a thesis for the degree of Candidate of Science. During the course the doctor studies not only his chosen specialty but also related subjects. He receives a State stipend for the three years. As a result of many years' experience it appears to us that the work of the postgraduate institute has justified itself.

In order to train professors from among the more able assistants and lecturers an institute for doctorates has been set up, with a two- to three-year course. Whilst engaged in this the candidate must prepare and be ready to defend publicly his thesis for an M.D. degree. During the whole period he receives a salary according to his previous post—that is, as an assistant or lecturer.

In colleges of the Soviet Union there are the following scientific titles: the assistant, who helps the professor in teaching and carries out practical work with the students; the lecturer (dotsent), who together with the professor may conduct an independent course or work under the direction of the professor, co-ordinating the work of professorial assistants; and the professor, who heads the unit. The title of assistant is awarded by secret ballot of the scientific committee of the institute. The title of lecturer or professor is awarded by a special high ministerial commission after selection by the scientific committee of the institute by secret ballot. These titles are retained for life. In order to be chosen for the post of lecturer the degree of Candidate of Medical Science is essential, and for that of professor the degree of Doctor of Medical Science is needed.

A great achievement has been the training of professorial and teaching groups from among the natives of the national republics. This has made it possible, in the Transcaucasian Republics, Azerbaijan, Georgia, and Armenia, to change over to training in the language of the particular republic in the medical schools.

The medical, dental, and pharmaceutical institutes are as a rule under the charge of the ministries of health of the local republics, and only a few are the direct responsibility of the All Union Ministry of Health. The latter is, however, responsible for the central direction of medical teaching, and, whether or not a particular institute is directly controlled by it, the All Union Ministry of Health has to approve the curriculum and textbooks. This ensures uniformity in the training of specialists.

Specialization

In the Soviet Union there is a State system for specialization and the improvement of medical qualifications. In the first stage, for those doctors who have not previously received training in one of the specialties, the general practitioner is sent for a period of four to six months to specialized clinics and hospitals at the expense of the Government.

The second stage is provided for by 11 institutes for raising medical qualifications. These establishments, situated in Moscow, Leningrad, Tbilisi, Tashkent, Kazan, Stalino, etc., are institutes of higher education with clinical and theoretical professorial units. Over 16,000 doctors enter these institutes every year for courses of from three to nine months. About one-fifth attend for a course in primary specialization, and the remaining four-fifths are doctors who have already specialized and wish to have higher qualifications.

While they are in the institute for raising medical qualifications doctors attend lectures illustrating recent advances in medical science, undertake clinical consultations, and attend and take an active part in scientific conferences. This gives the doctor the opportunity to enlarge his theoretical horizon as well as acquire the necessary practical skill. The right to enter these institutes is enjoyed by any doctor who has spent three years in rural practice or five years in urban practice. During his course at the institute he receives his normal salary plus a supplementary State stipend.

The third stage in the training of specialists is to attend the three-year course for hospital medical officers mentioned in connexion with the training of teachers.

Medical Auxiliaries

The growth of the health service has demanded the training of a large number of medical auxiliaries: nurses, "feldshers," dispensers, midwives, etc. There are now some 600 schools for this in the U.S.S.R., and the scope of training is so great in comparison with the pre-revolutionary period that there is no point in quoting figures. The schools for nurses are the most numerous and give a two-year course. For paediatric nurses, midwives, "feldshers," dental assistants, and dispensers there are three-year schools. Finally there is the four-year school for training the feldsher-midwife. The right to enter these schools, except that for dental assistants, is enjoyed by those who have had an incomplete secondary education (seven years). The dental schools take only those students who have a certificate showing that they have completed the 10-year secondary education.

A reform of this system of education of medical auxiliaries has now been prepared. All the schools will have the same length of courses, three years for students who have not completed secondary education and two years for those who have. In addition to the already mentioned auxiliaries the schools will train sanitary feldshers, feldsher laboratory technicians, female feldshers to work in children's establishments, and dental technicians. Finally, with the new academic year the schools for assistant dentists will be closed and additional dental faculties set up, so that in future dental treatment will be carried out only by fully qualified dentists.

The Soviet Government pays great attention to medical education, since the satisfactory solution of the problem of training ultimately determines the success of all the work of the health service.

GENERAL PRACTICE: NEED FOR HOSPITAL TECHNIQUE IN THE HOME

BY

JAMES M. STALKER, M.D.

*Late Physician, Dundee Royal Infirmary; Foundation
Member, College of General Practitioners*

In the last few years there has grown up a critical attitude to medical undergraduate education in respect of the applicability of that education to the needs of the general practitioner. It is being said in many quarters^{1,2,3} that the medical curriculum is lacking in education for general practice because university teachers have not themselves got the background from which such education formerly came. The corollary to this is the claim^{2,4} put forward for general practitioners of good standing that they should be assigned a part in the education of their younger colleagues of the future. In one or two schools this is already being done, but it is clear that the claim is by no means generally admitted. Before such admission can be expected, a reasoned case must be stated for these two contentions—that the undergraduate is not being educated for general practice and that G.P.s themselves should be given that responsibility. As an approach to the answer to these questions this one may be put: At what point or by what process did undergraduate education cease to provide, if indeed it ever did specifically provide, for the needs of general practice?⁵ In default of a convincing answer the case falls.

A Time of Change

In the three broad regions of surgery, medicine, and midwifery let me take the last first. Forty years ago the teaching

of midwifery envisaged the practice of domiciliary obstetrics on a wide scale, and it is likely that, with the exception of recognized emergencies of that practice, the normal limit the G.P. set to his own powers was "failed forceps." At this point the teaching of midwifery began to change—not to get away from the G.P., but to emphasize a different set of standards for him to follow. That lesson should not be lost sight of when we examine undergraduate teaching in its relation to general practice to-day.

By this same period, forty years ago, the disappearance of the general-practitioner surgeon had set in, and the first world war and its lessons started surgery on its division into special branches. Orthopaedics and peripheral nerve surgery were still together, and a number of years were to elapse before each took its own identity. Thoracic surgery had been advanced by the serious mortality from chest wounds, and the next years saw surgical practice and teaching taken over entirely by pure surgeons—general surgeons with or without a special aptitude and interest in one or another region. From this the undergraduate had to assimilate a great quantity of surgical teaching which he was not, if he became a G.P., going to practise. But let this be marked: he could, if he entered practice, still call the surgeon to the patient's home, where, whatever the deference paid to the specialist opinion, the deference to respective positions *vis à vis* the family was, as it still is, ethically in the reverse direction. Moreover, if private nursing-home or operation were decided on, he could still elect to administer an anaesthetic, and the requirements of a surgeon at different stages of an operation were very much part of the knowledge demanded of him. Further, quite frequently the G.P. was responsible for the post-operative care of his patient, so that at this stage it still seems the teaching of surgery was thoroughly germane to the needs of the family doctor.

The need for a uniform standard of antenatal care of women had produced the antenatal clinic. The need of the surgeon for a uniform level of skill in ever-changing methods of anaesthesia produced the anaesthetist. The anaesthetist displaced the family doctor in pre-operative measures, at the theatre table, and in such post-operative care as did not clearly fall within the surgical province. Surgery was strengthening its bond with anaesthesia but was relaxing its ties with ordinary general practice.

By and large, I think the G.P. of the past was more dependent on his teachers of medicine than on the other two broad divisions of his training. It used to be taught that if a patient with pneumonia were not transferred to hospital on the first day of illness he should not be transferred at all, and that his chances of survival from transfer on the fourth day were less than his chances if left at home in the hands of his own doctor. That was a measure of rapprochement between the hospital and the G.P. that we should ponder.

Advances in surgery after the first world war were not perhaps paralleled in medicine. But since the last war medicine has made advances as far-reaching as any. But these have not been self-limited to the medical field. The impact of surgery on the treatment of heart disease and the "medical" diseases of the lungs, the increasing complexity with which haematological research has invested the anaemias, the advances in biochemistry made possible by the polythene catheter, the artificial kidney, and the potentialities of the heart-lung mechanism—it cannot be gainsaid that these developments must result in an orientation of hospital departments towards one another and away from the humdrum, emergencies and all, of general domiciliary practice.

The former liaison between the medical teacher and general practice was derived from the teacher's personal identification with domiciliary practice, either as a consultant or as a family doctor. He knew general practice from experience. He knew that the practitioner must base his diagnosis on an appraisal of symptoms and the detection of physical signs, on the evidence of his own unaided facul-

ties, on his knowledge of the facets of family life, the emotional sidelights so easily dimmed when a sick person comes into a hospital ward. But there is more to it than that. As recently as forty years ago the hospital physician took with him his own judgment and his own methods of bedside investigation—just those very things on which he was still mainly dependent even in his hospital work. There was nothing, even in the hospital, like the ancillary armament of investigation and treatment now available. In other words, the skill and resources of the hospital of 40 or 50 years ago were taken to the home, in the person and personality of the consultant, in a far truer sense than they are to-day.

Hospital practice has undergone something of a revolution. In general practice the manufacturing chemists have pushed themselves to the front of the advance in therapeutics, but in too many cases diagnosis is still "waiting on a bed." I believe that general practice could be brought nearer to hospital developments by taking the diagnostic facilities of the hospital to the patient. Before examining that suggestion I would like to return to the second proposition with which I set out.

The G.P. and Undergraduate Training

The part which the G.P. might be asked to take in undergraduate education is not agreed, and an open mind^{2,3} should be kept. I am quite sure that nothing but good could come of a student being given opportunities of contact with sound general practice. In the atmosphere of general practice, and perhaps only there, he will see threads drawn together of which he only sees the individual ends in hospital class-rooms and practice. But, on the other hand, he cannot, as an undergraduate under any circumstances, be trained to the point of entry into general practice any more than to the assumption, on graduation, of the duties of a registrar.

Undergraduate training must aim at a sound general medical education without foreknowledge of the ultimate sphere in which any student is going to practise. It is therefore right that at some point a G.P.'s view should be given him, just as at present the hospital surgeon or physician's view is perhaps emphasized. It has been suggested that the G.P. might attend at the hospital when his patient is being "shown" and might put the general-practitioner aspect of the case to a class. But I think we ought to recognize that, so far, that is not the purpose of the patient's presence in hospital, in spite of the fact that a "good teaching case" may get in more readily than another. But, apart from such a consideration, it is doubtful if the G.P. angle can be brought to bear on the presentation of a "case" at all. The alternative is the attachment of students, to such G.P.s as are willing, for short spells during vacations, to go round and see patients with the doctor and to sit as an observer under instruction at surgery hours.

Examination Facilities

There is a third way. Ever since the advent of the National Health Service it has been urged that G.P.s should have direct access to ancillary examination facilities in the hospitals.⁴ Not very much has been done to bring it about. It is possible to believe that throwing open these facilities to general practice might contribute to a scamping of that extra care in physical examination that should be, but is not, every family doctor's aim, and would transfer the load to the diagnostic departments of the hospitals. Provided, however, that the sound practitioner has given his patient a proper physical examination, he is quite capable of deciding, in this or that case, that he needs the help of hospital resources. It is at this point just now that his patient gets on to a waiting-list for appointment or investigation. We should therefore examine the practicability of taking the hospital to the patient—in other words, of cutting down the waiting-time for admission and in many cases cutting

out the need for admission at all by making ancillary investigation available in the patient's home.

The portable x-ray apparatus and electrocardiograph are already in use in people's homes, but a much wider range of investigation in domiciliary surroundings should be practicable, although the actual examination of specimens obtained must be done in the hospital laboratory. The range I suggest, including what is already being done, takes in:

Cardiovascular system: electrocardiograph; x-ray apparatus.

Respiratory system: bacteriology and cytology of sputum; x-ray apparatus.

Digestive system: fractional test meal; benzidine test.

Genito-urinary system: kidney function—for example, urea concentration and clearance.

Nervous system: lumbar puncture for full C.S.F. examination.

Haematological: Wintrobe tube blood sample; sternal marrow puncture.

Metabolic: blood-sugar curves; liver function; other serum and blood chemistry.

For some of these investigations the specimens required might be obtained by the family doctor himself, but the provision of a perfectly dry syringe has long been one of the simple snags in general practice,⁸ and such a provision from the hospital would be asked for in serum and blood chemistry examination.

From the hospital and/or laboratory aspect there might be a little hesitancy in giving a *carte-blanche* reliance to specimens so obtained. The answer to that would be the mobile team from the hospital, consisting perhaps of a registrar and a postgraduate or a final-year student. In addition to necessary instruments such as needles and syringes, specimen tubes, and the like, small sterile packets might be required. Full co-operation from the practitioner would be essential. He would have to be present at the house throughout the visit of the mobile team, and the most suitable time of day for such a team would depend on hospital requirements. I am not in a position to carry the examination of this suggestion further at the moment, so far as the hospital angle is concerned. I think the first approach might have to take in only a limited number of practices, but I confidently believe that it would make for better diagnosis in the home, for less demand on occupied beds for investigation in the hospital, and for the effective introduction of the undergraduate and pre-registration post-graduate to the atmosphere and circumstances of general practice.

If something near such a scheme of diagnosis in the home can be realized, then it brings in another picture. There is nothing to be gained by the G.P. criticizing the teaching of medicine while the teacher criticizes the standard of general practice. Long-range sniping is not the answer to the need for a close partnership. If the home can accommodate the diagnostic methods of the hospital, then it is surely on the way to the benefit of a wider range of domiciliary treatment. It is on such lines that general practice in this country will again set a standard for the rest of the world. Britain in the past was called a nation of shopkeepers, but something must be done to stay its march on the road to being a nation of hospitals.

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THE ENROLMENT IN MEDICINE

The total number of names in the *Medical Register* on January 1, 1954, was 83,090. Of this number, 73,003 were on the lists of England, Scotland, and Ireland; 8,289 on the Commonwealth List; and 1,798 on the Foreign List. The number is higher by 4,399 than the average of the last ten years, but it is lower than for the preceding year, because of the enormous decline in the number added by registration following the requirement of the Medical Act, 1950, that full registration for a newly qualified person must be delayed until he has served as a house officer for a period (one year) prescribed by the regulations of the General Medical Council. The number of persons provisionally registered in 1953 under section 6 of the new Act was 1,817; in all but 50 of these the provisional registration was on the English, Scottish, or Irish list.

Twenty years ago the total number on the *Register* was 57,496, so that it has increased by almost half as much again in two decades. As for removals from the *Register* it is worthy of note that the number removed by penal erasure (only two in 1953) has averaged just under three a year over the last seven years, whereas during the previous seven years, 1940–6, it averaged almost 10.

The following table gives the position on the *Register* at the end of each of the last ten years:

Year	Registration	Added by Restoration	Death or Removal	Total
1944	2,971	11	1,218	73,646
1945	2,666	11	1,190	75,133
1946	2,237	14	1,092	76,292
1947	2,787	10	1,160	77,929
1948	3,968	16	5,621	76,292
1949	3,109	19	1,280	78,140
1950	3,160	45	1,123	80,222
1951	3,075	29	1,070	82,256
1952	4,493	46	2,881	83,914
1953	507	99	1,430	83,090

The high removal figures for 1948 were due to removals from the temporary list following the passage of the Medical Practitioners and Pharmacists Act of the previous year.

The Student Entry

The total number of students beginning the medical curriculum proper during the year 1953–4 is estimated at 2,512. During the early years of this century, up to the time of the first world war, the annual entry of students was about 1,400.

The training of medical students is shared between the teaching hospitals and the universities. In London the 12 undergraduate teaching hospitals, and in England and Wales, apart from London, the 10 teaching-hospital centres in association with the universities, have been designated as teaching centres. In Scotland hospitals are not designated as teaching hospitals; all of them come under the jurisdiction of the five regional hospital boards, but provision is made for inclusion on the boards of management of nominees of the university on which the region is centred. In Northern Ireland the duty is laid upon the hospitals authority—a body corporate—to provide the Queen's University, Belfast, with adequate facilities for medical teaching.

Results of Examinations

The results of the examinations held in 1953 for qualifications admitting primarily to the *Register* show that taking all three subjects—medicine, surgery, and midwifery—the passes in the finals as a whole numbered 1,801 and the rejections 1,078. The highest percentage of passes in medicine was in the University of Wales (93), in surgery in the University of Manchester (92), and in midwifery in the University of Dublin (89).

In the examinations in anatomy and physiology held in 1953 the highest percentage of passes was in the examinations at Sheffield University (92 and 84 in these two subjects respectively).

Taking the licensing body with the largest number of entries—namely, the University of London—the following