The Aga Khan University Hospital, Karachi

The Aga Khan University Hospital (AKUH) which begun construction in 1972, is nearing completion on an 84 acre campus in Karachi, Pakistan. The complex consists of a School of Nursing (which opened in 1980), a Medical College (started in 1983), a 721 bed Hospital and ancillary facilities expected to be functioning in early 1985.

The 721 bed teaching hospital will provide teaching support to the University's Faculty of Health Sciences. In addition it will provide services in general medicine, surgery, obstetrics and gynaecology, and pediatrics with special units for intensive and coronary care, ophthalmology, and orthopedics. A private wing of 127 beds is being constructed as part of the hospital, but the bulk of its accommodations are designed as general five-bed wards and semi-private rooms in order to be in reach of Karachi's less affluent and sprawling population. The hospital has made a sub-

Below: Site plan showing the overall organisation of the buildings around a central service “spine” and a number of internal courtyards. Drawing courtesy of the architects.

Bottom: The courtyard of the Filter Clinic, a new concept whose function is to provide diagnosis and simple treatment services to 1500 walk-in patients daily, screening them to assure that the hospital facilities serve first those who have the greatest need. The columns are covered in Pakistani marble to protect surfaces most in contact with human movement. Photograph: C. Little.

Article compiled by the editors based on materials from the architects and the Hospital and Medical College Foundations.
stantial commitment to provide charity and to orient its services to the needs of the community. Accordingly, the hospital will emphasise outpatient services, with both general and speciality clinics planned, and outpatient visits projected at nearly 250,000 annually.

The transplanting of Western planning and architecture to the Developing Countries has often proved to be unresponsive to local cultural needs and traditions. The initial brief, developed over ten years ago, changed and evolved over time to provide a realistic programme suitable to the country and its inhabitants, at the same time setting hitherto unprecedented standards of construction and quality of finishes in Pakistan. The feasibility of the programme was studied, checked, confirmed and rechecked. Great care was exercised in selecting planners, project managers, financial consultants, architects and engineers. Prior to starting physical planning, the planning/design team visited sites where the classic Islamic architectural traditions are revealed in their highest form.

The planning and architecture of the medical complex do not emphasise the positioning of objects in space as might a typical Western design. The diverse physical elements while maintaining all their necessary functional relationships, are part of an organic whole no higher than three floors, except the four storey private wing. The strong exteriors of the structures blend in mass, colour and texture with the desert surroundings. The
buildings are oriented inward; in contrast to the exterior, the spaces within are courts to delight the senses. There is still, running, and splashing water on patterned pavements. There are aromatic flowering vines, trees and shrubs. The project is a sequence of spaces, each of the scale, detail and emphasis appropriate to its function and mood. Particular attention has been paid to the size of, and transitions between, courts.

In a continuation of the grand tradition of health-care in the ancient Islamic world with its major hospitals, this facility provides a pleasing setting for patients, students and staff, in the belief that environment plays a part in aiding recovery and increases productivity.

The climate of Karachi is hot and dry except during June and July, when humidity becomes extreme. Rainfall is rare except for an occasional severe downpour. The architects have responded to these climatic conditions by using traditional, indigenous principles of environmental control. Non air-conditioned areas are designed to take advantage of natural through-ventilation. Major fenestration opens to the north. Wind-catcher devices channel prevailing breezes across hot double-membrane roofs. The lush planting and use of water in the courtyards will greatly temper their micro-climate. Even with the severe heat, it was possible to limit the use of mechanical air-conditioning to the diagnostic and treatment areas, medical school and private wing. Deep planning in these areas should also contribute to more efficient cooling.

The project is designed so that its construction and mechanical complexity are attuned to the local availability of labour and materials. Full advantage has been taken of the skilled craftsmen in Karachi. Indeed, tradition crafts such as tile-making, have been further refined to meet the exacting specifications for hospital use. (In a future issue, we hope to cover this aspect of design and innovation of crafts — Editors.)

The structural system is concrete frame utilising a minimum of expensive reinforcing steel. Exterior walls are double-insulated concrete block, made on the site, with textured cement plaster finish. Roof surfaces are terracotta tiles. Interior floors are terrazzo tiles; exterior paving is pre-cast concrete and local marble. The resulting heavy concrete and masonry enclosure works to advantage in reducing the penetration of intense solar radiation. All glazing has been shaded from the sun's rays. A jali (screen) block wall which provides shade, privacy and ventilation has been extensively used along the corridors and in other areas.

Limiting the height of the project to three floors, with elevators moving one
stop up or down from a middle service level, minimises the use of mechanical means. All vertical pedestrian travel is by stair, although at times this can be awkward for patients in wheel-chairs and stretchers — the provision of ramps is minimal.

All buildings, departments and functions are located so that future expansion is possible without altering any of the present plan or architectural and landscape amenities. This University Hospital has many lessons to teach in terms of organisation, setting the highest building standards, using primarily local labour and materials, reviving crafts, incorporating traditional Islamic art forms for contemporary use and hopefully of teaching the management techniques the building process of a large and complex project. A history of these buildings should be recorded and told in a book as a valuable lesson for clients, builders and designers working not only in the region of Asia but also the rest of the Developing World.