careers there have been or there will be somewhere around 50 new substances and many more new combinations of existing drugs which will be introduced every year. I do not mean that anything like this number of new preparations will survive, as aspirin has done, but many of them will be a great deal more powerful, and incidentally a great deal more dangerous, than anything the pharmacopoeia provided in the year I qualified.

Radical Changes

At the same time the diagnostic techniques, especially those of the radiologist and pathologist, have advanced to an extent that makes the methods of 30 years ago too crude for even the simplest form of practice to-day. The foundations of the service of pathology for the whole country were laid only during the last war. This is true both of clinical pathology and of bacteriology—on the one hand the work of the late Sir Philip Panton in the hospitals, on the other of Sir Graham Wilson in the Public Health Laboratory Service. Some of you may not know of their great work, yet they built upon a basis of limited patho-

logical services in only the main centres a network of laboratories staffed by trained doctors throughout the country. That development was planned from the centre, but by pathologists; it was only a beginning, for even within the last dozen years the number of consultants in pathology has increased by more than half. The same is true of radiology, and in both these specialties the increase has not merely been one of numbers, it has been accompanied by a differentiation within them that makes a man not simply a pathologist or radiologist but a specialist in morbid anatomy, bacteriology, haematology, clinical pathology, or leads him to a special interest in one or other of the branches of radiology.

What this means to the clinical practice of medicine you know—or will soon know—better than I. But it does mean that the outlook of the young doctor on a lifetime career in the practice of medicine must be radically different from that of my contemporaries, who must indeed comprise many of your own teachers, in 1933; medicine seemed then to be relatively stable, though progressive. In many respects it must now be undergoing a process of continuous rather than discontinuous change, which can only be intelligible to the student and practitioner because the training of the doctor in basic science has been continuously improved. One cannot acquire an unlimited amount of factual knowledge from didactic instruction, it must be strung together by some understanding of "how" and "why."

Progress is not all achieved in laboratories or special departments. The greatest progress in the last decade has been in the care of mental illness and of the chronic sick. In both those fields progress has come more from attention to social factors and a new awareness of needs than from any particular scientific development—much as the ataractic drugs have helped. Moreover, these are still fields of rapid progress, and, especially in mental health, the next decade will see more than the last.

Hospital Senior Staff

Since the application of science to medicine progresses without pause—indeed, at an increasing rate—it has inevitably called for a greater degree of subdivision within the profession. I have mentioned the subdivisions that have occurred within the diagnostic departments even during the last dozen years. That also has been happening over a longer period in the clinical specialties. The N.H.S. did not begin the process of placing all clinical charges in hospital in the hands of fully trained specialists. That began early in this century in the teaching centres, spread to most of the larger non-teaching centres between the wars, and was extending even during the war. But it could be completed only when the Health Service made it possible to secure a general distribution of specialist staff. Do not imagine that the full specialist staff you know here in this hospital was, or could be, the general rule in hospitals 15 years ago. The first great advance made under the Health Service was in the staffing of the

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hospitals. But although the total of specialist staff time in the hospitals is already three-fifths greater than it was a dozen years ago, this is only part of the story, for the differentiation among the specialisms has been even more marked than the differentiation between general and specialist practice. Separate departments of neurosurgery or thoracic surgery are developments of the last 25 years and mainly of the last 15.

The work in hospital has been increased, as measured by numbers of new in-patients, by fully a half since 1949, but that increase is mainly in the specialties other than general medicine and general surgery. The newer specialties like thoracic and cardiac surgery have made the most rapid growth, along with gynaecology and orthopaedic surgery among the slightly older ones. Even within general medicine special clinics for diabetes, so notably pioneered here, for haematology, for gastro-enterology or the like, have emerged, and other specialties like cardiology have played a part of rapidly growing significance in the services of a region. This process of differentiation is far from complete yet. Even if no new specialties emerge, much development is still needed in some of those that already exist. There are still places where general physicians or general surgeons fail to recognize the advantages that the development of special departments of, say, neurology or urology, would give to them and their patients. But progressive thought and the reviews of hospital medical staff, now almost completed after the report of the Platt Working Party, are bound to carry the process further. I only hope it will not become too rigid; movement between specialties should be easier. Again you probably don't know just what the Platt report said, but it is the basis for the new planning for hospital medical staff now in progress.

Collaboration

There are still plenty who decry what they call the fragmentation of medicine. But specialization in medicine and surgery need not mean this; for instance, neither neurology nor neurosurgery is complete without the other, and both need access to the expert neuroradiologist and neuropathologist. I am sure that your own distinguished exponents of cardiac surgery would be the first to say that the advances in that surgical specialty are quite as much due to the anaesthetist and the cardiologist as to the surgeon. Even in this field there is now emerging yet another small group of specialists in cardio-respiratory physiology who are playing an invaluable part in the further progress. The science of clinical measurement, clinical physiology, biometrics, or whatever you choose to call it is only at its beginnings. The application of continuous physiological monitoring using electronic or other devices will certainly progress far beyond what we do now. Specialization need not mean fragmentation and dispersal; it must lead to partnership and collaboration. Nor is this solely a medical partnership. The chemists, the physicists, the electronic engineers are not yet being used by doctors as the effective partners they could be.

Clinical judgment is as necessary as it has ever been, but it cannot disregard accurate objective measurement. The pilots of the supersonic airlines of the future will not rely on human judgment where accurate measurement is possible; nor will you. You may well think that the profusion of scientific information in future might stultify medicine by its sheer mass, making coherent analysis almost impossible. But we are now only at the beginning

of the use of electronic aids in the analysis of findings. The computer and other aids to the processing or recovery of data are hardly used at all in medicine yet. But you will use them and this is much nearer than you think.

Hospital Junior Staff

In the next few years you will be more concerned with hospital work at somewhat less senior level. The number of admissions to hospital has increased by 50% but the number of hospital beds in use has hardly increased at all. Yet this increase in the number of patients passing through hospital in a year would of itself call for the expenditure of more medical time. When account is taken of the more intensive treatment that can now be given, of the more intensive investigation, of the more precise control of more powerful therapeutic methods whether medical or surgical, and of the more active and early rehabilitation of all patients, it is obvious that there must be more intensive supervision by junior and intermediate staff as well as the use of more consultant time. That indeed has happened, and the number of junior medical staff has increased in much the same proportion as the number of consultants, S.H.M.O.s, and senior registrars together. The number of registrars and below is now roughly equal to the number of senior registrars and above. Yet the supply is still less than the total demand, in spite of the large number of postgraduate students from abroad working in our hospitals.

To a considerable extent the part we play in postgraduate training of doctors from other countries concealed from us for a long time the rate of increase of our need for medical time. The number of junior medical staff of registrar grade or below in the hospitals in England and Wales at the present time is greater than the product of all our medical schools in six years. Of course, Scotland plays a large part in medical education for England as it has always done, and there is some recruitment from Ireland, but, even allowing for these imports and for the part played by postgraduates from abroad, it was apparent to the Platt Working Party that from the hospitals' point of view it would be an immense advantage if British graduates spent a longer period than they customarily do now in junior posts in hospital. That of itself would not be a sufficient reason if there were not also reason to believe that with the advancement of medical science it would be an advantage to the training of the doctor, before he entered permanent practice in any field, to have longer experience in a junior capacity in hospital. But if that is to be done, the work of junior staff in hospital ought to be specifically adjusted to the needs of preparation of the young doctor for his permanent field of practice. With so great an increase of medical knowledge as has occurred in recent years the process of learning must inevitably go on for longer. But that only means that the process of learning must be facilitated and organized after the stage of the qualifying exams has passed. There need be no compulsion about this, but there ought to be a conscious effort to encourage it.

Responsibility of Teaching Hospitals

Teaching hospitals like this have, as all hospitals have, the primary responsibility to treat patients. Their great secondary responsibility is to train medical students well, so that even more patients should be better treated later on. But these two things are no longer enough; for a

very long time past the function of junior posts in teaching hospitals, of preparing young doctors for independent practice, has been recognized clearly enough, but teaching hospitals especially, and many other hospitals to some extent, have thought more in terms of preparing the young man for specialist practice. It is just a little like the teachers of classics trying to deflect into classical scholarship the best pupils so that they too can teach classics, although in fact it must be manifest that only a few of them will ever do so. Only a minority of young doctors will become hospital consultants in their final careers. We must more consciously direct the early postgraduate years toward preparation for other forms of practice also. Of course the teaching hospitals play a crucial part in training for the specialties. One-third of all the registrars are in teaching hospitals, and more than half the senior registrars. They get an admirable apprenticeship training, but I wonder whether, in our desire to let young men stand on their own feet, we always put in their way sufficient opportunities for them to train themselves. Still less do we organize early graduate training in the non-teaching hospitals.

This last was recognized in the report of a conference organized by the Nuffield Provincial Hospitals Trust nearly two years ago at Oxford. Since then the Trust has contributed a large sum of money to establish regional schemes for such training, and the King Edward's Fund has helped in this also. It is the practice in hospitals in North America to have an organized programme of graduate training for interns and for residents. We offer our intending specialists a pattern of training which I believe to be at least as good as that of the North American hospitals, but we are only now beginning to organize for the rest of the young graduates a programme which may give them what they need. We may perhaps succeed, by collaboration between general practice, the public health departments, and the hospitals, in giving a better all-round training than is obtainable anywhere else. This movement needs the help of the teaching hospitals, and this school has always done a great deal to help the region in which it is situated. Here is yet another opportunity which it is specially well equipped to seize. Mr. Harold Edwards has been one of the leaders in promoting better schemes for training in surgery. It is perhaps an impertinence for me to speak of such a need here, yet one cannot speak of the programme of development for the country without stressing this as one of the new developments which will be most important to us in the Health Service during the next decade.

General Practice

I have been talking mainly about specialist practice. Recently there has appeared the third of the important plans for the development of the Health Service in the next decade. This is the report of the committee, chaired by Dr. Annis Gillie, to advise on development in general practice. The work done in general practice in this country has, of course, many similarities with home care in other countries, but our pattern of general practice also has quite distinctive features, and it is more clearly the basis of health service as a whole than is general practice in any of the other countries I know. The stability of practices here makes the general practitioner the central figure in health care for the individual. He provides a very large part of that care and he is the channel through which most other services are obtained. I believe general practice has contributed—and I mean the general prac-

tioners by their own efforts—more to the success of the N.H.S. than any other part of it. And I believe, as the Porritt Committee themselves said, that the N.H.S. has been a success. I do not mean by that that it cannot be improved; of course it can. Indeed, I believe that Dr. Gillie's committee's report has shown that there is much that can be done through central action to help. There are some things that clearly need to be done and in which medical schools must equally clearly play a large part. I have spoken of the importance of better preparation for general practice. But in a world where medicine advances at the speed we have lately seen, it becomes even more necessary to make it possible for the general practitioner to maintain his knowledge of medical science while specialization makes it ever more difficult for him to do this of his own efforts.

There are rather more doctors in general practice than at all levels in hospital practice. The proportion is roughly 11 to 10. There are more than twice as many principals in general practice as established specialists in hospital work. In other countries the proportion of general practitioners is commonly lower. In Sweden there are substantially more doctors working in hospital than outside. More than half of you will probably become general practitioners, and you will want to know that the opportunities that general practice in the N.H.S. provide are such as will make it possible for you to practise medicine on sound scientific lines, as well as with the humanitarian approach which has always characterized general practice in Britain. It will always be easier to maintain scientific knowledge while working in hospital than working outside it. The libraries, the diagnostic facilities, the meetings with colleagues in other disciplines, are all to be found within the hospital. We must therefore find a way of enabling the general practitioner to share in those advantages. Of course, he has to have the will to use the opportunities we may provide, but anyone who knows the work of the College of General Practitioners or has followed the success of the B.M.A. Clinical Meetings will agree that the will is there.

The Health Service has always sought to provide diagnostic aids to general practitioners, and, broadly, it has succeeded in doing so. There are pilot developments for giving general practitioners free access to the libraries, meeting-places, and other facilities available to hospital staff. This has been developed rapidly within the last year or two, led by such pioneers as the local medical societies in Stoke-on-Trent and in Exeter, by some of the teaching hospitals, by the generosity of the King's Fund as well as the Nuffield Provincial Hospitals Trust, and by such projects as that of the Wessex Regional Hospital Board. Under the Hospital Plan there will be, eventually, a network of district general hospitals of substantial size through which the specialist services for the whole population will be provided. Those hospitals must also be the medical centres of their districts. It is planned that they shall have the meeting, reference, and consultative facilities that all doctors need. They must be identified with the medical needs of the district they serve, and that can only obtain if all doctors have access to them.

You may think it odd that I have not spoken of preventive medicine at all. That is not to underrate its importance but rather because it has become an ingredient of all medicine and a concern of all doctors. It still needs its specialists, as does medical administration, and I hope some of you may turn to it. But let us see that we all contribute something to both aspects. Medicine is not

now so heavily committed in combating infection—prevention is increasingly concerned with chronic disease and the limitation of disability and that means early detection and treatment through the clinical services, a shared exercise.

A Broader Idealism

Last July Sir George Pickering took as his text for a Presidential Address to the B.M.A. the Wykehamist motto, "Manners Makyth Man." He made the point that scholarship and science are less important ingredients in the make-up of the good doctor than humanity. This is a truth long known and often uttered, but more important now than ever before. All doctors must use more and more scientific aids as time goes by. Precision in diagnosis and treatment are the essential concomitants of greater therapeutic efficacy; but public knowledge of medicine has grown as fast and the patient needs and expects to be told more. There is no reason to believe that medical students compare less favourably in intellectual qualities with students in other faculties, but there is also the prime need that they should have and exercise the human qualities that have led doctors to their profession in the past. My observation has been that this generation of students is more concerned about the social aspects of disease than was my own; it has a broader idealism of which we may well be proud. Given the lead by their teachers I think they will certainly show us that the advancement of medical science need not be at the expense of humanity in medicine.

An earlier Regius Professor of Medicine at Oxford, Sir William Osler, said, "the hardest conviction to get into the

mind of a beginner is that the education upon which he is engaged is not a college course, not a medical course, but a life course." In his day that life course could be followed by a man's own efforts. It will still need your efforts, but it also needs the continuing help of the schools.

Conclusion

I have tried to describe how I think we can progress within the framework of the N.H.S.; a framework within which nearly all of you are going to work. Doctors have played an essential part in the maintenance of that framework throughout the 15 years, and that must continue. Medical practice, as I have tried to show, is no longer a wholly individual thing which can be undertaken without partnership with others. The future of general practice lies, I believe, with group practice. The future of hospital practice lies not only in specialization but in collaboration between the specialties. Team-work has become more important than individual expertise. All doctors, and especially those engaged in hospital work, rely increasingly upon members of other professions—not only the nurses with whom we have always worked and the large group included in what Fox has called "the greater medical profession," but also other scientists such as biochemists, physicists, electronic engineers, statisticians, and social workers, but, above all, general and specialist practice are bound up together. Neither is viable without the other. We are one profession, and divisions between ourselves harm not only the profession but also the patients it serves. The day of exclusive individualism in medicine has ended; it is for you to see that in the future you have a better and closer partnership than we have yet devised.

TETANUS PROPHYLAXIS

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Recent correspondence in the medical press reflects widespread anxiety concerning the extensive use of tetanus antitoxin (antitetanic serum; A.T.S.) as a prophylactic agent. Most casualty officers will agree that fear of litigation governs their decision to prescribe serum and that its dangers are a secondary consideration. Many advances have been made in the management of bacillary infections and in the proper management of surgical wounds since tetanus antitoxin was first introduced fifty years ago. Consideration must now be given to the possibility that tetanus antitoxin, especially in view of the risks involved in its administration, is no longer the ideal prophylactic agent against tetanus.

An investigation has therefore been made into the value of tetanus antitoxin. The particular aspects studied included a reassessment of its usefulness in the prevention of tetanus, a study of the incidence of reactions after serum, and an analysis of previous tetanus prophylaxis in a sample of the casualty population. The management of wounds in a casualty department in which the use of tetanus antitoxin has been progressively abolished over a period of four and a half years is described.

Survey of Cases of Tetanus

A study of previous cases of tetanus was made to determine the type of wound that had been associated with the disease and the use made of tetanus antitoxin in its management.

Clinical Material.—The records were traced of 33 cases of tetanus which had occurred in Sheffield and the Sheffield Region during 1955–62. The group comprised 23 males and 10 females, whose ages ranged from a few months to 75 years (Table I). The largest single age-group was that

TABLE I.—Age Distribution of Cases of Tetanus

Age in Years:		0–4	5–14	15–24	25–44	45+
Male		0	11	4	6	2
Female		1	4	2	1	2

of boys from 5 to 14 years. There were 15 schoolchildren, 4 farm-workers, 3 housewives, and 2 old-age pensioners. Skilled manual workers from various trades completed the group.

Type of Wound.—None of the cases had been the result of a major injury (Table II). Because the wound was