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POSTGRADUATE EDUCATION

BY

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Postgraduate medical education may be considered to be of two kinds with distinct purposes : (a) the education and training of medically qualified persons for their chosen careers ; and (b) their continuing education to enable them to keep abreast throughout their careers with the progress of ideas, knowledge, and technique in their branches of medicine. In this country these two kinds are included in the term " postgraduate education," but in America they are distinguished by the terms " graduate education " for the first, and " postgraduate education " for the second.

A. Education and Training for Careers **General Practice**

Many more medically qualified persons enter general practice than any other branch of medicine, so that training for general practice is numerically the most important task of postgraduate education. Paradoxically it is the one for which there is least provision, and it is only in the last few years that there has been any official provision at all. Since the establishment of the National Health Service the Ministry of Health pays a grant of £700 a year and certain allowances to general practitioners in the Service, who have been approved by their local medical committees, in order that they may train a recently qualified person, who acts as trainee assistant for one year. General conditions for approval and for grant are stated by the Ministry, and local medical committees aided by representatives of the appropriate university take seriously their duty of assessing the applications from trainers.

The trainee assistant must not have been previously engaged in general practice in this country, and in future will at least have held pre-registration hospital appointments for one year before becoming a trainee assistant. At the end of his year of training he will be in a favourable position to seek an ordinary assistantship or partnership. Similar apprenticeships were arranged by private negotiation in the past, without any official sanction or grant, and this will undoubtedly continue, but the encouragement by the official scheme and its financial aid from public funds are a step forward, and the effects of the scheme on both the trainers and the trainees should enhance the efficiency and prestige of general practice to a continually increasing degree. The results should be carefully watched and the scheme modified in the light of experience.

Several medical schools now arrange for their final-year students to obtain first-hand practical experience of general practice. The results of these experiments will also be watched with interest.

Consultant Practice in the Clinical Specialties (Including Pathology)

The training of a clinical specialist covers as a rule a period of eight or more years after qualification before an appointment as a consultant can be obtained. This training is provided by junior hospital appointments, but it is necessary also, in order to obtain the more senior of the appointments that are required to complete the period of training, to gain a higher degree or diploma in the specialty. The hospital appointments are those of house-officer, registrar, and senior registrar, or their equivalents, and there are fewer registrar posts than house-officer posts and fewer senior registrars than registrars, so that there is competition and selection at all stages before a full training can be obtained. In general the programme consists of two years as a house-officer, which will include the compulsory year of provisional registration, followed by two years as a registrar and four or more years as a senior registrar. Appointments in the senior registrar grade are not likely to be gained unless the candidate has previously obtained an appropriate higher degree or diploma.

As all these appointments carry appropriate salaries no suitable candidates for a career as a consultant should be prevented by finance from obtaining the required education and training. He should, further, be able to work for the appropriate higher degree or diploma while holding these appointments. Many candidates, however, have difficulty in doing so and find it necessary to attend full-time courses of instruction before sitting the examinations, and so may need to maintain themselves and pay tuition fees for a period before seeking the more senior appointments necessary for the completion of their training. Hospital appointments vary greatly in the amount and quality of the supervision given by the senior staff, and in opportunities for discussion, for study, and for reading, so that courses of instruction that integrate and systematize the knowledge obtained by clinical practice are necessary to supplement the hospital appointments in the case of many candidates.

Courses of instruction, sufficient in number to meet the demand, are available in general medicine, general surgery, obstetrics and gynaecology, pathology, and all their special branches. They are not as a rule designed expressly to meet the needs of any special examination, and usually cover a period of ten weeks or a university term. They are provided by several medical schools and by the specialist institutes of the British Postgraduate Medical Federation in London and are of an advanced

educational standard, combining lectures, demonstrations, and discussion groups with practical work in wards, out-patient departments, and laboratories. In addition, many hospitals under the regional boards allow graduates to attend the practice of their hospitals, and some arrange a varying amount of formal instruction and lectures. These provide opportunities for candidates to acquire additional clinical experience and to fill gaps in their knowledge. Courses of these types are of special value to graduates from other countries who are here for a few years only and obtain much of their training by means of hospital appointments in their own countries, but come to this country for part of it and often obtain one or other of our specialist degrees or diplomas in the time during which they are able to remain here. Details of the courses available throughout the country are given elsewhere in this number of the *Journal*.

While holding the hospital appointments essential for his training for a career as a consultant, the graduate should have time and opportunities not only for reading and study for higher qualifications but should also, especially in the later years as senior registrar, be given opportunities to teach and be encouraged to engage in clinical research. His subsequent career will often be determined by his success at these. The necessary stimulus, encouragement, and help are more likely to be available at a teaching hospital, and it is desirable that arrangements should be developed whereby every senior registrar will spend part at least of his period of training in a teaching hospital.

Those who show promise at research can usually obtain scholarships, prizes, or grants to enable them to get further experience under guidance and supervision in a recognized centre of clinical research or in a department of one of the basic medical sciences, free from routine duties for the care of patients. The Medical Research Council has recently announced a policy of awarding an increased number of grants for clinical research.

Hygiene and Preventive Medicine

As the knowledge of the causes of ill-health is increasing rapidly the field of preventive medicine is widening, and this branch of medical practice is gaining greatly in importance. Studies of the environmental conditions influencing the efficiency of industrial and other workers have opened up new fields for specialists in preventive and community medicine. At the same time developments in industry have brought into use many new materials and chemical reagents, some of which are toxic, and if the conditions under which they are handled are not carefully controlled new causes of inefficiency and illness arise. There is thus in industrial hygiene a new and important special branch of preventive medicine.

The three main divisions of the National Health Service are general practice, specialist and hospital practice, and preventive medicine and public health. It is of the utmost importance for the efficiency of the Service that these three branches should co-operate, and that enough graduates should be encouraged to enter the preventive service and receive a training commensurate with its importance. This branch offers full-time careers both as medical officers of health and as medical officers to industrial undertakings, and in addition there are part-time appointments in both for general practitioners. The training required for such appointments consists in practical experience as assistants and of courses of instruction leading to the Diplomas in Public Health and in Industrial Hygiene. The latter diploma should be regarded as supplementary to the former, which is essential before appointments of any importance can be obtained. Most of the universities offer courses leading to a D.P.H., and the Conjoint Board, the Royal Faculty of

Physicians and Surgeons, Glasgow, and the Society of Apothecaries offer a D.I.H. as the result of examination. The courses for the D.P.H. and for the D.I.H. extend over a full-time period of three terms, but by taking certain elective subjects for the D.P.H. the further time of study required for the D.I.H. can be shortened considerably. Candidates are not as a rule admitted to these courses until they have been qualified for two years, during which time they should have held hospital appointments or been engaged in general practice.

Not only is there no lack of opportunities for suitably qualified graduates in these branches of medicine but there should be no difficulty in finding places in the required courses of instruction, some of which have had to be cancelled for lack of sufficient applicants. Perhaps the need to maintain himself financially for a year, in contrast to the intending clinical specialist who can usually hold a hospital appointment while working for his postgraduate degree or diploma, is discouraging to the graduate who would otherwise seek a career in preventive medicine, and the Universities of Bristol, Durham, and Manchester now offer part-time courses for the D.P.H. covering a period of two years. If this experiment succeeds other universities may decide to make similar provisions.

The development of preventive medicine is especially necessary in tropical countries, and there are numerous openings for medical men in Government service, in industrial undertakings, and with missionary societies. Whether engaged primarily in teaching, administration, or clinical work a course of instruction leading to the Diploma in Tropical Medicine and Hygiene is almost essential. Courses available in London, Edinburgh, and Liverpool cover a period of five months of whole-time work, and candidates for the final part of the examination may be required to have had from one to two years of practical experience in the Tropics.

Basic Medical Sciences

Appointments in the basic medical sciences are, with a few exceptions, in departments of universities and medical schools. They require not only knowledge of the subject but also in all cases a capacity for research, and the duties include a considerable amount of teaching. There is no well-marked road to careers in these subjects. A medical qualification is not always obligatory but is usual and is of special value in appointments in medical schools. The training and experience that lead to appointments are extremely variable and individual. A medical graduate will usually hold junior hospital appointments in clinical branches for two or more years before being appointed as a demonstrator in anatomy, physiology, pharmacology, bacteriology, or biochemistry, and his success, especially in making use of his opportunities for research, will determine whether he finds his career in the basic sciences or not. Many eminent clinicians have spent one or more years in these subjects before continuing their training in one of the clinical specialties, and this is to be encouraged. Many graduates who subsequently find successful careers in one of the basic sciences have entered these departments with a research scholarship or grant to work possibly for a higher degree such as M.Sc., Ph.D., M.D., or M.S. In general, there are at present more appointments available in these subjects than suitable persons to fill them, but the road to a career is a hard one and a high standard of scholarship and research ability is required.

B. Continuing Education

No matter in what branch of medical activities a graduate is engaged it is essential that he should continue his education and training throughout the whole of his career. The progress of the fundamental sciences, and of their application to medicine, is so rapid that the practice of all branches is altering continually. The years of undergraduate study

are designed to give the graduate sufficient understanding of the principles of medicine to enable him to assess new knowledge with a critical mind and apply it with discrimination and a sound sense of values. During his undergraduate years and while undergoing postgraduate training for his career he will be in contact with more mature and experienced minds, and with their help he will be able to assess the value of the published work of others and discriminate between what is sound and what is merely plausible. With their help he is able to examine his own experiences with a critical judgment. It is when he leaves the teaching centre and has to rely to a great extent on his own judgment that the value of a good undergraduate and early postgraduate education becomes evident. But sooner or later he must regain contact with a centre of critical thought. By reading the medical journals regularly he may be aware of the trends of new knowledge and of its practical applications, but only the accumulated judgment of a number of critical observers can assess these wisely and justly.

Libraries

The first requirement, therefore, for continuing education is access to medical literature, and especially periodicals in general medicine and in the relevant special branch. Most medical graduates subscribe to one or two journals at least, and among them is usually one of the weeklies through which he obtains clues to new applications and new knowledge. He needs also to study the authorities in connexion with cases or incidents occurring in his day-to-day work, and this requires access to a library. The importance of this to continuing education and expanding experience cannot be exaggerated. Medical men living in a large city or in the neighbourhood of a medical school have ready access to a library through which any volume present in this country can be borrowed, but the more remote their situation from such a centre the more difficult it becomes, and enthusiasm and determination are required. A well-selected private collection of books and one or two periodicals meet most needs, but something more is required on occasions, and these may be frequent and important. The local hospital group should be able to supply the library needs of its area, and regional boards and hospital management committees are beginning to appreciate their responsibilities for library facilities, so that in course of time there should be available in every hospital group a run of journals sufficient for most needs, whether of general practitioners or specialists, and these local libraries, if associated with the larger libraries of medical schools, will be able to obtain any volume to which reference is sought.

Contact with Teaching Centre

The second requirement is contact and discussion with colleagues and teachers in order that new knowledge may be seen in a proper perspective and applied only after critical investigation. This is provided by local medical societies, specialist group conferences, and national and international conferences. Local medical societies vary greatly in their value and depend for their success usually on the enthusiasm and energy of one or two members. An energetic secretary can do much for the continuing education of the members and for keeping them in contact with the regional and teaching centre by inviting guest speakers to take part in the society's discussions. Under the regional plan of the National Health Service there are now in each region groups of specialists in each of the main branches of medicine and surgery, and a start has been made in some regions to hold periodic meetings of the regional consultants in each major specialty. These are held for the most part in the medical school of the region, but meetings in regional hospitals also have a stimulating influence. The gradual extension to all regions and specialties of this type of conference should prove of great value to regional consultants, their hospitals, and the health services.

Courses for General Practitioners

It is not easy for many busy general practitioners to attend the meetings of their local medical society, and in many places the meetings do not seem to meet their needs, so that other provisions are required for them. These must take a variety of forms to suit their different situations and needs. Whole-time intensive courses lasting one or two weeks at a centre at a distance from their area of practice meet the desires of some, but experience has shown a steady demand for those at Brighton, Edinburgh, and London only. They provide periodic contacts at wide intervals and do not meet the need for frequent contacts. Extended courses of one half-day a week covering a period of 5 to 10 weeks and held at a local centre are better for this purpose and do not require the absence of the doctor from his practice. Courses of this type have proved successful in many urban areas throughout the country. Short intensive week-end courses of two or three half-day sessions at the local hospital seem better suited to rural areas. In places where there is a strong local medical society well supported by the practitioners of the district these extended and week-end courses seem to be unnecessary. At Oxford selected teaching sessions at the Radcliffe Infirmary, though primarily for undergraduates, are open to the practitioners of the region, who may attend whichever of the subjects in the published programme appeal to them. This arrangement seems to suit the conditions of that region but may not be applicable to other parts of the country. The fees for all these forms of courses are paid by the Ministry of Health on behalf of National Health Service practitioners, who can claim certain allowances for travelling, etc., in addition.

None of these schemes seems to meet the general practitioners' needs for continuing education to the satisfaction of all, and some more effective way of enabling general practitioners to have constant contact with a hospital and its consultant staff is desirable. A few attempts are being made to give temporary appointments as clinical assistants, under supervision but without responsible duties, but so far these have not been successful, and it seems clear that a solution on these lines is full of difficulties. Experiments should be encouraged, and in due course the solution will, without doubt, be found.

Each university and medical school throughout the country has appointed a postgraduate medical education committee with a postgraduate dean or director of postgraduate education as its executive officer, and general practitioners are represented on these committees. The committees and directors are conscious of the importance of developing this aspect of postgraduate education, and conferences of the deans and directors are held at intervals in order to pool experiences, discuss the difficulties, and share in finding a solution.

Co-operation

A start has been made to bring together general practitioners and the specialists on the consultant staffs of hospitals, but little has so far been done to bring the medical officers of the preventive services into close association and co-operation with the other two groups. Talks on preventive and community medicine are being introduced into many courses for general practitioners, but so far these have not proved popular. Each hospital group has a responsibility for the health services in its area, and the medical school of each region has a responsibility for the continuing education of the medical men and women in the region, whatever branch of medicine they practise. Gradually, no doubt, the medical schools and teaching hospitals will make more provisions for bringing together the consultants of the region and will encourage a closer co-operation with the preventive services; the consultants in the regional hospitals will be stimulated to make similar arrangements for the area for which their hospital group is responsible, and so through courses, conferences, and

informal discussions the general practitioners, the preventive services, and hospital staffs will unite in a common effort for the health of the people.

Graduates from Overseas

The various purposes of postgraduate education and its different forms have so far been discussed from the point of view of graduates of the medical schools of this country, but for reasons that are academic, historical, geographic, and political we cannot avoid, and we do not wish to avoid, providing also for many graduates of medical schools in the Commonwealth and Empire and in foreign countries who seek part of their postgraduate education here. For the most part they seek training in the specialties. They come at various stages in their training and stay here for varying periods, many of them aiming at higher degrees or diplomas. All can be readily fitted into the general scheme. Because of the limited time they spend with us courses of instruction and attendance on the practice of hospitals are especially valuable to them, for they obtain their responsible hospital appointments for the most part in their own countries. Those who can remain here longer compete with our own graduates for suitable appointments, and are welcome colleagues. They gain something by sharing in our scheme of education and training, and our graduates gain immensely by contact with them. In this way postgraduate medical education is a fruitful source of understanding and friendship among the nations, and above all among the nations of the Commonwealth and Empire.

GRADUATE EDUCATION OF PHYSICIANS IN THE MEDICAL SERVICE OF THE UNITED STATES ARMY

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" . . . The duty of an army medical officer is to preserve the efficiency of his command by guarding it against unsanitary influences and preventing disability from diseases that are known to be preventable. . . . To accomplish this in a satisfactory manner requires special training. Any well-educated medical man may be placed in the wards of a hospital and entrusted professionally with the care of its sick ; but this, although of high importance, . . . is a minor duty compared with that of preventing or suppressing the sickness that would otherwise fill the wards. The medical graduate, equipped as a general practitioner, is not qualified for such duty. . . . (Therefore) each individual joining the corps should be trained sedulously in the lines of his future work. It is on the efficiency of the members of the Medical Department of our small Army that the care of the sick and wounded of the armies of the United States would chiefly devolve in the event of war. . . ."

These excerpts from the Report of the Surgeon General of the Army for 1894 (which described the establishment of the Army Medical School on June 24, 1893) announced the beginning of formal graduate education for physicians of the Regular Army and succinctly stated the reasons why such a programme was required. Although the tactics employed in the operation of the Army Medical Service of to-day may differ from those of sixty years ago, the strategy, so aptly stated by Surgeon-General George M. Sternberg in 1893, remains unchallenged. The aim to-day, as then, is to develop

a small corps capable of handling the many duties during peace and yet so constituted as to permit a manifold expansion in time of emergency.

It is essential that the complexity of the framework of the Medical Service be recognized. To-day, the regular officer personnel of the Medical Service includes physicians, dentists, veterinarians, non-medical administrative officers, nurses, and allied scientists representing the various ancillary health fields. Educational patterns exist for each of these various groups, but it is possible in this presentation to discuss only the graduate educational programme for physicians. Even this must be concerned mainly with the formal courses given by the Army schools, since other aspects are highly individualized and not amenable to treatment in a condensed form.

Duties of the Medical Service

In the introductory paragraph reference is made to the contrast between the responsibilities of the regular medical officer and those of the physician in civil practice. Perhaps the simplest way to support this statement and at the same time state the aims of the educational programme is to delineate the several duties of the Medical Service. Although there is obvious overlapping, these fall into five broad categories.

The first, and most closely resembling civilian medicine, is the provision of high-quality professional care to the Army's routine load of sick and injured ; this requires the development of officers professionally qualified in the medical specialties as well as officers competent in administration of the fixed hospitals.

The second, which differs to a large extent from its counterpart in civilian medicine, is the operation of the integral administration, including the logistical planning, supply, and procurement required to maintain the widespread units of the Medical Service.

The third, which, although represented to some extent in scattered facets of civilian medicine, has no exact counterpart, includes :

The selection and classification of military age personnel from the health point of view.

The practice of preventive medicine on a world-wide basis, with and without functioning civil public health services. The term "preventive medicine" is here used in its broadest connotations.

The treatment of the sick and injured and their rehabilitation as they occur under the primitive conditions of war.

The fourth is to maintain a programme of planning and research designed to evaluate the problems of the present and of the future, and to provide methods of continual improvement of existing policies and practices. During the past several years the Medical Service has expended some ten million dollars annually on the investigation of problems of military importance, the budgetary allocation to various areas of study being roughly proportional to the magnitude and urgency of the problem. These funds support both in-service research and projects sponsored by civilian agencies. The Army Medical Service Graduate School is the largest in-service agency supported by these funds and is responsible for the integration of the results derived therefrom.

The fifth, intimately related with the other duties, is to be prepared to expand the Medical Service in time of war, utilizing personnel drawn from civil life. To provide for such an expansion requires the continual operation of an educational programme for the members of the various contributing civilian professions in order that, in times of emergency, their awareness of military medicine is such that they may be rapidly mobilized into a smoothly functioning whole. For this mission the Army must develop well-qualified educators, for the expansion required is at least