THE TRAINING OF SPECIALISTS

THE PLACE OF POSTGRADUATE INSTITUTES*

BY

Sir FRANCIS FRASER, M.D., F.R.C.P.

Director of the British Postgraduate Medical Federation

The experience of the war years suggests that the average level of hospital treatment will be raised, but it is not so clear that the standard of the specialist and expert will also be raised, as a result of the new powers and responsibilities of the Minister of Health. There is danger that the effect will be in the reverse direction through too much dependence on the State and the expectation that the Ministry will regulate matters of which it has no experience and for which it may not be willing to accept direct responsibility. It is for the educational bodies to provide the training of a specialist, and the recognition of a specialist should be determined by the profession itself. For the protection of the public it may be wise to state the minimal requirements for recognition, but the standards required by the profession and the public will, it is to be hoped, have little relation to minimal requirements.

In the past the recognition of a medical man as a specialist has depended on his acceptance by his professional colleagues, and I trust that no action by the State will alter this, either directly or indirectly. In the future, under the National Health Service, there will be many more hospital appointments for specialists than there have been in the past, and whatever may be decided about the method of their selection it should ensure that no applicant is appointed who is not accepted by his professional colleagues to be of the standard they require for the post in question. A considerable number of memoranda have been prepared recently by the Royal Colleges and the associations of specialists on the experience and training which they recommend, and these confirm and amplify the valuable report of the Interdepartmental Committee on Medical Schools.

Length of Training

In general they advise that following qualification and registration a period of five years' postgraduate experience is required before recognition as a specialist should be granted and that longer is necessary in the more specialized branches of medicine and surgery. In the past the successful candidates for appointments to the senior staffs of voluntary hospitals have as a rule had a considerably longer period. This is clearly desirable, and the training programmes that have been recommended should be regarded as indicating the necessary essentials only. The plan should not be rigid and should permit of considerable variation to suit differences in intellectual capacity, previous education, and experience.

The years of training can be divided into a first period of one to two years of further junior clinical appointments

in general medicine and surgery following registration to practise, and a second period of three years and more devoted to training in the selected specialty. At least a year of postgraduate scientific education and laboratory discipline is also advised, which could be associated with the first period and spent in one of the preclinical sciences or associated with the second period and spent in laboratory investigations or research directly connected with the specialty. The programmes recommended include, as a rule, the passing of an examination for a higher degree or diploma as a test of the candidate's progress, but this alone should never be regarded as indicative of fitness to hold a responsible appointment as a specialist on the staff of a hospital.

General Training

The undergraduate curriculum is designed to give the graduating student the principles of the practice of medicine, and to teach method, as the Planning Committee of the Royal College of Physicians points out; and the State may now require a period of twelve months in junior resident appointments in approved hospitals before registration to practise can be granted. While holding these appointments the graduate will obtain practical experience, with responsibility for the management of patients, and learn to carry out the technical procedures for diagnosis and treatment that he will be required to perform in the practice of his profession. For a specialist in any of the clinical branches twelve months of practical experience as a resident house-officer is insufficient to provide the wide knowledge of patients and their ailments upon which can be built a wise understanding of any special group of patients and diseases. Until, therefore, the graduate can obtain further junior hospital appointments that provide general experience he should not be encouraged to concentrate on a special subject. These appointments will be normally at an undergraduate teaching hospital or a hospital approved by a medical school and will be of the senior house-officer type. They will be obtained in competition with other candidates for specialist careers, and in this way selection will be exercised. This selection will be progressive, as the graduate competes at each stage for the diminishing number of further appointments suitable for the more advanced stages in his training and, finally, for a specialist appointment on the staff of a hospital.

Special Training

At the end of the further period of one to two years in resident appointments after registration, when the graduate has obtained a wide and practical experience of sick persons and of the routine methods used in diagnosis

*Annual address given at the Institute of Laryngology and Otology, Gray's Inn Road, London, on Oct. 10, 1947.

and treatment, he will be ready for education in the basic principles of the specialty as an advanced student. For general physicians and general surgeons this advanced education should be progressive over a period of three years at least and be combined with clinical responsibility. For those intending to practise in one of the special branches of medicine or surgery, training as a general physician or general surgeon should be required first, though the period may be somewhat shortened, and a longer total period will be necessary.

Graded Hospital Appointments

This period of special training has not been well organized in the past but has been regulated largely by individual preferences and initiative, and by local circumstances and opportunities. The customary programmes, however casually they have been devised, show much that is common in their patterns, and it is important that this characteristic should be retained to form the basis of the schemes for improvement which are now possible with increased grants for medical education and the institution of a National Health Service. The basis of training has been the holding of a hospital appointment of the registrar type in the appropriate department of a general hospital or, in the case of some special branches, in a special hospital. In the United States of America this type of appointment is generally known as a residency, and in their teaching hospitals has been planned and developed for the education and training of specialists. Stress is laid on the progressive character of the appointment, so that the holder is given increasing responsibilities as his education proceeds, and in its final stage the appointment might be described as that of a resident assistant physician or surgeon. The comparable appointments in this country, known as resident medical or surgical officer, registrar, chief assistant, tutor, etc., vary greatly in the nature of their responsibilities and opportunities, and the duties have as a rule occupied so fully the time of the holder that there has been little opportunity for study and reflection, and the supervision required to make the period one of advanced education has been seldom provided.

It would be a mistake to lay down any rigid programme of training because of the different careers which specialists ultimately follow. The great majority will be fully occupied in the care and treatment of patients, a few will obtain appointments as teachers in the medical schools in addition to clinical appointments in teaching hospitals, and only a very few will follow careers in experimental work or laboratory research. All should, however, be trained to use their opportunities for clinical observation to advance knowledge, and all should reach such a standard of general education and culture as befits the leaders of a learned profession.

The first stage of the registrarship should if possible be held in a *general teaching hospital* and medical school. There the graduate will be in contact with many others in a similar stage of training, though aiming at specialization in other branches and holding appointments in other departments, and in contact also with experienced practitioners and teachers in his own and in other specialties. The staffs of the pathological and pre-clinical departments will be ready to help and advise, and their laboratories will be open to him. Library facilities and a museum will be available and he will have opportunities for teaching undergraduates and house-officers. Teaching of this kind and discussions with their contemporaries and seniors should be arranged for the registrars, as these are as important in their training and development as responsibility for the care and treatment of patients. A considerable increase in the number of registrar posts in teaching hospitals is proposed, and this should make it possible in most instances for at least the first year of training to be spent in this way, and at the same time enable the holders of these posts to have more time for study, discussion, and reflection than has been usual in the past.

The clinical material at an undergraduate teaching hospital is regulated by the needs of undergraduate education and, except in general medicine and general surgery, there will seldom be enough patients to provide the registrars with the wide practical experience they require in the technical aspects of their specialties. The second stage in their training might well be arranged to provide this by an appointment for a year or longer in a *regional hospital centre* with a large department for the particular specialty, where the training will be more practical and where the registrar will have opportunities for gaining by experience the skill in diagnosis and treatment which he will require. The hospital or special department should be approved for the purpose by the regional postgraduate committee, for his training must still be closely supervised.

The third stage should vary according to the progress made during the earlier stages and to any aptitudes which the candidate has displayed. If he is a promising undergraduate teacher he might return to his original or some other teaching hospital, and if he has shown ability for original research he might be appointed to a professorial department. On the other hand, if his inclinations and abilities point to a life devoted to the treatment and management of patients a further period in a non-teaching hospital might be best to equip him for a career as a regional specialist and consultant. At some period in his training, no matter what his eventual career may be, he should be given opportunities to see the practice of his specialty in other centres, either by a hospital appointment in another part of the country or by a period of study abroad. In London there are peculiar advantages in an appointment at one of the *special postgraduate hospitals* with the visiting staff representative of the practice and teaching of the general medical schools, for the graduate will be able to obtain there a wider view of the specialty and to form his own opinion on the comparative values of different methods.

Courses of Instruction

In most subjects organized courses of postgraduate instruction are available, consisting of lectures and demonstrations, with varying opportunities for practical work in the wards and out-patient departments. In the training of a specialist these courses cannot take the place of graded hospital appointments with increasing responsibilities. They can, however, play a part. It is doubtful if the better type of graduates who obtain appointments of the registrar type at teaching hospitals and hospitals associated with a medical school over a period of three years or more gain much from an organized course, but there are graduates who lack the ability to generalize from their experiences. For them a well-planned course can be of great value in enabling them to appreciate the principles underlying their practice, to synthesize their knowledge, and to clear their minds of doubts and difficulties. For those who have been unfortunate in their hospital appointments a good course can fill the gaps in their knowledge and compensate to some extent for the deficiencies of their earlier training. Such a course should be of the advanced revision type. It needs skilful planning, and for its success requires a group of able instructors who are keen and experienced teachers as well as experts in their specialties. Only a few courses of this type are available at present.

The usual type of organized course is more suitable as an introduction to a specialty and provides a background for further training by means of hospital appointments. Unfortunately they often enable candidates to obtain diplomas and thus to appear qualified to practise a specialty in which they have not been adequately trained. Success in passing the examination for a special diploma is evidence of progress, not of completion of training as a specialist.

Lectures.—Lectures designed to supplement responsible work with patients are available in most of the specialties. Given by experts each on the subject in which he is specially

interested, with no attempt to cover the field systematically, they can be of considerable value by indicating the directions in which progress is being made, the gaps in current knowledge, and the literature that should be studied. When the lecturers are drawn from all the medical schools in the country such a series can be of great educative value and a stimulating experience.

Research.—There are a relatively small number of graduates whose intellectual capacity and earlier education enable them to develop as fast as their teachers can take them and whom it is a joy to teach. If given the appropriate opportunities and encouragement during their training they are likely to contribute to the advance of knowledge in the specialty. They should be watched for continually and be attached to individual members of the clinical or laboratory staffs to assist them in their investigations and in experimental research. Hitherto there have been very few departments with staff, accommodation, and equipment of university standard in the clinical subjects, except general medicine, general surgery, and obstetrics, and opportunities for higher education and research in the special clinical branches have been difficult to obtain. This has been a serious drawback to specialist education in this country, and the increased financial grants which the Government is now giving for medical education will, it is hoped, improve the position and provide opportunities for this the highest form of medical education and the essential inspiration in the training of specialists.

Graduates from Overseas

This scheme of progressive training, based on competitive selection for hospital appointments and supplemented by courses of instruction, has been outlined with particular reference to the graduates of our own medical schools, and it is necessary to consider how the graduates from overseas can be welcomed and fitted into it in accordance with their requirements. They visit us at various stages in their postgraduate education; they remain here for a few months or for two or three years; they may aim at obtaining the best training we can provide or they may plan to return to their own countries before reaching the standards that we regard as essential.

There are those who have spent several years in graded hospital appointments in their own country and come here for a few months in order to see something of the practice and listen to the teaching of our eminent specialists. An advanced revision course covering two or three months and attendance at a series of lectures by experts from the different centres fulfil their first needs and help them to make those personal contacts that add so much to the educational value of their visit. The remainder of their time can be used to advantage by attachment to individual teachers whose methods and philosophy can be studied only by close association.

For those who visit us at an early stage in their training a longer course of basic instruction, with clinical work, demonstrations, and lectures, is required in order that they may acquire sound principles and technical skill. They may then return to their own countries to continue their training by further hospital appointments. Some will obtain them here and remain for several years, sharing with our own graduates the system of registrar appointments with progressive responsibilities.

Most of the graduates from overseas come to London for part at least of their time in this country, though many obtain what they require at other centres in the first instance, and the opportunities provided in Edinburgh are a notable contribution. The majority of the graduates who come to London come with the intention of acquiring one or more special diplomas. In the minds of many of those from overseas the acquisition of a diploma is more important than experience in the specialty, and they are content to spend the whole of their time here in reading books and listening to lectures. The special diplomas vary greatly in their standards; some should be regarded as little more than qualifying the successful candidate to enter on a period of proper training; few can be accepted as indicative that the candidate is fit for the responsibilities of a specialist and that his training is completed. Few persons, apart from those directly concerned, appreciate the standards of the different diplomas; and there is much misconception of their

values in the minds of the public and of the non-medical members of hospital boards even in this country, and they are often given entirely false values by official bodies overseas. Most of the special diplomas are awarded by the Royal Colleges, which arrange series of lectures of considerable educative value, for they indicate the standards of learning which a specialist should possess, without attempting to cover the subjects systematically, but they cannot themselves provide the clinical work essential for the training of a specialist. There is, I believe, a real danger that London may come to be regarded as a purveyor of diplomas, a reputation that might interfere seriously with its development as a great centre of postgraduate education. Closer co-operation between the Royal Colleges, the associations of specialists, and the medical schools is clearly desirable to ensure that the special diplomas take their proper place in the education of specialists.

The number of clinical appointments suitable for specialist training at the general teaching hospitals associated with the undergraduate medical schools has hitherto been insufficient for the training of our own graduates, and only rarely has it been possible for them to provide posts for visitors from overseas. The staffs of the undergraduate teaching hospitals have been fully occupied with the education of undergraduates and they have been unable to contribute to any great extent to the training of the large and increasing numbers of visitors. The experience of the post-war years and the need for additional or supernumerary appointments to provide for medical officers released from the fighting Services have shown that in general medicine and general surgery opportunities eminently suitable for the training of specialists can be provided at the general teaching hospitals to a considerably greater extent than has been the practice in the past. If a few appointments of this type could be allotted at each of the teaching hospitals to selected graduates from overseas it would make a most welcome contribution to the training of specialists for the Commonwealth and Empire. In the special branches of medicine and surgery, however, the undergraduate medical schools, maintaining a proper balance between their general and special departments, cannot as a rule be expected to develop departments with the staff, accommodation, and equipment required for advanced education and research. Appreciating the increasing demand for postgraduate education in London and the peculiar opportunities for creating university departments in the special branches in association with London's famous special hospitals, the University of London has embarked on a policy of developing postgraduate institutes for higher education in the major clinical specialties.

The Postgraduate Institutes

The institutes are being developed from the postgraduate teaching that has been carried on for many years at certain of the special hospitals of London. In addition to resident hospital appointments and the very important training which they provide, the instruction has varied considerably in standard, and has consisted for the most part of clinical demonstrations and lectures, planned in some instances to suit the requirements of candidates for diplomas. In only a few instances was it possible to provide the advanced education that should be regarded as essential for a specialist and consultant, and it is, I think, significant that the standard of education has been generally higher in those special branches in which there are no diplomas.

The aim of the University of London, and of the British Postgraduate Medical Federation acting on behalf of the University, is to provide opportunities for research and higher education in each of the major clinical specialties, with staffs appointed to advance knowledge not only in the clinical field but also in the sciences upon which the practice of each is based. Each institute should be the centre in London of thought and practice to which the specialists will look for help and above all for inspiration. The staff of each institute should be representative of the special departments of the undergraduate medical schools and the general teaching hospitals, and the University will

look to the institute for advice on academic matters concerning the specialty.

As soon as practicable the University will be asked to appoint professors or readers at each of the institutes. Their assistants should be the best of the younger men available from all sources for advancing their subjects by research and experiment, and it should be possible to offer accommodation at each of them to specialists established elsewhere, either at home or abroad, to enable them to work on approved problems. Clearly it will take some time to provide at each institute the laboratory accommodation and equipment, the libraries and museums, that are required, but until this is done the institutes cannot fulfil their main purpose; for teaching must always be dull, uninspired, and lacking in the essential element of excitement unless there is an atmosphere of investigation and progress. This is especially necessary in advanced or postgraduate education.

The number of appointments of the house-officer and registrar types at the teaching hospitals associated with the institutes should be regulated by the recognition that these are training appointments and that leisure for study and reflection is required. In most of the postgraduate teaching hospitals they could be increased in number. These appointments represent the principal method of practical training in the specialty and should be graded to provide progressively increasing responsibilities. The postgraduate teaching hospitals have a peculiar responsibility for graduates from overseas, and they will, I hope, agree to reserve some proportion of their appointments for candidates sponsored by the universities of the Dominions and selected by the representative committees being formed for this purpose.

As a result of interviewing large numbers of graduates coming to London from other universities in this country and of graduates from overseas seeking specialist training here, I believe that to meet their requirements there should be two types of courses of instruction in each specialty. One type should be designed to serve as an introduction to the specialty, to provide training in its basic principles and technical skills, and to give a sound educational basis to the subsequent periods of training by hospital appointments, either here or on the return of the graduate to his own country. With practical work in wards, out-patient departments, and laboratories, supplemented by group discussions, lectures, and demonstrations, such a course can, if organized to cover a period of six months or so, contribute materially. It cannot replace responsible appointments, and the object of the course should be preparatory and educative rather than vocational. In connexion with the course each institute will arrange a series of lectures on the applications of anatomy, physiology, biochemistry, pharmacology, and pathology to its special subject; but there is much, I would suggest, in the application of these sciences that is common to all the special branches of medicine and surgery, and it should be possible to arrange also a central series of lectures in the basic sciences which candidates in all the specialties might attend. The lecturers would be drawn from the medical centres throughout the country, and the series might be organized with the co-operation of the Royal Colleges. There is a philosophy inherent in every specialty which it is the duty of the institutes to foster and impart, and the history of the specialty, its contributions to medicine, to culture, and to the life of the community should be stressed.

The other type of course should be designed to co-ordinate and systematize the practical experiences of the graduate who has completed his training and his hospital

appointments either in this country or abroad, to indicate the frontiers of knowledge and lines of progress, and to renew his enthusiasm. Advanced revision courses of this kind are peculiarly exacting on the teaching staff. They should be based on the examination, investigation, and demonstration of selected cases by the graduate students themselves, followed by group discussions of the subject and its literature. Only those graduates who are sufficiently advanced in their training to make good use of these opportunities should be accepted, and the class should be strictly limited in size and divided into small groups for much of the work. Such courses need not extend over more than eight to ten weeks, and they would be most suitable also for established specialists from the regional hospitals of the National Health Service or from overseas who will return to London from time to time for the continuation of their education. They would preferably be part-time, to allow of attendance at other hospitals and institutions and for the study of more general subjects, and a series of lectures on the clinical aspects of the specialty by its eminent practitioners drawn from all the centres in this country might be arranged, with the co-operation of the Royal College especially concerned, to take place at the same time.

Present-day Difficulties

This programme of research, clinical experience, basic training, and advanced revision cannot be fully carried out until considerable increases in accommodation are provided and until suitable staffs can be appointed. Much can be done and is being done now with improvised accommodation and the eager co-operation of existing staffs and hospital authorities. Further progress depends largely on finding suitable persons to direct research and organize the teaching who are able to devote their time to these duties, as well as on the new Boards of Governors of the teaching hospitals that are to be appointed by the Ministry of Health.

During the immediate post-war years there has been a heavy demand for postgraduate education, and the plans for a National Health Service in this country and of similar services in the Dominions and elsewhere have created an unprecedented pressure on our provisions for specialist training. The postgraduate teaching hospitals and medical schools throughout the country have met this pressure by increasing the numbers of students accepted for courses and of appointments of the registrar type, and this has put a heavy burden on their teaching staffs. With the establishment of the National Health Service and the appointment of postgraduate committees in each of the regions it is hoped to extend the opportunities for specialist training and to use the hospital centres in the regions for postgraduate education. This will enable the institutes of the University to be more selective in their acceptance of applicants. For many visitors from overseas instruction of a practical type would be more appropriate than the advanced education which the institutes will provide, and there are some whose training in general medicine and general surgery has not been sufficient for them to make use of the opportunities which the institutes will offer. Others come to London to attend a course in one or more of the specialties in order to add to their equipment for general practice. It should become possible, in due course, suitably to place postgraduates of all types and leave the institutes free to develop as departments of the University and to become focal points of postgraduate education in their specialties. They should be institutions for higher education and research, but they should also be responsible for the co-ordination of training in their subjects in the London area.

Much has been accomplished, and the start is a promising one.* At other universities plans are being developed which will contribute to the same end. Differing in detail and shaped by local conditions, they will provide a welcome stimulus through rivalry. There is still a long way to go before the aim of the University of London is realized and before the peculiar opportunities present here in London are developed fully. When that time comes the postgraduate institutes will send out the future leaders of medical thought and practice, and will be able to welcome those who seek to advance knowledge by research and to improve their skill for the relief of suffering.

SMALLPOX IN STAFFORDSHIRE, 1947

OUTBREAK AT BILSTON

BY

C. SIMPSON SMITH, M.B., B.S.

Assistant Medical Officer, Staffordshire County Council

The following report covers the outbreak of smallpox which occurred in the borough of Bilston and in the neighbouring areas of Coseley U.D.C., Willenhall U.D.C., and Dudley C.B., as it is assumed that all the cases were from the same source. Thirty cases were confirmed by the Ministry of Health and seven others were removed to hospital as suspects. One associated case occurred in the Birmingham area—a medical student who had visited the smallpox hospital; this is not included in the present series. Six cases were fatal—five haemorrhagic and one confluent smallpox.

History of the Outbreak

An Army sergeant aged 23 was granted compassionate leave from India. He left Agra by train on Feb. 17, 1947, boarded a plane at Karachi on the 20th and, flying via Basra, Cairo, Malta, and Marseilles, arrived at Heathrow Airport on the 23rd. Next day he travelled to his home in Bilston. He had been vaccinated in infancy and again on Nov. 3, 1944, and Feb. 15, 1946.

On March 1 he felt slightly ill, but remained ambulant until he developed a rash on March 6, when he said he felt as if he had "flu." The local medical officer of health, Dr. B. C. Haller, did not feel happy about the case and attempted to obtain the opening of the smallpox hospital. However, further opinion was sought through the regional office of the Ministry of Health, and a confident diagnosis of chicken-pox was made on March 8.

The patient remained at home, and his mother developed a rash on March 21. A diagnosis of chicken-pox was again made. An unvaccinated man of 21 years, who had visited the soldier on March 6, developed a more severe rash on March 25. Further consultations took place and specimens were sent from the two later cases for laboratory investigation. A preliminary report on April 1 suggested that the condition was variolous. Further experts were called in, and a conference took place on April 3, at which time "reliable clinical opinion still regarded the Bilston cases as chicken-pox" (Regional Ministry Circular).

On the 4th the mother and brother of Case 3 were taken ill and developed rashes on the 8th. By this time confirmatory reports on the laboratory investigations left no doubt that Cases 2 and 3 were smallpox, and the hospital was opened on the 9th, the first two cases having by this time recovered. The outbreak was regarded as variola minor (*Med. Off.* 1947, 77, 152), but subsequent events proved the infection to be of the major variety.

From Case 1 three further cases originated: the grandmother developed haemorrhagic smallpox and died before removal, and the father and sister developed modified eruptions. No further cases were reported from the known source, but ample opportunity for spread of the infection had been afforded in the 34 days which elapsed between the appearance of the rash in the soldier and the opening of the hospital. One case was known to have travelled from Bilston to Coseley by bus in the late prodromal stage.

Subsequent groups of cases developed in which no apparent origin could be traced, despite vigorous detective work on the part of the staff. The last case was admitted to hospital on July 9 with a confluent rash after being ill at home for six days; an initial diagnosis of measles had been made. This patient lived some four miles from the original focus and her source of infection remains unknown. She had numerous visitors during her period at home, but no contact cases were reported. The 30 cases are classified in Table I and their histories given in Table II.

TABLE I—Summary of Confirmed Cases

	Severe Cases (15)	Mild Cases (15)	
Haemorrhagic	.. 5 (all fatal)	Copious discrete	.. 1
Confluent	.. 8 (1 fatal)	Moderate discrete	.. 1
Semi-confluent	.. 2 (none fatal)	Mild discrete	.. 6
		"A few spots"	.. 7

Commentary

Cases were seen before admission by experts of the Ministry's Regional Panel, and where doubt existed further examinations were made after admission.

In the *Monthly Bulletin of the Ministry of Health and Public Health Laboratory Service*, July, 1947, special attention was drawn to the fact that the three contacts of Case 9 who developed the disease had been unsuccessfully vaccinated on May 17, 1947, and revaccinated on May 23. This was later found to be incorrect. When examined on the 23rd the reaction to the incisions performed on the 17th was very indefinite and further incisions were made. By the 25th, however, the vaccination of the 17th showed a good reaction.

Group 7 (Bilston).—Opinion was sought in regard to Case 22, aged 7, who was gravely ill. As the other children in the household presented minor lesions they were admitted to hospital. Cases 21 and 23 were regarded by the Ministry expert as confirmed smallpox, but an infant aged 10 months and an older sister, both vaccinated, were not confirmed. When Case 21 was seen in hospital on June 30 a scar was noted on his ankle, and it was suggested that he might have been the original source in the household. No other lesions were then present. Local opinion considered that the scar was due to an old infection caused by a protruding nail. Further opinion on July 7 doubted if the case ever was smallpox. Case 23 was very fretful and obviously ill on removal, but the rash failed to develop beyond the macular stage. She was vaccinated after admission to hospital.

Case 24.—This boy had papules on the forehead only, which soon scabbed and left depressed scars showing staining. The laboratory results were negative, but his was regarded as a highly modified case when seen on July 7. His sister was removed to hospital as a suspected case, but her condition soon subsided and she was regarded as suffering from a vaccinal lichen. It is possible that the boy also was suffering from an eruption of this type.

Case 30 (Dudley).—Clinically this was the most interesting case of the whole outbreak. The prodromal phase was marked with headache, chill, malaise, and backache. The rash appeared on June 19 and streptococcal septicaemia was diagnosed. The patient was removed to the infectious diseases hospital on June 21 by ambulance and before being sent to the ward he was seen by a medical officer who had seen Case 9. As Case 30 presented a similar picture he was transferred to the smallpox hospital. He had a marked

*In addition to the Postgraduate Medical School of London, institutes have been established, or are in process of development, in child health, neurology, laryngology and otology, ophthalmology, psychiatry, diseases of the chest, cardiology, dermatology, orthopaedics, urology, and dental surgery.