Future of a London School

Next year will be the 75th year of the London School of Hygiene and Tropical Medicine as a school of tropical medicine and its 50th year as a school of public health. During the last two years it has been reviewing its present position and future role in this rapidly changing world, both at home and overseas.

The school is unique, at least in Great Britain, in having within one institution the balanced array of disciplines and experience necessary for teaching and research over the whole field of preventive medicine, whether in industrialized or developing countries. Latterly it has given more emphasis to epidemiology and the sociological and management aspects of health services. Now the context is changing fast. In Britain the teaching of community or social medicine is growing in strength in many (if not all) undergraduate schools. The needs of developing countries, particularly the wealthier ones, will increasingly resemble those of the industrialized countries in preventive and social medicine, though communicable disease will continue to pose larger problems in them. The corollary is that less advanced courses in tropical medicine and hygiene should be progressively taken over locally or regionally and the school's resources transferred to more advanced teaching.

Meanwhile, in response to the needs of the reorganized National Health Service for some 1,000 community physicians and for an annual intake of 30-40 each year, the school proposes to build up its M.Sc. course in social medicine to twice its present size provided it can obtain funds and staff. The training of specialists in community medicine, the school believes, should include at least four years' training with both vocational and in-service components. In addition the M.Sc. in medical statistics will play a major part in the training of non-medical (and some medical) graduates concerned with the technical aspects and detailed planning of information services. The school is also considering its role (both in teaching and research) in environmental medicine including toxicology, and it is clear that an adequate range of high quality teaching can be provided only by the pooling of academic resources within the university.

As there is not much room for further expansion on its present site the school is looking elsewhere. Its activities in the service of students of more than 80 nationalities have been expanding at an increasing rate lately. Work at the Winches Farm Field Station in Hertfordshire continues to grow; a clinical nutrition and metabolism unit has been built at the Hospital for Tropical Diseases; and premises have been leased near the school in Bedford Square for a centre for extension training in community medicine and for a unit to study the control of chronic diseases.

The Royal Commission on Medical Education recommended the merging of the school with University College and the Royal Free Hospital in a new teaching group, but the school somewhat naturally is resisting the proposal, for its functions have little in common with those of the other institutions. At present it is an independent school within London University. If it is to frame its policy according to its special needs it must remain for all practical purposes self-governing and financially autonomous. However, the type of association recommended by the Royal Commission is being examined in terms of two undergraduate complexes, and the merits of a possible association with Northwick Park Hospital and the Medical Research Council's Clinical Research Centre are being studied also. The school hopes to define its long-term objectives in the early autumn and then to decide in principle about its location before the end of the year.

Suction Drainage in Breast Surgery

Ever since William Halsted first carried out a radical mastectomy at the Johns Hopkins Hospital in 1882 surgeons have been concerned about the problems of wound healing of the resultant extensive defects and skin flaps. In his original cases Halsted fashioned a flap to cover the axillary contents and then allowed the large remaining wound to heal by granulation tissue. But soon primary closure of the defect by suture or skin grafting became the invariable practice. The problems which faced the early surgeons remain with us today—namely, necrosis of the skin flaps, breakdown of the wound, haematoma, and serous collection ("seroma") under the flap with consequent wound infection. As well as delaying the patient's discharge from hospital the consequences of these complications include an ugly scar, tethering of the skin to the chest wall, limitation of shoulder movement, and development of unpleasant and even disabling lymphoedema of the arm.

To obliterate the dead space between the skin flaps and the chest wall the standard practice was, and in many centres remains, the insertion of one or more tube drains combined with a voluminous gauze dressing held firmly in place by careful bandaging or strapping against the thoracic wall. In 1951 T. G. Orr introduced tension sutures tied over rubber tubing to tack the flaps to the underlying intercostal muscles and latissimus dorsi; a single drain was used. E. L. Keyes and his colleagues used silk stitches to hold the flaps against the chest wall and inserted up to five soft (Penrose) drains. They reported that in their 17 cases there was less sloughing and quicker healing than in a similar number treated on conventional lines. B. B. Larsen and C. Hugan tackled down the skin flaps with 30 to 50 subcutaneous cotton sutures and avoided a drain if possible. The extent of the problem is shown by their figures. Of their 30 patients eight required one or more aspirations of fluid collection, one developed an infected haematoma, and four had wound sloughing, while
several others had superficial sloughing along the wound edges.

The whole problem of fluid collections beneath extensive wound flaps was revolutionized by the introduction of continuous closed suction. One or more rubber or plastic tubes are placed through stab wounds into the potential dead space, and suction is maintained by means of a pump or a vacuum bottle for several days—in fact until the space is obliterated by adherence of the skin flaps to the deeper structures. This technique is commonly employed in the treatment of the flaps of block dissection of neck and groin, in the pelvic wounds after abdominal perineal excision of the rectum, and in extensive plastic surgical procedures, but probably nowhere so often as in the postoperative care of mastectomy flaps. It was first introduced for this purpose by D. R. Murphey in 1947.

Most surgeons who use suction drainage are convinced of its value simply as a result of comparing their present experience with former days. But we should not take clinical recollections for granted, and a careful trial of this method recently reported by A. M. Morris is therefore welcome. In this study patients undergoing radical mastectomy were randomly allocated into two groups. The first had conventional drainage by means of two lengths of Paul's tubing, one brought out through the lower end of the wound, the second via a stab incision in the lower flap. In the second group suction drainage was given by two wide-bore tubes brought through stab wounds to suction bottles. In both groups the dressings were left undisturbed for 48 hours. Subsequently in the group of conventional static drainage the dressings were changed daily and the drains retained on average until the thirteenth day. In the group of suction drainage the tubes were left in place until the volume of drainage became less than 25 ml each day but were always retained for at least five days. On average suction was employed for eight days. The conventional series contained 25 patients, the suction group comprised 28 patients.

Infection occurred in one patient in the suction group compared with eight of the patients drained by Paul's tubing. Necrosis occurred in five of the suction group, with wound break-down in two cases, compared with 10 and seven cases respectively in those treated by conventional drainage. The average length of stay in hospital was two weeks when suction was used compared with three weeks in the other group. The author concludes that suction drainage gives a shorter stay in hospital postoperatively and decreases the incidence of postoperative infection and wound necrosis. The only patient in the group on suction drainage whose wound became infected had her suction tubes accidentally clamped off for 24 hours, and sepsis developed two days later. With suction the need for bulky uncomfortable dressings is eliminated, with greater ease to the patient and considerable saving of nursing time and expense.

The author is to be complimented on this careful clinical trial, which supports the enthusiasm of surgeons who employ suction drainage. Further studies might usefully be carried out in this and other fields where extensive dead spaces are left after operations to define the factors which provide the optimum conditions for speedy wound healing.

An Oral Carbenicillin

Carbenicillin is a valuable antibiotic for treating Pseudomonas infections, but it lacks acid stability and must therefore be injected. A derivative with the same activity which could be given by the mouth would be welcome. This has been achieved by esterification, a modification used before to improve antibiotic absorption.

Indanyl carbenicillin has been the subject of several American and at least one British paper, but the present main source of information about it is the report1 of a symposium held in New Orleans devoted exclusively to the properties, laboratory study, and clinical use of this drug. It is highly acid-resistant and absorbed unchanged, but rapidly hydrolysed, it is believed in the intestinal mucosa and the liver, with the liberation of carbenicillin and indanol. Both are excreted in the urine, the latter after conjugation. It is stable in culture media, and the antibacterial activity of the unchanged ester can thus be studied. This is of only academic interest, since it does not act as such in the body, but it is interesting that, whereas the ester and carbenicillin are of about equal activity against Gram-negative organisms, streptococci and staphylococci are much more susceptible to the ester.

The dose usually given is 0.5 or 1 g at 6-hour intervals. Peak blood levels of 10,000 µg/ml or rather more are produced, and those in the urine are very high, up to 1,000 µg/ml or more, but the blood levels are lower than those given by the same dose of carbenicillin intramuscularly. Much larger doses are not fully absorbed and seem invariably to cause diarrhoea. No serious toxic effects have been seen, but the drug is intensely bitter, and despite the coating of the tablets many patients complain of an unpleasant after-taste and nausea. In each of two earlier papers2,3 and in one contribution to this symposium it is reported that treatment had on this account to be discontinued in about 10% of patients. The experience of other contributors seems to have been more fortunate, even though treatment by some was continued for long periods.

There are five papers on the treatment of urinary tract infections and none on administration for any other purpose. It is evidently recognized that only the concentrations attained in the urine are likely to overcome the resistant types of infection for which this drug is indicated. The high blood levels required for treating a systemic Pseudomonas infection are unattainable. They are difficult enough to maintain with carbenicillin given in doses of 20 g or more daily unless the patient is fortunate enough (for this purpose only) to have poor renal function. All the patients were ambulant. In some studies only “difficult” cases were treated. In one series all had “obvious abnormalities” of the urinary tract, and long histories of recurrence and resistance to other drugs were mentioned as criteria for inclusion. Other investigators apparently treated patients as they presented themselves, without reporting the reasons for their choice of the drug. Three studies were non-comparative, and in two comparison was made with ampicillin and cephaloglycin, a cephalosporin derivative which is much less well absorbed than cephalaxin but antibacterially more active.

In general the results are much like those of many other studies in this field and impossible to assess at all closely because of the operation of so many variables. Results from indanyl carbenicillin in infections by individual species of bacteria are given only in the three non-comparative studies. If these are added together it is seen that a sterile follow-up urine was achieved in 12 out of 22 Escherichia coli infections.