at all raised above the normal levels of 36-44 mm Hg we are guided by the trend of blood gas findings.

Dr. WOOD: Most doctors have found that bronchial lavage is of doubtful value. The results are at best equivocal and some animal studies show that it may even be detrimental.

Professor MACGREGOR: One of the problems of long-term steroid therapy in patients with intractable asthma is to minimize the side effects.

Dr. PETRIE: Yes; certainly in children the evidence suggests that growth is less impaired if they are treated with intermittent corticotrophin rather than oral corticosteroids. Tetraco-

sactrin is valuable for those patients who have become sensitive to preparations of animal corticotrophin.

Professor MACGREGOR: To sum up, we have emphasized that drugs are only one aspect of the management of a patient with asthma. General therapeutic measures and removing precipitating factors are just as important. The sympathomimetics, including the newer more selective drugs, must be used with caution. For treating "extrinsic" asthma disodium cromoglycate is an interesting development. Steroid therapy may be lifesaving in extreme situations, but we can but deplore its casual administration.

Hospital Topics

Suggestion for the Training of Physicians in the National Health Service

M. HAMILTON, H. KOPELMAN

British Medical Journal, 1971, 1, 223-225

One of the great benefits to result from the introduction of the National Health Service in Britain in 1948 has been the vast improvement in the standard of the "peripheral hospital." Previously most of these hospitals catered for only a minority of the patients in the area in which they were sited, being restricted, owing to limitations of staff and equipment, to providing care for those patients suffering from the less complex conditions. During the past 22 years, however, the improved staffing of these hospitals by a more adequate distribution of well-trained consultants, and the provision of adequate facilities for investigation, and in some instances for research, have produced a standard of medical care uniformly high throughout the country, a uniformity of standard which is not emulated anywhere in the world. The existing frustrations and dissatisfaction of many of those maintaining the Service are producing the need for a reappraisal of the entire structure, and it is our purpose to present suggestions for improvement of the existing structure without sacrifice of those features which have enabled the U.K. to develop an outstanding hospital service.

Present Structure

The improvement in the standard of care provided by the peripheral hospitals has been slowly accompanied by their acceptance of a dual role—that of teaching in addition to that of routine patient care. The continued education of the consultant, the training of the resident medical staff working in the hospital, the continued education of the general practitioner served by the hospital, and, in some instances, the

inclusion in the training programme of undergraduate students, are now accepted by any peripheral hospital of merit. The extensive growth of academic units throughout the country is adequate testimony to the growth and acceptance of this new function of such hospitals. Thus the present division of hospitals into two types, the teaching hospital and the peripheral or non-teaching hospital, becomes obsolete and should be replaced by a new terminology, the university hospital and the district hospital: the university hospitals being those hospitals directly connected with the universities, with established professorial chairs and controlling undergraduate training; the district hospitals being those hospitals of adequate size and with sufficient medical staffing, with training appointments approved by the royal colleges (and thus the postgraduate committees).

In order to ensure further development of the hospitals in the National Health Service as a whole it is essential to maintain the very high standards which have been achieved in the hospital service. There is now more than ever before the need to develop a career structure for the young doctor from the time of qualification throughout his early career until established in his eventual role in the structure of the service. These aims make it necessary to exploit the full potential of the university and district hospitals, which must develop in harmony rather than in conflict; and the ideal scheme is one which will lead to simultaneous improvements in both, while providing the essential career structure for personnel employed in these hospitals. The university's responsibility extends throughout undergraduate training, through preregistration posts, and subsequently to those academic posts held on units in the university hospitals. The further training which must take place in all hospitals must be considered part of the National Health Service responsibility and, since the National Health Service pays for the running of all hospitals, be they university or district, the question of training cannot be taken out of context of Service requirements.

Ideally the university hospital should form the nucleus of a cell consisting of regional district hospitals working in unison with the central university hospital, where facilities for

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complex investigation exist, and where the highly selective specialties—for example, neurosurgery, cardiac surgery, etc—are housed. There should be a free flow of patients from the periphery of this cell structure to the centre to use the special facilities existent only in the university hospital, and a free exchange of staff between the two.

Proposed Scheme

Our object, therefore, is to establish a training scheme for doctors which will incorporate all hospitals in the National Health Service (university and district), allow for mobility and experience in all sections of the Service, and at the same time make provision for Service requirements as well as postgraduate education and research.

Paramount in this scheme is consideration for the need of providing the young doctor not only with the necessary experience but also with the balance of training required to enable him or her to fill the chosen role in the profession. The training of a doctor falls into six stages.

UNDERGRADUATE TRAINING

Undergraduate training would naturally be in the university hospitals. During this period students should spend at least one firm at a district hospital. Such a scheme has been in operation from many existing teaching hospitals, and the period spent in the district hospitals provides students with a unique experience of routine clinical medicine and surgery. They not only see the common and unusual diseases in proportion but come to appreciate fully the excitement and drama of life in medicine.

PREREGISTRATION

Preregistration appointments must be held, as at present, in both university and district hospitals. There must be stricter supervision of these appointments to ensure that they are truly held in general medicine and general surgery. Appointments that are 50% or more of a specialist nature should not be accepted for preregistration training.

POSTREGISTRATION

Postregistration house appointments on the whole should be held predominantly in special departments—for example, in the case of medicine, in neurology, paediatrics, rheumatology, etc; and in the case of surgery, in orthopaedics, thoracic surgery, paediatric surgery, etc.

SENIOR HOUSE OFFICER APPOINTMENTS

Senior house officers should also be appointed to special departments, but in university hospitals there should be senior house officer appointments in general medicine and general surgery to allow further development of the registrar training scheme to be outlined.

REGISTRAR APPOINTMENTS

After very careful consideration we feel that registrar appointments (in general medicine) should be confined to district hospitals for five reasons:

(1) That registrar appointments should be considered as training appointments and held in district hospitals *before* Membership. As

these registrar appointments are now recognized by both the Royal College of Physicians and the Royal College of General Practitioners, the M.R.C.P. at the end of the training period would in some ways resolve for holders of these appointments whether they would be eligible to continue in consultant training or whether they should reconsider their position. Recognition by both colleges allows for this. The result could be an increased number of registrar appointments. There would then not be a strict relationship between these appointments and the number of consultancies ultimately required.

(2) It would give district hospitals a better type of candidate to fill these important appointments, and this would be of great value in the overall training scheme, as most preregistration posts are in fact held at peripheral district hospitals. So far as the university hospitals are concerned, enough senior registrars, lecturers, junior lecturers, and research assistants will be available to fill the gaps resulting from the lack of registrars.

(3) One of the difficulties encountered by registrars in district hospitals is the frequent inability to return to the academic stream, and this would be overcome if all registrars had an equal opportunity of returning to university hospitals once they had the higher qualification.

(4) So far as the training of consultants and specialists goes, it would be of great advantage to have the enormous clinical experience that is available in district hospitals and to understand the workings of such district hospitals, as many ultimately return to these hospitals as consultants.

(5) This scheme may be criticized in that it will take young men away from facilities for research, which is an important aspect of professional training. But the time in taking higher qualifications after registration is being steadily reduced, and many district hospitals provide facilities for clinical research. A post-Registrar Fellowship for a year or so at the university hospital would be a far better introduction to research, than the rather haphazard one done during a service post and working for a higher qualification.

Obviously, special departments in university hospitals must hold establishment for registrar appointments to be taken after completion of registrar appointments in a district hospital. Thus the potential neurologist would serve for two years as a registrar in general medicine at a district hospital before returning to his university hospital as a registrar in the special department of his choice, in this instance neurology.

Those who fail or do not sit the M.R.C.P. could consider training in some other specialty—for example, radiology or pathology—or enter general practice. The passing of the M.R.C.P. is, of course, no bar to any of these courses. The recognition by the Royal College of General Practitioners of those posts already recognized by the Royal College of Physicians facilitates entrance to general practice.

SENIOR REGISTRAR APPOINTMENTS

These should be confined to university hospitals with full facilities for research, and the holders of these appointments should be available for locum consultant posts in the region.

Comment

We realize that this scheme invites and invokes criticism, particularly with regard to the suggestions for registrar and senior registrar training posts. We are convinced that senior registrar appointments must be held in a university hospital, with all the facilities and contacts of a university available to the holder of such posts. It is at this stage of his career that the potential consultant fully develops his critical faculties, not only in respect of the work of others but, more important, of his own standards, which he must retain throughout his working life. It is also at this stage that he should be encouraged to develop that curiosity towards disease and its cause which will enable him to stimulate and teach his juniors throughout his consultant career. By the time they start their senior registrar appointment many men are

married, with their own home and family commitments; and to leave the domestic environment and to interrupt the progress of their children's schooling creates many difficulties and seriously detracts from any possible benefits which might

accrue from a period of time spent outside the university hospital.

The suggestions for registrar appointments meet not only the service needs but, more important, the training needs to which we have referred. This scheme allows for multilateral development (see Chart) so that the registrar in a district hospital will be so placed that he can progress through to a consultant appointment in a specialty of his choice or branch out into further training for general practice or an allied specialty—for example radiology.

As physicians, we have considered this scheme particularly in relation to the training of physicians and general practitioners. We realize that the training of surgeons demands special consideration particularly technical, but we believe that the principles we have outlined can be adapted to any training programme and that their acceptance is obligatory if further satisfactory staffing of hospitals in the National Health Service is to be achieved.

In conclusion the following quotation from a comment on the 1970 Reith lectures by Donald Schon seems appropriate, "Here he makes a devastating analysis of the classical business firm and government structure, the so-called 'centre-periphery' model, in which the centre dictates to branches, ignoring the fact that it is in the branches 'in the field' that learning must take place. When branches try to innovate, the tendency of the centre is to guard against heresy, to maintain the party line—in short, to resist change."—(*Observer*, 15 November 1970.)

Unheard Voices

The Clinical Scientist

FROM A SPECIAL CORRESPONDENT

"Do you know Alfred Pockran's theory of crisis?" Members asked me. "Pockran argued that every crisis had its beginning long before the actual onset; that it was a blend of facts observed and facts ignored; and that the characteristic feature of all crises was predictability."

Members took the view that Pockran's theory was perfectly illustrated by the present state of medicine in Britain. As a senior lecturer in a professorial unit he was insulated from the worst strains of the system—but these were only too evident once he stepped outside his ivory tower. "Ironically enough," he went on, "just as we are replacing the Victorian poor-law institutions with 20-storey glass skyscrapers we are running out of the staff to work in them." After two generations had become used to a first-class service a steady decline in quality had started in outlying regions and could be reversed only if the community woke up quickly.

Second-hand Equipment

There was no personal element to this pessimism. Members were more than content with his own lot. He had no complaints about his pay and enjoyed his academic freedom. For about 20 hours each week he had fixed commitments such as teaching sessions; the rest of his time he arranged himself. In practice he spent between 60 and 80 hours a week

"working"—but, as he pointed out, "when one's work is one's hobby it is difficult to talk about hours per week." The major frustration was shortage of funds for equipment and technical staff. "We manage to make do with home-made apparatus and second-hand electronics" he went on, "but the contrast with America is heart-breaking." On the other hand, he pointed out that he preferred his present situation to being, say, the Cyrus Q. Avocado research fellow with a million-dollar grant and a specific project which had to be followed if the funds were not to be withdrawn.

Members' worries about the N.H.S. were also traceable to lack of money, but the effects were seen in a lack of medical and non-medical staff. Outside teaching hospitals, he reminded me, requests for radiological and laboratory investigations went up by 10% per annum; and the shortage of radiologists, pathologists, and technicians was getting worse. The present staff worked longer and harder every year—how long could it continue? "Even within university departments," he said, "we are now coming to the end of the reserves of goodwill for medicine found in so many laymen. We pay technicians a fraction of what they can get in industry." He had found that bright teenagers were eager to work in the hospital, perhaps between school and university—but few were likely to make a career in the service. The solution to these problems lay in the provision of more money; but only if both the Government and the electorate were convinced of the urgency of the