authorization; it may set a budgetary problem. As things stand at present courses on international medical law would probably be optional and therefore reach only a small proportion of students.

For this reason it may well be more practical in certain cases to advocate the inclusion of international medical law in already existing courses for students as a whole. In the Faculty of Law, the courses on international public law would normally embody the subject of international medical law. In Medical Faculties, international medical law could be included in the study of medical ethics, but it should be stressed that these rules of international law go beyond those of professional ethics.

The inclusion of international medical law into existing courses should not of course be restricted to a few brief allusions. The scientific and humanitarian importance of the subject deserves to be considered a major section of courses on public international law, on the same footing as medical ethics. It could be the subject of seminars, examinations, monographs or theses for a doctor's degree.

If this limited objective could be achieved to some extent, international medical law would progress to a new phase of development with great promise for the future of the humanitarian cause.

A MODERN HOSPITAL

According to modern theories, a hospital should be better integrated in the community than was previously the case. Vast buildings with forbidding exteriors now give way to more human, more personal constructions. A recent article alludes to this and indicates the main outline of a master plan.[1]

We think it to be of interest to reproduce some passages of this text. In fact, medicine is developing so fast that many hospitals which have

[1] See *WHO Chronicle*, World Health Organisation, Geneva, 1967, No. 5.

barely been constructed are already being outstripped. When drawing up plans, therefore, a forward-looking spirit must be shown and future growth must be taken into account.

A hospital is now seen as not just a place for treating patients who are too ill to be treated at home but as a part of a comprehensive system of preventive and curative medicine, as a centre for outpatient treatment and home-care services, and as an organization for health education and the training of health workers. No longer an isolated unit, the modern hospital is, ideally, part of a regional network that embraces hospitals of all kinds and sizes, maintaining close and cordial relations with the medical and paramedical services within its area. By means of local clinics and outpatient stations it may reach out even to rural communities.

This concept has profoundly influenced hospital design, the tendency being away from the remote and awe-inspiring hospital block towards a more informal style in which the outpatient and domiciliary care departments merge into the life of the community.

The first consideration in choosing the site for a new hospital must be the convenience of the patients. This demands a central position in the town—a requirement that unfortunately often conflicts with the need for a site large enough to permit future expansion. The latter consideration must not, however, be allowed to override the convenience of the patients. Thus, it is often necessary to accept a certain degree of overcrowding on a central site. This may be considered in terms of plot ratio. A plot ratio of one represents a building complex whose total floor area is equal to the area of the site, so that if the hospital is to be a two-storey structure half the site will be covered with buildings and the other half will be available for open space, access roads, car parks, and so on. A plot ratio of two (total floor area twice that of the site) is the greatest that should be considered for hospital development, even in the centre of a city. The ideal is usually a plot ratio of 0.5 or less. These are, of course, rough guides, and the climate and the general character of the buildings in the neighbourhood must also be taken into account. The site must be free from air pollution from nearby industries, and from insect vectors of disease.

The master plan. — The first task of the architect is to prepare a master plan for the site, taking account of foreseeable future developments. The master plan is really an exercise in town planning on a small scale. It is mainly concerned with establishing the circulation routes on the site and the relative disposition of the various departments and buildings that make up the hospital. The circulation routes on the site are of prime importance, and the success of the hospital plan largely depends on getting them right.

A great deal of the internal traffic involves the use of trolleys, and vertical communication therefore depends on lifts, the location of which is one of the main features of hospital planning. It is very much more economical and efficient to concentrate lifts than to distribute them among different parts of a building. Four lifts grouped together will give the same service as eight individual lifts distributed at separate points.

The external traffic on the site is also considerable. Ambulances and delivery vehicles need access to the buildings at various points. Staff and visitors to the patients need car-parking facilities. It is desirable to have access roads to all major sections of the hospital and certainly to all independent buildings, to facilitate the transport of heavy items of equipment and the use of fire engines.

In developing the master plan, zones have to be allotted within the site for each major department of the hospital. These zones should always be large enough to allow each department to expand by additional building while remaining properly connected to the circulation networks. In many old hospitals, in which no provision was made for growth, a necessary addition to a department obstructs some vital artery of communication. The parts of the hospital that are most closely linked to the community should be nearest the main entrance to the site. These include the outpatient and casualty services and the offices administering domiciliary services. Next in order of distance from the entrance should be a zone allotted to the medical service departments, such as the radiodiagnosis and laboratory departments, since these receive a great deal of work directly from the outpatient department and need to be close to it. Beyond this should be the zone allotted to in-patient care. A substantial area is required for the housekeeping and domestic services—stores, laundry, kitchens, and boiler house.

These departments should be independent of the main hospital entrance and are best grouped together round a service yard, to which most of the delivery vehicles will go. Staff housing is preferably placed round the perimeter of the site, with easy access to roads and public transport.

In many climates the orientation of the buildings in relation to sunlight or to the prevailing breeze will determine many aspects of the master plan. Sloping sites may sometimes create difficulties but as often as not they offer planning opportunities, making it possible, for example, to separate different circulation routes on different levels.

Planning for future change. — The master plan can provide for a very concentrated building, with multi-storey blocks, or for lower buildings covering a wider area. The first approach will lead to a compact hospital in which the distance from point to point is minimized. This type of hospital has many advantages; it saves staff time and encourages collaboration by making it easy for staff members to meet one another. But it leaves little room for growth. To add to a department on, say, the fifth floor of a block is always difficult, since it means taking over space from some adjoining department and this usually leads to a massive redistribution and reorganization of many departments. The advantages and disadvantages of concentrated and loose structures must be weighed very carefully.

The main factor to be taken into account is the amount of change and growth likely to occur in the various departments. The departments most likely to grow are those dealing with outpatients and the casualty and medical services (particularly the radiodiagnostic services and the laboratories), and these should preferably be housed in comparatively low buildings. On the other hand, the accommodation for in-patients may not need to be extended to any comparable degree, if at all, and may be planned in the form of multi-storey buildings. One of the many practical advantages of such buildings is that the services required on each floor can be conveniently and economically designed—for example, lifts can be installed to deliver food trolleys to the ward serveries on each floor, and the lavatories, bathrooms, and sanitary rooms can be placed one above the other, making use of vertical ducts for plumbing.

Although the total in-patient accommodation may well remain static during the life of the hospital, the size of individual clinical departments will probably change. Such changes can be provided for by designing each floor so that an expanding department can then take over beds from a contracting one without any structural alterations. However, certain in-patient accommodation—the paediatric, maternity, infectious diseases, and psychiatric departments—will require special planning.

Visual impact of the hospital. — In the past, hospital authorities and architects have been quite willing to treat the hospital as an imposing monument. Lately, however, architects and town planners have felt some concern about the disruption of the visual scale caused by very massive hospital buildings. Moreover, some hospital authorities have begun to think that a huge, monumental building—a " temple of healing "—is the wrong image for the modern hospital, and that it is preferable to stress its links with the community and its human, personal character.

The modern policy of allowing for growth and change tends to soften the visual impact of the hospital. The parts of it that form its " front door " or " shop window " are the buildings for out-patient care, reception, and emergency care. These will be located nearest to the entrance to the site and may very well be planned as comparatively low buildings in the interest of future growth and flexibility. The more massive buildings for in-patient care will be set back behind them and thus be less awe-inspiring.

Ultimately, it is the architect who determines the image of the hospital. He has the choice of emphasizing individual units or of aiming at a uniform effect. For instance, in designing a ward building, he can vary the façade for each nursing unit or use the same architectural treatment for them all. The latter method produces a powerful and monumental building, the former a more irregular building that will look smaller and more human in scale.
